D2.2 DFA TOOLS AND GUIDELINE

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2.0	30/05/2023	Marita Canina (POLIMI)	Final draft

Executive summary

Deliverable 2.2 “DFA tools and guidelines” is the first deliverable provided on the development of the Design Futures Art-Driven (DFA) method, while three other refinements of the deliverable will be produced and updated in M17, M25 and M33 before releasing the final version. The development of the DFA method is the result of a collaborative effort involving Politecnico di Milano (POLIMI), Gluon, and the University of Barcelona (UB) in the context of Horizon Europe MUSAE project.

The report is structured to outline the development process of the first *Explore* phase of the DFA methodology (which consists of two phases – *Explore* and *Generate*). It provides an overview of the state of the art by highlighting the importance and challenges of collaboration between artists and companies. By describing and integrating Design Futures and Art Thinking methods, reflecting on the results of the DFA bootcamp organized by the consortium partners, as well as conducted interviews and experiments, numerous insights were extracted to propose the first version of the first phase of the DFA method, its tools and guidelines.

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1. Introduction

1.1. Purpose of the document

The purpose of this Deliverable report is to highlight the state of the art of the importance and challenges of collaboration between artists and companies, as well as describe the process of development of the Design Futures Art-driven (DFA) method as a proposed methodology to respond to the identified challenges of art-tech collaboration. DFA methodology will constitute one of the main pillars of the MUSAE Factory Model, which aims to integrate artistic collaboration in the European Digital Innovation Hubs to help companies, SMEs and start-ups to adopt a strategic and future-led approach towards innovation. The DFA methodology is based on the integration of Art Thinking approach and Design Futures method and has been developed as a collaboration between Politecnico di Milano (POLIMI), as an expert in Design Futures, Gluon, as an expert in facilitation of collaboration and innovation between the fields of art and technology, and University of Barcelona (UB) as an expert in Art Thinking.

The structure of the document follows the process of construction of the DFA methodology, where Section 2 describes the state of the art related to art-tech collaborations, highlighting the main insights, identified existing challenges, as well as the potential of futures thinking to empower art-tech innovation, Section 3 provides a detailed description of the methods (Design Futures and Art Thinking) which are taken as a foundation to develop and propose a new Design Futures Art-Driven approach, Section 4 describes the process of preparation, implementation and results of the bootcamp organized in order to collect and discuss the first insights for the DFA method, Section 5 provides the synthesis and outline of the main insights that informed the process of the DFA method creation, as well as an additional research carried out in the form of interviews and experiments, while Section 6 presents the first version and structure of the DFA method, and finally Section 7 provides an overview of the guidelines for the DFA implementation.

1.2. Terms and acronyms

Acronym	Description
DFA	Design Futures Art-driven
(E)DIH	European Digital Innovation Hub
FT	Future Thinking
DT	Design Thinking
POLIMI	Politecnico di Milano (Department of Design)
UB	University of Barcelona (Department of Fine Arts)
LEG	Local Expert Group
ADI	Art-Driven Innovation
CC	Creative Catalyst
AI	Artificial Intelligence
STEEP+V	Social, Technological, Economic, Environmental, Political Factors+ Values.

1.3. D2.2 in the project and its relation to other WPs and tasks

Deliverable 2.2 "DFA tools and guidelines" is the first report provided on the development of the DFA method, which is one of the main components of the MUSAE Factory Model Pack and overall MUSAE project. Three other refinements of the DFA tools and guidelines will follow each art-tech experiment and prototyping phase (in M17, M25 and M33) before releasing the final version. Deliverable 2.2 will substantially support T4.2 "First art-tech experiment: Envisioning Scenario" by being the core of the first art-tech experiment where artists will follow, adapt the method, as well as contribute to its refinement by providing feedback and co-creating it together with MUSAE consortium.

2. State of the art

2.1 Importance of Art-Tech collaboration

The theme of art-science and art-tech collaboration has been explored by several experimental approaches and artist residency programmes in the last decades. By employing different methods of work and production, artists, technologists, and scientists strive to expand existing knowledge and bring innovation in their own different ways. Linking artistic practices and technological innovation can be considered a win-win exchange to approach innovation in a dynamic world. Moreover, the current landscape of innovation is greatly influenced by digital transformation, which requires not only enhancing technological innovation capacity, but also addressing sustainable and societal challenges.

In the last decades there have been several experiments of art-tech collaboration exploring a variety of synergies and approaches to working together. It presents numerous opportunities for innovation and creativity towards societal and environmental impact. To understand existing challenges and opportunities on which the new DFA approach can build up, the main conclusions from the state of the art are summarized and framed as insights of art-tech collaboration:

Insight 1: Cross-collaboration for innovation
Collaboration between artists with experts of different disciplines can infuse innovative thinking and unconventional approaches. It can bring diverse perspectives, and inspire new solutions, products, and services that transcend traditional boundaries. Different models of such collaboration exist, such as Olivetti Factory, which sees "Factory" not as an enterprise-driven but rather as a social reality constructed at the crossroad of diverse expertise with a focus on social and cultural growth in addition to economic growth. To achieve and sustain an efficient collaboration of such diverse expertise and profiles, it is important to develop a framework that promotes equality of opinion and involvement for both artists and enterprises (Segre, 2015). More recent examples of establishing frameworks for cross-collaboration have been implemented under the STARTS initiative which has been launched in 2016 to enhance the interaction between science and technology innovations and the art world. Several STARTS projects have tested the opportunities of such collaboration, such as Better Factory project engaging manufacturing SMEs with mentors in business, arts and technology, and VOJEXT project engaging artists with business

and technological experts with SMEs and producers of cognitive autonomous systems for human-robot interaction. While the above-mentioned examples show the relevance of such collaborations, such models are not very wide-spread and mainstreamed in the current context of innovation.

Insight 2: Art-driven critical thinking and abstract reasoning

Applying Guy Debord's drift strategy (from Debord's situationist movement), which means disrupting traditional ways of engaging with everyday life, in the context of this report, "going drifty" can allow artists and companies to diverge and realize solutions and products never imagined before. Art thinking can act as a catalyst for redefining our relationships with existing paradigms, norms and routines (Whitaker, 2016; Bureau, 2019). Artists contribute to broadening the mentality and perspectives of vision, encouraging analysis of decision-making processes. As proved by the method developed by Fondazione Casoli of collaboration between managerial community and artistic community both co-present in the factory places, art enhanced technological innovation by providing critical reflections, and provocations to produce unconventional ideas, enabling the generation of creative solutions to complex and interconnected problems (Deborah et. al, 2022).

Insight 3: Art favors horizontality of hierarchy in creative process

Inviting artists to work alongside employees of the companies on the production of common projects, and/or inviting artists to develop practical workshops for and with employees creates a horizontality of hierarchy in the working process. Artists in residence (AIR) within big companies (such as Facebook, Microsoft, Autodesk, Planet Lab) work together side by side with the staff by encouraging them to see their own work as creative, while also absorbing and learning technical and entrepreneurial skills. This way, the artist is not seen as a distant entity that purely informs the ideas of the company in realization of industrial products and technological innovations. Rather, an artist is seen as both a teacher (of artistic skills) and a student (of business and industrial skills), and vice versa the company employees have a dual role. This creates a circularity of knowledge and learning between both parties (Deborah et.al, 2020).

Insight 4: Enhancing the aesthetic and innovative potential of technology

Artists often think outside the box, pushing boundaries and exploring new possibilities. Thinking about technology with an artistic approach, and not for technology per-se, allows artists to explore the potential impact and use and application of technologies in a non-conventional way. However, advanced technologies often require vast arrays of technical skills to engage with. This was the reason why several artist and technology residency programmes were developed during the 1960s and 1970s to act as mediators between the corporate world of enterprise and that of art, such as the well-known and revolutionary Experiments in Art & Technology (E.A.T.) (1966), accompanied by the Art & Technology at LACMA (1967) both based in the United States, and European projects such as Artist Placement Group (APG) (1966) in the United Kingdom and Experimenten in Kunst en Technologie (EKT) (1970) in the Netherlands. The tech companies give the artist access to tools and to the company's way of thinking. Thus, by combining their expertise, artists and technologists can generate innovative and creative solutions. The knowledge and the exploration of all the possibilities offered by different technological tools lay the groundwork for the development of ground-breaking experiences, products, and services (O'Dea, et. al, 2020).

Insight 5: Bringing emotional value to technology-driven innovation through design and art
Incorporating an artistic, experimental approach in the initial stages of a design process can help companies deeply understand the needs, desires, and emotions of their target audience. Artists excel in generating abstract points of thoughts difficult to conceive from the technology-driven and enterprise-oriented world. Kristefan Minski, was the first one explored this potentiality with his work at Ars Electronica Futurelab, as an artist and technologist. He was arguing that by embracing open-ended (art, design) and closed-ended (enterprise, company) approach, enterprises can refine and shape those artistic ideas into tangible and user-centred solutions. This combination ensures that the final product or service not only meets the practical requirements but also resonates with the intended users on an emotional level (Minski, 2020). Thus, arts enhance emotional intelligence and encourage individuals to explore and understand skills frequently identified as different and complementary to the strategic field. By engaging with artistic approaches, companies can explore their emotions and driving values to inform future choices and shape their business according to their inner desires (Formica and Edmonson, 2020).

Insight 6: Intermediary to set expectations and relationships
In order to facilitate a balanced collaboration between artists, technologists, or enterprises, an intermediary is often required to establish a neutral space for cooperation. This intermediary plays a crucial role in connecting relevant parties, as well as defining the relationships and expectations of each participant involved. By acting as a facilitator, the intermediary ensures that the collaborative process is fair and conducive to fruitful exchanges between the different stakeholders (Thomas, 2016).

Insight 7: Finding common ground to shaping equal collaborations
Dialogue is understood as a non-hierarchical encounter developing between two spheres, a source of creation no longer belonging to anyone. Making connections is a discursive and material practice with the aim to arrive at common expectations and imaginaries. The practise of working together between artists and enterprise is an exercise of losing control and maintaining control in collaborative attempts, between reaching out for the other and carrying out identity work, and between positions in the centre and in the margins of the highly stratified and codified areas of business organisations and fine art. The nature of this collaborative program underscores that the relationship between artist and industry is based upon what each does best—researchers pursue their intellectual curiosities, theories; artists observe, question, and then sculpt and distil those elements into an artwork that creates room for dialogue, iterative prototyping of ideas, and even for beautiful failures that come from inspiring and idealistic ideas (Strauß, 2017).

Insight 8: Art-inspired iterative process for innovation
The artistic approach can bring the field for exploration and space for an iterative process for the technology-driven or business-oriented companies which are often goal-oriented and who might lack the “space for freedom and exploration”. As in the case with the Facebook Air residency, placing an artist working side by side with the company staff and allowing them to observe and sometimes interact with the artists, encourage employees to see their own work as creative, and as a “work in progress”. This highlights the role of artistic practice to bring the iterative nature of working and the practice of reflection into the company’s own practice, as well as to see and rethink their” routine” entrepreneurial daily activities as creative ones. (O’Dea, et. al, 2020)

2.2. Challenges of Art-Tech collaboration

While art-tech collaboration holds great potential for innovation and creative exploration, it also presents a range of challenges that need to be addressed to make this collaboration even more effective and fruitful.

Challenge 1: Absence of strategic or vision-led approach and structured process
While several formats for art-tech collaboration exist, as mentioned in the previous section, they are often done in an ad-hoc manner without having a clearly guided approach, which results from the main concern of tech companies for scalability and limits the cross-pollination of ideas (European Institute for Culture, 2019). It is crucial to have replicable models for implementation to ensure adequate preparation of all individuals involved, as well as a structured process for implementation and mainstreaming the processes of innovative art-tech collaborations.

Challenge 2: Communication and language barrier
Artists and technologists often have very different background languages, which can make difficult for them to communicate effectively, due to differences in their respective languages and terminologies. For example, artists may not be familiar with technical terms and concepts, while technologists may not be familiar with artistic terms and concepts. They may struggle to understand each other's language and technical jargon, leading to miscommunication and misunderstandings (Strauß, 2017).

Challenge 3: Divergence of priorities and objectives in the working process
Artists and technologists may have different priorities when it comes to the creative process. Artists may prioritize aesthetics and emotion, while technologists may prioritize functionality and efficiency. Finding a balance between these different priorities can be challenging. Collaborating with artists can help companies stay culturally relevant and address societal challenges, aligning their products and services with the values and aspirations of their target audience (Bureau, 2022).

Challenge 4: Funding and time constraints
Collaborations between artists and technologists often require significant funding and resources, which can be difficult to secure. Finding the right balance between artistic vision and technical feasibility within the constraints of available resources can be a major challenge. At the same time, collaboration between artists and technologists can be time-consuming, particularly if the project involves a high level of technical complexity. Balancing the demands of the creative process with the need to meet deadlines and stay within budget can be a major challenge (Nissley, 2017; Whitaker, 2016).

To address the above-mentioned challenges in the art-tech collaboration, it is necessary to explore how both artistic and more strategic approaches can enhance each other, or what other approaches could be added to serve as a bridge between two practices. Bearing in mind the insights that art-tech collaboration can bring, along with the identified challenges it bears along, it has created a ground for exploration for the development of the new DFA method as an approach to overcome challenges and enable opportunities, as well as demonstrate the value of the method to organizations.

2.3. Empowering Art-Tech collaboration with Futures Thinking

Enhancing art-driven innovation for companies, especially operating in the realm of digital transformation appears as an opportunity to improve their technological innovation capacity, while addressing sustainability and societal challenges. However, meeting these diverse challenges requires combining different disciplines, perspectives, and expertise. Various companies such as Google, IBM and Amazon, are already dealing with these challenges by applying Future Thinking approaches to their organizations and testing the benefits of working with the future. Some of the highlighted benefits of the futures-oriented approaches to innovation are:

- Anticipating technological advancements: Future thinking involves analysing emerging trends and technological developments that will shape the company's landscape. By adopting a future-oriented mindset, companies can proactively identify potential opportunities and threats related to the digital transition. This enables them to stay ahead of the curve and make informed decisions regarding technology adoption and integration.
- Strategic planning: Future thinking provides a framework for strategic planning that considers the long-term implications of the digital transition. It helps companies envision their desired future state and develop comprehensive strategies to achieve their goals. By considering various scenarios and potential outcomes, organizations can devise robust strategies that align with their vision and adapt to the evolving digital landscape.
- Flexibility and adaptability: The digital transition is a dynamic process that requires agility and adaptability. Future thinking equips companies with the mindset and tools to embrace change and respond effectively to disruptive technologies and market shifts. It encourages continuous learning, experimentation, and a willingness to embrace new approaches, allowing companies to stay nimble and navigate the digital transition successfully.

However, future literacy seems to be still not fully integrated and accessible for SMEs that might lack the resources to invest in futures research. To overcome this issue, the integration of Future Thinking in the art-driven methodologies for companies seems a win-to-win strategy to foster innovation from the bottom-up and make innovation future-proof. In this context, the artists' role is central as they would become the facilitators for this transition, supporting SMEs' development through both lateral thinking and future visioning. This collaboration would provide knowledge and insights into emerging technologies and their potential; adopt a human-centred approach that aligns with human values and needs; and navigate the complexity and uncertainty of the future by transforming global issues into design opportunities.

Moreover, while working with futures and the external context, such as companies, it is crucial to think about how the futures can be communicated and understood by the wider audience. According to the futurist Stuart Candy, the future has a greater impact when it is communicated as an immersive art and design-driven experience, as it helps people attain a fuller view of scenarios ahead of them. Candy (2010) calls "experiential futures", those scenarios that create deep immersion in situations and contingencies from the future to catalyse insights and change. This can take many forms, including performances, exhibitions, the design of 'speculative artifacts', games, multi-media productions, or interventions in the public sphere. Thus, artists can indeed play a critical role in making the abstract tangible by building representations of the futures that are so

immersive that feel almost real and give the audience deeper and more complex understanding of potentialities, opportunities, and challenges of the future for the innovation context.

3. Description of the Design Futures and Art Thinking Methods

This section describes the methods that have been taken as a starting point for the development of the DFA method. Design Futures method and Art Thinking methods are described in detail to set up the basis for further research.

3.1 Design Futures method

The Design Futures method integrates two approaches: Futures Thinking (FT) and Design Thinking (DT). The aim of the Design Futures process is to explore future challenges and opportunities, as well as anticipate potential futures and create innovative future-proof products, services, and experiences (See Annex 1).

The Design Thinking process is useful to achieve large-scale innovation and competitiveness in the market by focusing on human needs and looking for new perspectives. DT is able to recognize patterns of behaviour, interaction and alternates divergent and convergent phases of exploration and generation. On the other hand, Futures Thinking is a creative and exploratory approach to strategic design that uses divergent thinking to envision multiple possible futures ahead to identify the most preferable one and inform decision-making in the present. Futures Thinking process invites the exploration of opportunities in the future that may or may not happen. Futures Thinking is a kind of design that is concerned with asking 'what-if' questions, and it builds an anticipatory attitude to better handle uncertainty.

The Design Future process (Fig. 1) is divided into two macro-phases: Explore and Generate. The Explore phase fosters and facilitates the analysis of the social, technological, economic, and political signals to shape and influence the future, defining a clear vision, and constructing scenarios to reveal and anticipate new design opportunities. It is divided into two phases: Horizon Scanning and Scenario Building. Horizon Scanning is a process to identify long-term trends and interesting developments that could have an impact on the future of a specific area, allowing the creation of maps of the future for emerging landscape. While Scenario Building is the creation of stories that describe alternative ways in which an area might develop in the future. Each scenario explores how different conditions might favour or hinder the achievement of strategic goals. Scenarios are not predictions, they are meant to offer a variety of representations of the future.

The Generate phase aims at making ideas tangible and proposing adequate solutions in line with the context and objectives of the project. This stage allows the generation of innovative and technological ideas pertaining to the developed future scenario. The generation stage is divided in two phases: Ideation and Build to Think. Ideation is focused on the generation of innovative ideas for the scenario framed and envisioned, using techniques that help identify opportunities and

solutions for the design. The generated ideas are clustered into affinity groups, evaluated according to feasibility and originality criteria, and then selected to converge into a single, strong idea to be worked on for the rest of the process. Build to Think aims to enrich and refine the idea through tangible artifacts. This step gives way to constant reinterpretation throughout the prototyping activity, to continuously re-establish priorities and achieve a collective product.

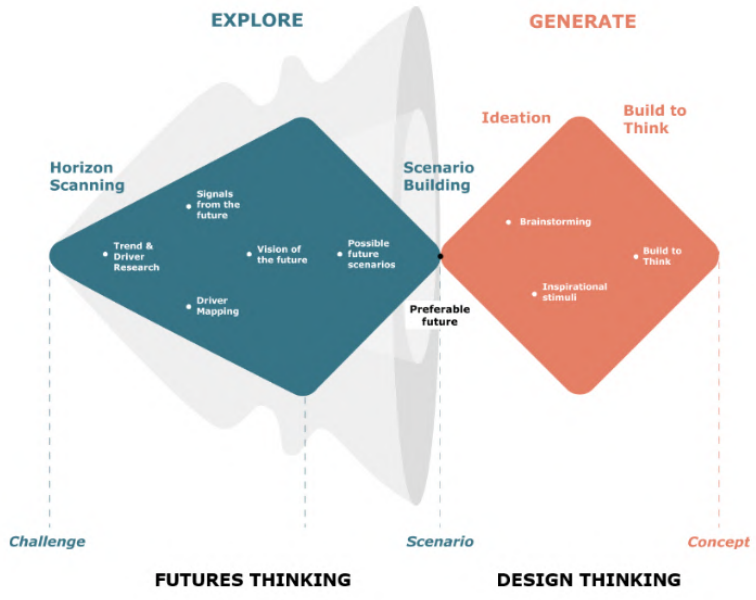


Figure 1. Design Futures Method Framework

3.2. Art Thinking method: Layered methodology

Art Thinking is often used to describe a way of thinking that emphasizes creativity, innovation, and the ability to generate new and original ideas. It includes a set of techniques that exploit curiosity, experimentation, and risk-taking. Art Thinking uses creative problem-solving skills or wicked problems to approach challenges in a non-linear way, often drawing inspiration from multiple sources and perspectives. It is about combining intuition, imagination, and critical thinking to come up with unique and innovative solutions to complex problems. Art Thinking method combines individual creativity and collective imagination. By doing that artists can build up the necessary support to dig deeper into the art practice.

The Art Thinking method is represented as a layered methodology that offers different levels and options to be applied and can be helpful in different work fields based on creativity. Each layer adds a new grade or step, where several parts can be combined to define a concrete path, while the process is carried out. Layers do not establish a specific hierarchy and can also be combined interchangeably or added to the original structure depending on the phase of the process. It is an activity that combines reflections, research, and action to propose speculations and activations through specific processes and practices that affect the cultural, social, political and/or economic spheres.

The Layered Methodology has four layers or phases: Questioning, Critical Gaze, Transperipheral Gaze, Symbiotic Gaze. The scheme (Fig. 2.) below defines the interaction between the phases, their degree of independence and the level of iteration among the layers of each phase.

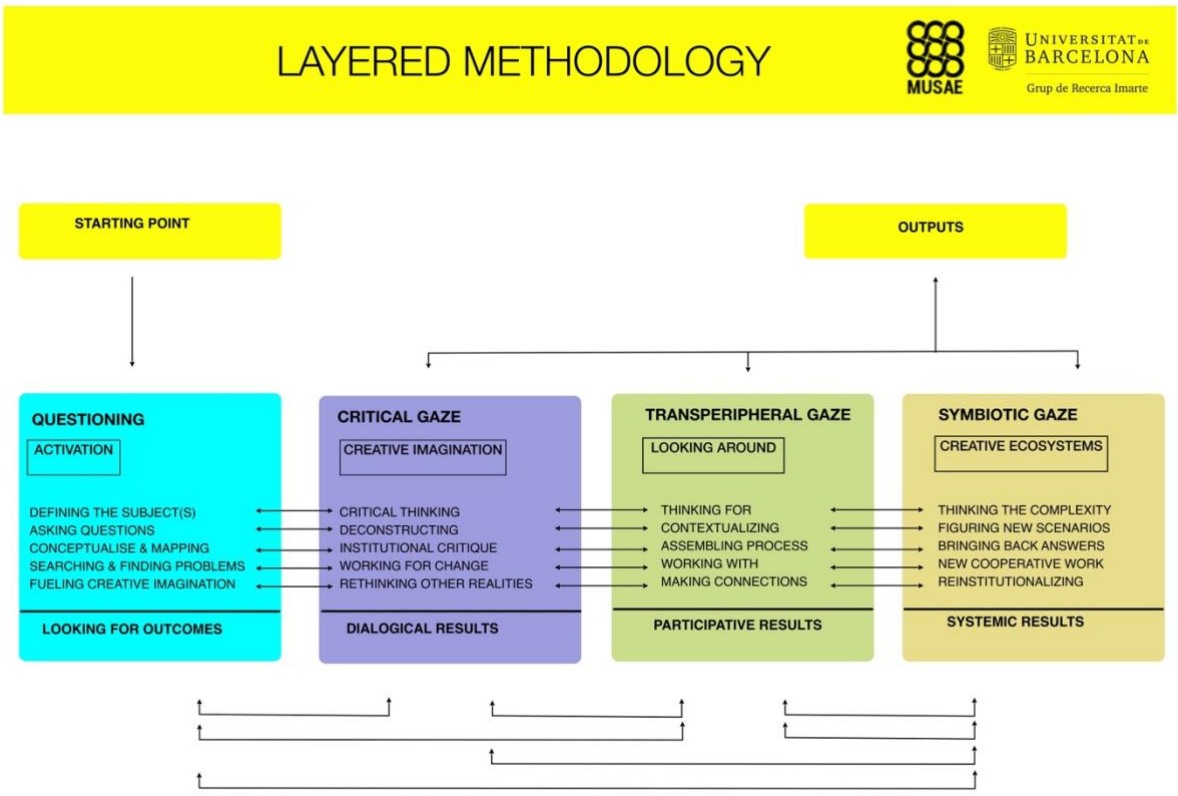


Figure 2. Art Thinking Layered Methodology

Questioning phase

Objective of this phase is to identify the agents that takes part in the specific context chosen. Before creating any new ideas, it is necessary to define a context where those ideas will be implemented and define all components that will be needed. Context is the conceptual and thematic space made up of different agents that interact with each other. These agents can be people, things, nonhuman, technologies, media, specific places. The context is not previously defined, is something that must be build. Making questions is the most relevant tool to help artists build the context in this phase. Questioning is a transversal layer, which may be used more deeply in the beginning, as a trigger to raise questions, however it is also used to support the development of the other phases of this process as a tool to provoke reflections.

Process:

1. Exploring and identifying problems
2. Conceptualizing and mapping topics that will be used to trigger imagination
3. Making connections between those concepts with images, pictures, diagrams, illustrations, etc.

Critical gaze

The objective of this phase is to activate creative imagination using dialogical research.
It refers to a dialogical methodology raised from critical thinking in relation to the context chosen. It is a way to use art, design, and other creative processes as a mechanism to provoke reflections on other "spaces of the possible" (scenarios), from the current reality.

Process:

1. Analyse the macro-theme chosen by deconstructing the concepts.
2. Questioning the relationship between institutionalisation and marketization of the creative process to spot or define project's objectives. Define specific challenges by introducing the idea of change addressed to the social areas.
3. Rethink other realities or defining possible scenarios where these realities would be shaped.

Transperipheral gaze

The Transperipheral Gaze refers to overcoming the dual centre-periphery relationship, to introduce the concept of moving between different spaces that are not very connected to each other. The objective of this phase is to integrate other voices, actors, or gazes to decentralize the problem or the research and foster participation in the process. Like the previous phase, the Trasperipheral Gaze keeps identifying and building a specific context while integrating other voices, other actors, other gazes. In the process of defining the scenario, it is helpful to keep out binary approaches and linear cause-effect, by introducing other voices, opening the process to participation, and switching dual relationship by transversal ways of research.

Process:

1. Think in the shoes of someone else, or something else and try to define what is happening around you and how you can make something with it.
2. Contextualize and decontextualize the context. Translocate the context.
3. Define the process by assembling concepts, agents, objects, and spaces. Make connections between peripheral behaviours.
4. Work with others.

Symbiotic gaze

The objective of this phase is to define new scenarios where the symbiosis between art, technology, science, and human science might improve our social interaction. It refers to the idea of living or coexisting with other species for mutual benefit. It is the last phase as it is fed by research done during the other phases.

Process:

1. Approach complexity and look for systemic results.
2. Build process where cooperative work could increase the results of the projects.
3. Give answers to those questions you found in your research process at the beginning.
4. Give systemic answers offered by the complex reality.

3.3. Art Thinking method: Art-Tech residency format

An important part of art-tech collaboration is an approach to structuring the art residency programmes. Art residencies programmes include organizing both residency format, as well creating a supporting environment including multiple actors, such as forming multidisciplinary teams in which artists, researchers (scientists & technologists) and companies exchange expertise and knowledge. These collaborations are fostered by a model that merges art thinking tools with a structured framework that involves a network of stakeholders, local experts and mentors.

The model by Gluon is specifically designed on cross disciplinary residencies including four main stages:

1. *Identify*: Ecological, social or economic challenges are identified by a local expert group (LEG) to create an open call and define the role the artists will have in it. A Creative Catalyst (CC) is appointed, as a person who monitors and guides the process and bridges the gap between the researchers and artists and between all partners involved. This process leads to the launch of an open call.
2. *Connect*: Once artists have been selected, local experts' groups chose one artist each, providing free access to their facilities, expertise and equipment.
3. *Speculate*: This phase is the actual residency program, in which the selected artists visit the labs and R&D of companies and research institutions. During these moments, a project is conceived, prototyped, created and tested. An iterative process of at least 5 encounters leads to new processes, ideas, artworks or prototypes.
4. *Showcase*: Through public activities (exhibitions, artist talks, conferences, networking activities) and communication actions (media partnerships, interviews, podcasts, ...), interim and final results are shared with a broad public on a local, national and international level.

Examples of some of the tools for the above-mentioned stages are described below.

AKAW game

AKAW game is an activity that is used in the "Identify" phase. It is a creative game for future exploration, which help groups collecting challenges related to their chosen topic, setting out on collective thought experiments and explore and discuss the possibilities of the future (See Annex 2).

Art-Driven Innovation (ADI) Report

It is a tool that is used in the "Connect" phase to provide structure to artists to submit their application by using a specific framework (See Annex 3).

Local Expert Group (LEG) Roadmap

It is a tool that is used in the "Speculate" phase to structure residency formats by defining a timeline and engagement of artists and their local experts' group such as individual meetings, meetings with research institutions, public presentations, exhibitions (See Annex 4).

Art Enabled Prototyping

It is a tool that is used in the "Speculate" phase, which is an iterative cycle of experimentation and prototyping during collaborative projects. It represents an iterative process of three cycles. The

first cycle aims to collect a wide array of possible outcomes, the second cycle is to prove the concept chosen; the goal of the third cycle is to turn the most promising idea into a "virtual product".

The main objective of the described activities and tools relies on the importance of working with a network of stakeholders to build a co-creative process, and the iteration of specific phases that lead to the exploration, test and validation of a final prototype.

4. Merging the methods: Design Futures Art-driven Bootcamp

4.1. Bootcamp preparation

After introducing and exploring Design Futures and Art Thinking methods, a bootcamp was organized to identify and explore further common touchpoints and shape the first proposal for the DFA method. The bootcamp was organized in Dublin, Ireland in February 2023 with six experts from three partners involved from the MUSAE Consortium. The bootcamp had three main objectives:

1. Propose and define the phases of the DFA process;
2. Discuss the tools from Design Futures and Art Thinking methods, and how they can be adapted and integrated in the DFA methodology;
3. Test different visual representations of the DFA process.

To pursue these goals the bootcamp has been designed around four activities: (1) Onboarding, (2) Exploring phases of the process, (3) Understanding gazes, (4) Visualizing the process.

Activity 1: Onboarding

The first activity was planned to involve participants to share their hopes and fears about the DFA method. A set of cards (Fig. 3) has been designed to encourage participants express and share their hopes and concerns. The objective of this activity was to align participants on opportunities and threats related to the DFA method.

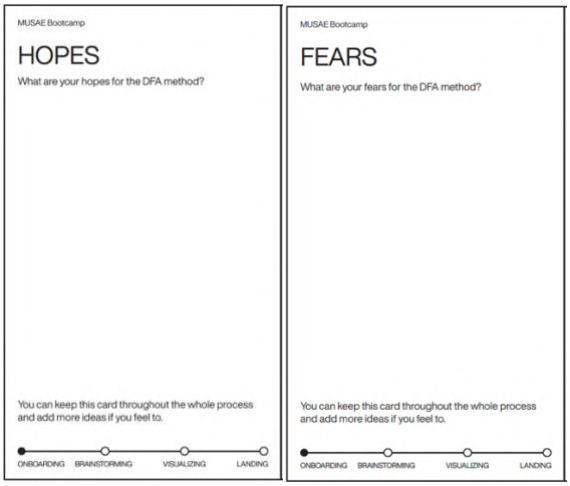


Figure. 3. "Hopes" and "Fears" cards developed for DFA bootcamp

Activity 2: Exploring phases of the process

The second activity was meant to explore the potential phases of the process. Based on the initial exchange of knowledge of both Design Futures and Art Thinking methods, common patterns were identified in the methods aimed at Exploration of the Present, Exploration of the Future, Generation, and Questioning phase, mainly coming from the Art Thinking method. Therefore, the activity was designed to explore these four phases (Fig. 4.) by identifying expectations that each phase can contribute to A "How" card (Fig. 5.) was used when discussing each phase to explore which relevant tools can be used for each phase.

Figure 4. Phases cards developed for DFA bootcamp

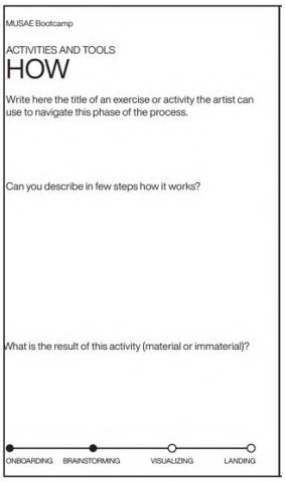


Figure 5. "How" card, developed for DFA bootcamp

Activity 3: Understanding gazes

The third activity was to understand the different gazes, a tool from the Art Thinking Layered Methodology. This tool has been described as lenses to use throughout the art thinking process. Thus, a deck of cards (Fig. 6) has been designed to explain the use of the gazes and to identify which phases of the DFA method would have been empowered by this tool.

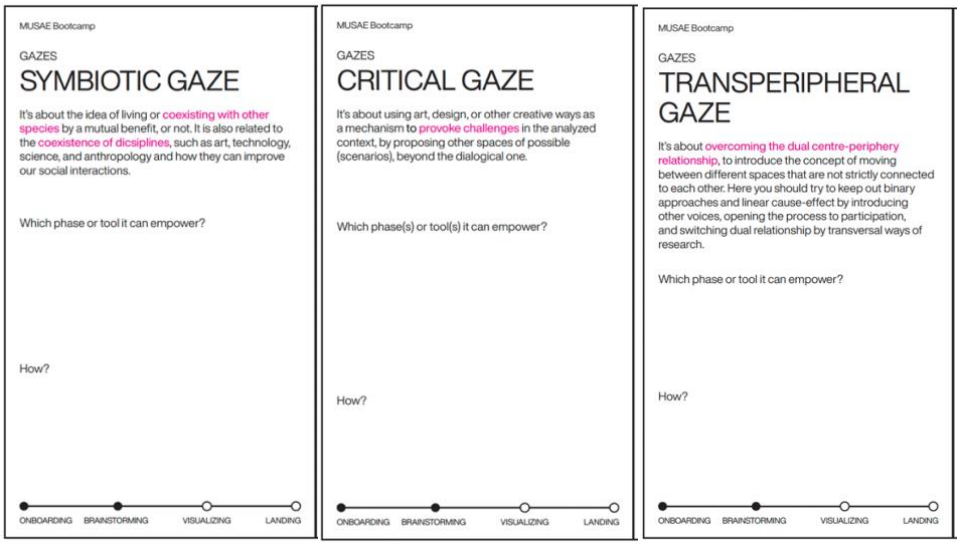


Figure 6. "Gazes" cards, developed for DFA bootcamp

Activity 4: Visualizing the process

The fourth activity aimed to test other visual representations of the process to imagine new visual configurations for DFA process. The activity was designed to ask participants to pick some of the structures proposed, test how the phases and the tools of DFA method might have fitted inside, and reflect on how the process might have changed if represented differently. Five structures were proposed for this exercise:

- Circular structure: it represents the wholeness of systems. It shows hierarchy through a series of rings that correspond to the levels in the hierarchy. The central circle represents the root node and shows the hierarchy moving outwards from it.
- Radial structure: it represents one event (the centre) that generate different kind of storylines coming out of it (the rays).
- Linear structure: it represents a series of event following a chronological order.
- Arc structures used to show connections between nodes on the same chronological line.
- Matrix structure: it shows the components inside a system and the associations that can exist between some of them.

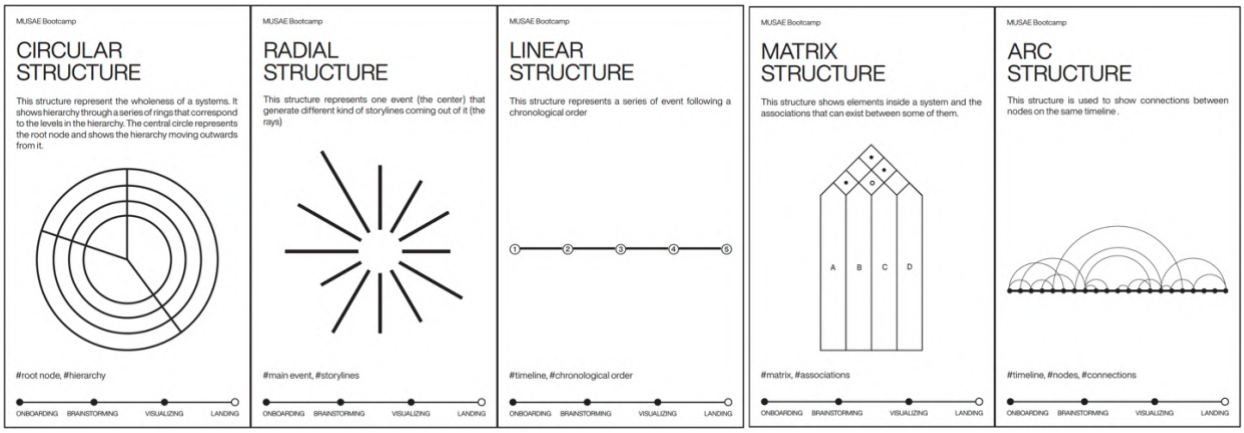


Figure 7. "Structure" cards, developed for DFA bootcamp

4.2. Bootcamp process

During the DFA Bootcamp in Dublin three partners (POLIMI, Gluon and UB) worked, both in groups and individually (Fig. 8), to develop and discuss ideas to be used for the development of the first version of the DFA method with the help of the prepared materials (cards) described in the previous section. Below, the outputs of each of the four planned activities are described along with the generated insights and proposals to build the first version of the DFA method.

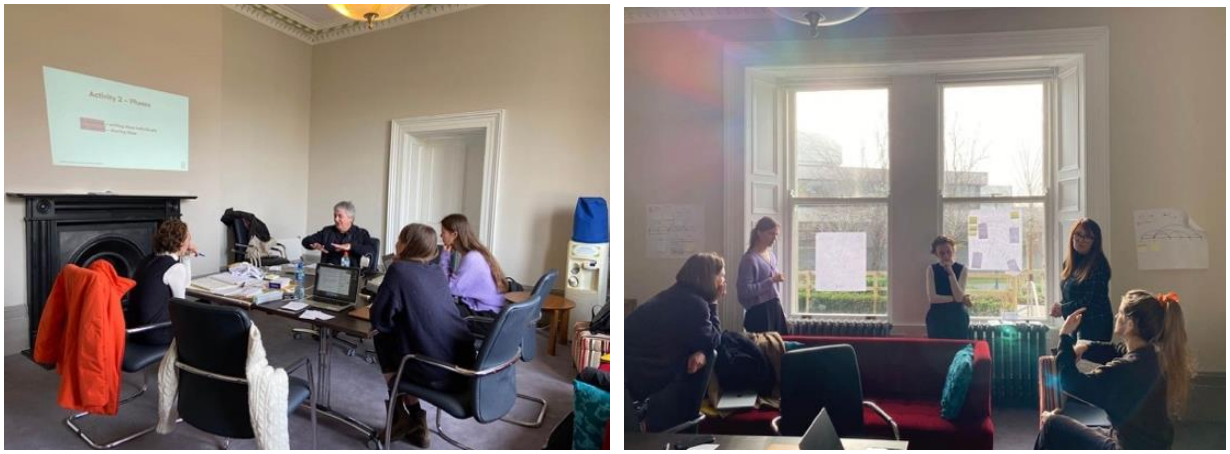


Figure 8. MUSAE bootcamp, Dublin (Source: Authors, 2023)

Activity 1: Onboarding

During the activity, participants engaged in discussions to explore their fears and hopes regarding the DFA Method.

The following ***fears*** and concerns appeared during the discussion:

- Method imposes **excessive rigidity and limits artists' creative freedom.**
- Method's effectiveness is a standalone approach, emphasizing **the need for expert guidance and intermediation.**
- Method is too intricate to **effectively engage external audiences** beyond the artistic sphere.

The following ***hopes*** for the method were expressed:

- Method can benefit not only artists but also SMEs, encouraging them to **redefine their work processes** and contribute to **societal transformation.**
- Method may help to create a new best practice for **interdisciplinary collaboration.**
- Method can play a pivotal role in **advancing new and future technologies.**
- Method can be used in a **scholarly educational setting.**

By putting doubts and hopes on the table, the three partners engaged in a fruitful discussion to seek possible solutions to these problems. Moreover, they discovered shared hopes and fears, ultimately fostering a collaborative approach to addressing these issues.

Activity 2: Exploring phases of the process

The second activity aimed to explore the various phases and related tools for each phase from Design Futures and Art Thinking approaches that could be used for the DFA Method. Participants

individually wrote their responses to specific questions related to each phase of the method, and then shared their findings with each other, leading to the identification and development of new tools for the DFA method. Each phase was discussed through what objectives it might have, what are the expectations from the artist to achieve in this phase, and finally what tools and activities could be used. The summary for all above-mentioned components is provided below:

1. **Questioning phase**

Objectives:

- Question the role of technology in relation to a specific topic, as well as its impact on it;
- Question and critically explore the topic of interest from a multitude of perspectives; (economic, cultural, technological, but also personal reflections on the topic)
- Explore the role of artists and all involved people in the residence;
- Explore and question the values (personal and societal) and biases of participants in relation to the topic.

Expectations:

- Achieve a better understanding of the specific topic of interest;
- Understand how an artist can work together with all other parties involved.

Tools and activities:

- *Historical Analysis*: the activity involved the analysis of past trends to gain insights into detecting them in the future. By establishing connections between the past, present, and future, artists could better understand the current landscape and its implications.
- *Mind mapping*: it aims at helping artists to overcome the fear of a blank page by creating mind maps. This approach facilitated pattern deduction, exploration of the subject, and generation of innovative ideas beyond traditional ones.
- *Open debate*: it consists of a leading artist to express their concerns, critiques, and ideas related to the topic they are working on with all participants involved (experts, company, organizers).
- *Breaking and building concepts*: it aims to deconstruct the definition of a topic of interest (e.g. Food) through various techniques and construct new meaning and concepts for the topic to be explored further.

2. **Exploring the Present phase**

Objectives:

- To gather new references and knowledge on the topic and its research context, staying updated with emerging trends and sources of information;
- To comprehend the present challenges and contingencies in relation to past trends, recognizing the need to address these challenges and overcome them effectively.

Expectations:

- An understanding of how the topic and technology are currently linked and how they are related within larger global societal context;
- Reframing the topic to expand the research by sourcing new references and knowledge related to the field of interest;
- Engagement with the local experts' group to have a better understanding of present contingencies in relation to past trends related to specific fields such as nutrition or technology.

Tools and activities:

- *Framing Narratives*: the activity spots assumptions and biases of an individual reframing them in a new narrative that can change the way they are perceived.
- *AKAW Game*: it helps groups collecting challenges related to their chosen topic to explore and discuss the possibilities embedded in the future.
- *Exploring the body*: it consists of leading the artists through an exploration of future scenarios by embodying the future. It can be done by using mindfulness practice or guided visualization
- *Stakeholder mapping*: it consists of mapping all involved actors that are involved or could be potentially involved in the topic.

3. **Exploring the Future phase**

Objectives:

- To develop alternative future visions beyond utopian and dystopian narratives;
- To foster awareness regarding the numerous possibilities that exist for the future.

Expectations:

- Exploration of the impact that trends and drivers might have on the area of interest by engaging with a network of stakeholders that can give accuracy to the future vision;
- Imagination of a set of different futures by using creative thinking and storytelling;
- Creation of innovative and unique future scenarios that go beyond common utopian and dystopian clichés.

Tools and activities:

- *2x2 Matrix*: it is a tool that guides in developing four future scenarios based on a two-axis matrix.
- *Local experts' group*: it is a series of encounters with local experts that can inform the development of reflections about the future through their specific knowledge.
- *Identify proactive futures*: it consists of identifying examples of future narratives from books or films that propose alternative scenarios of the future.

4. **Generation phase**

Objectives:

- Formulating a particular vision or concept that can be brought into reality;
- Share prototypes and collect new insights that can enrich the final result.

Expectations:

- Having a clear understanding of the future scenario and expressing it through prototypes and tangible artifacts;
- Artists sharing their work with the public to receive feedback and gain new perspectives;
- Communicating ideas and concepts from future exploration through the use of prototypes.

Tools and activities:

- *One day in the life of a character*: the activity leads participants to imagine the life of a character in a future scenario starting from their daily life to generate a detailed future narrative.
- *Rapid prototyping*: it refers to the process of prototyping where building the prototype and testing it are part of an iterative process.
- *Explore around*: it contextualizes and expands the topic from a local to a global perspective.

Activity 3: Understanding gazes

The third activity focused on understanding and exploring the proposed gazes from the Art Thinking Layered Methodology, namely the Symbiotic, Critical, and Transperipheral gazes. The participants engaged in a written exercise where they determined to which phases from the previous exercise the gazes can correspond to. The purpose of the activity was to grasp the significance of the gazes.

Critical gaze

Critical Gaze could be continuously employed throughout the method, emphasizing its role in questioning and critically examining various aspects of the creative process. By adopting a critical mindset, artists could explore new perspectives and generate thought-provoking questions.
By providing fresh insights into the problem and prompting deeper questioning, it has the potential to empower the entire process. It serves as a catalyst for activating creative imagination.

Symbiotic Gaze

The application of the Symbiotic Gaze can encourage artists to seek systemic solutions while also recognizing their privileges and considering marginalized voices within their work. This gaze aimed to promote transdisciplinary and collaborative approaches, ensuring ethical and conscious impact in multiple areas of society. It can empower the phase of generation, where inputs of different expertise are applied. It can also empower the phase of exploration of the future where all

alternatives need to be considered. In particular, it may be useful with mind mapping tools that collect inputs from different disciplines and perspectives.

Transperipheral gaze

Transperipheral Gaze challenges the traditional center-periphery dynamic by embracing the idea of fluid movement between diverse spaces that may not have direct connections. It encourages to move away from binary thinking and linear cause-and-effect approaches. Instead, it promotes the inclusion of multiple perspectives, encourages participatory processes, and explores alternative, transversal methods of research. It can empower phases of exploration of the present and future through the collection of inputs from different disciplines and different perspectives.

Activity 4: Visualizing the process

The purpose of the activity was to provide a comprehensive summary of the progress and visually represent discussed activities and tools by arranging and placing them on different diagrams. The diagrams below aim to depict some of the ideas at the integration of the three gazes, the four phases and tools discussed throughout the bootcamp.

Version 1

The structure (Fig. 9) divided the process into three main stages (exploring the present, exploring the future and generation). Questioning phase was proposed to be placed at the beginning of each step to critically explore the starting point each time, as well as the objectives to be achieved. In the same manner, the incorporation of the critical perspective, associated with the Critical Gaze, was proposed to be placed as the initial step of each phase of the methodology. Thus, the critical perspective will go throughout the process.

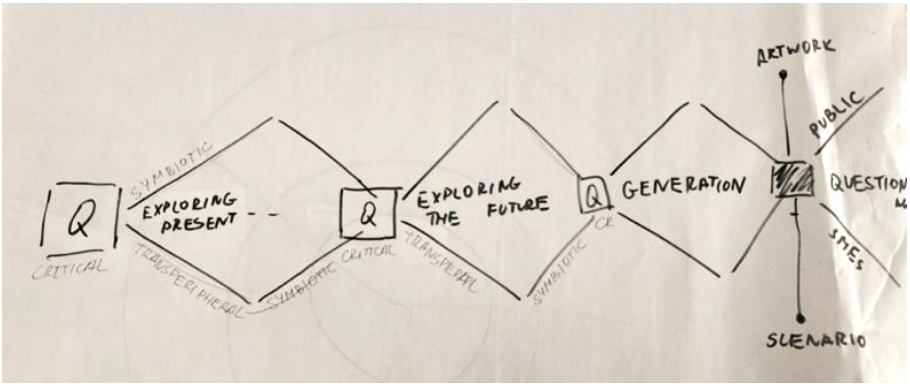


Figure 9. Proposed scheme for DFA process – version 1

Version 2

The structure (Fig. 10) highlights the importance of engaging a network of stakeholders and local experts in each phase of the method. This iterative nature of the process and underscored the importance of collaboration and involvement from various perspectives.

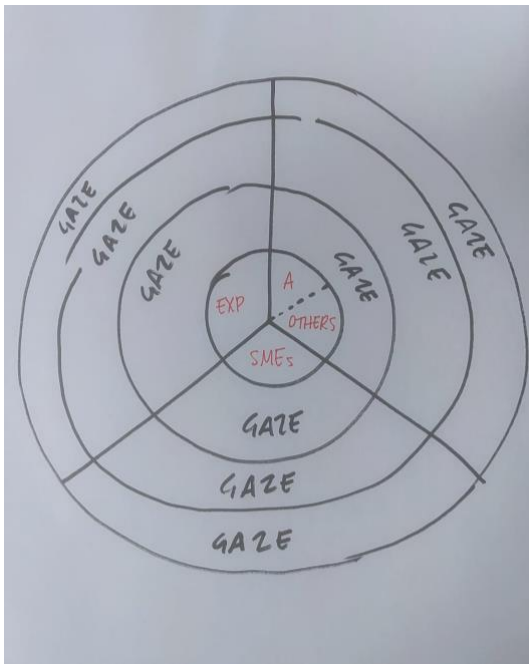


Figure 10. Proposed scheme for DFA process – version 2

Version 3

The structure (Fig. 11) highlights and proposes a dynamic and iterative process, which starts from the Questioning phase to define the focal question, then continues to the Exploration of the Present of the topic, after goes to the Exploration of the Future to explore the opportunities of the topic and finally goes to the Generation phase by producing an intermediate output of any format (such as idea, reflection, text, small prototype, etc.). After the output of any format has been generated, it helps to generate and ask new questions about the topic, so the Questioning phase starts again. This way, the phases continuously go after each other by enriching and feeding into each other at each step with new outputs.

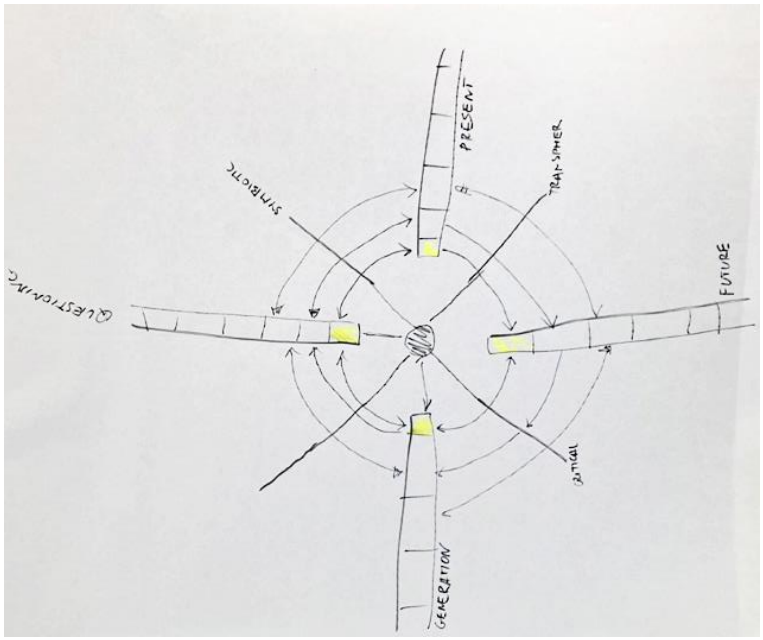


Figure 11. Proposed scheme for DFA process – version 3

4.3. Conclusions

The preparation and execution of the bootcamp was a fundamental step to find synergies and explore new opportunities between Design Futures and Art Thinking methods in order to proceed with synthesis and development of the first version of the DFA method. The diverse group of experts that attended the bootcamp were able to provide meaningful insights and raise relevant discussions on how to successfully merge these methodologies.

As a result of the bootcamp activities and discussions, the following main reflections have been highlighted that correspond to the 'insights' from the state of the art on art-tech collaboration (Section 2.1):

- The importance of creating an environment for **sharing personal emotions** that can be deconstructed into hopes and fears to inform future steps.
- The need to **design an iterative process** to feed and enrich the process of research.

In addition to the state of the art and identified insights from it, new insights have been found during the bootcamp activity, such as:

- The need to **physically embody future scenario** to explore its contingencies
- The importance of **keeping a critical perspective** throughout the process
- The importance of designing a method that **involves a network of stakeholders and local experts** as an iterative step of the process.

At the same time, reflections from the bootcamp have resulted in some points which can be further developed to tackle the challenges summarised and highlighted in the state of the art:

- The need to **balance artists' freedom with the use of structured approaches**
- The urgency to find ways to **make the use and application of the DFA method sustainable** in the long-term for companies, artistic organizations and educational institutions.
- The importance of **prototyping scenarios that are deeply explored from different perspectives**, moving away from a surface-level systemic viewpoint to ensure a wide understanding of the scenario and a more consistent storytelling.

Based on the correlation of new and confirmed insights, as well as ways to tackle challenges, the output and insights of the bootcamp were synthesized in the following scheme (Fig. 12) to illustrate the preliminary version of the process.

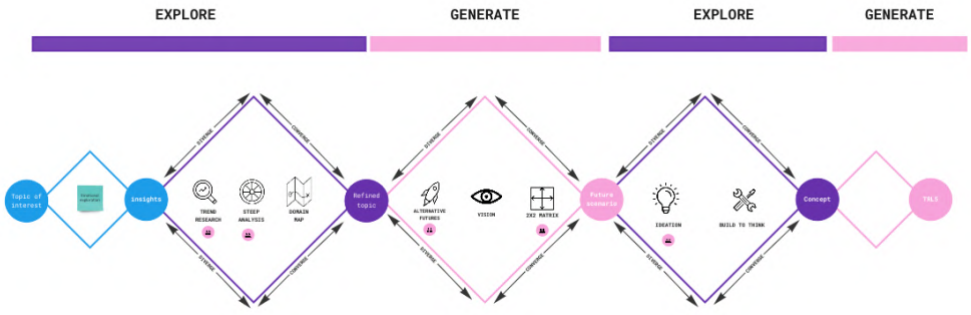


Figure 12. Scheme of preliminary version of DFA process

The process combines the phases of generation and exploration in an iterative manner. The initial exploration phase involves delving into emotions and memories, which leads to insights on a broad topic of exploration. Strategic tools are then utilized to conduct research and gather trends and drivers, resulting in the identification of a thematic area. This information informs the subsequent generation phase, where alternative future visions are explored. Following this, a second exploration phase is dedicated to developing a concept based on the previously developed scenario. The final phase, the Generation phase, involves prototyping, where the concept is translated into a tested product. Throughout these phases, engagement with a network of stakeholders enriches the artists' work and the overall process.

5. First proposal for the DFA Method

Based on the analysis of insights and challenges from the state of the art (Section 2), as well as the results of the bootcamp activity (Section 4), it was once again confirmed that the DFA method should respond to the biggest challenge of establishing a structured and vision-led methodology for art-tech collaboration for innovation that can be replicated by different actors in a variety of sectors, which would allow to make the process of artistic integration into innovation processes more organized and mainstreamed. To achieve this overall goal, the results of previous activities have been synthesized and grouped into three main objectives that helped to identify the direction and create the foundation for the first version of the DFA method:

Objective 1: Establish equal collaboration and shared language between artists and company

The importance of creating a favourable environment for inspiring and productive work between artist and company is crucial. Responding to the challenge of the communication barrier, an approach must be found to create a common basis or common vision for the artist and the company to engage with the DFA method, in a way that would go beyond their professional expertise and languages. To create equality in the relationship between the artist and the company, the figure of intermediary or facilitator is important to set expectations and relationships in the beginning, as well as to follow them throughout the process. Both, a common language or vision and the presence of an intermediary can contribute to the alignment of possible diverse objectives and priorities of participants, as was highlighted in the challenge of the state of the art. Moreover, an art-driven approach can inspire the iterative process for innovation for the companies, even in their daily work or working environment.

Objective 2: Integrate emotional exploration with strategic tools to navigate the future

The importance of creating an environment for the co-existence of a strategic approach together with a space for emotions and feelings is crucial to bring a new approach to innovation in a company-related environment. This approach can allow to achieve strategic goals fed by emotional layers of values, hopes and fears to inform future steps and direction of innovation development. At the same time, it is crucial to balance artists' freedom with the use of a structured

approach. Thus, in order to navigate strategic and emotional approach, futures thinking might be helpful in order to build "experiential futures" as different representations of the futures to live, but also spot potentialities, opportunities and challenges for innovation.

Objective 3: Create environment to ensure support for the artist throughout the process

A supporting environment for the artist turned out to be one of the key favourable pillars of art-tech collaborations. It allows not only to have a space for reflection with the external world, but also enhancing and feeding his/her critical perspective throughout the process. In the same manner, it was identified that interaction with external experts and stakeholders is crucial for the art-tech results within the context of innovation. Moreover, as a repeatedly expressed concern during the DFA bootcamp, there is a necessity to find ways to support the artist within the DFA process to make the method sustainable and ready to be used in different contexts.

Once the three main objectives to tackle have been identified, further research was conducted in the format of (i) a series of interviews with experts in art, design and foresight, (ii) desk research and (iii) applied experiments in order to gain insights and empirical evidences to start building the DFA method. Further sub-sections (5.1, 5.2, 5.3) provide a summary of the research carried out which has generated ideas which have been further adapted and integrated in the first version of the DFA method.

5.1. Objective 1: Establishing equal collaboration and shared language between artist and company

To accomplish objective 1, an interview with Aisling Murray, a Creative Producer, Curator, and Arts Consultant emphasized the importance of **establishing a space that fosters equality**, enabling both artists and SMEs to play their respective strengths during the process. It is important to initiate the residency programme with a neutral activity, where artists and SMEs jointly respond to topics of interest and share their fears and hopes in relation to it. This environment can create a good "chemistry" between the artist and the company. It also abstracts both, artist and SME, from their professional expertise and create a safe space to reflect on common human values, without feeling vulnerable in front of each other.

In addition, she underscored the **importance of having a neutral facilitator** to ensure the smooth functioning of an equal collaboration. This figure is crucial to create equality between the artist and the SME, so that artists themselves are not seen as facilitators during the process, but rather participants and have the same position as the SME.

In response to this challenge, the adoption of the Double Diamond framework from Design Thinking was chosen. This framework might serve **as a shared ground** for artists or designers and companies as it is widely recognized in both fields to be able to relate to and follow the process and ongoing activities.

5.2. Objective 2: Integrating emotional exploration with strategic tools to navigate the futures

In objective 2, the idea of integrating emotional explorations with strategic tools to navigate the future is well explained by Stuart Candy (2010) in his definition of “experiential futures” as a way to combine strategic tools – such as scenario building– with creative ones from theatre, art and storytelling. Besides, Candy also claims that to ensure the impact of futures studies on the mainstream culture and its contributions to society-wide "social foresight," it is crucial for it to bridge the gap between abstract possible futures and the real-life experiences we encounter in the present moment. This entails integrating the experiential aspects of our embodied existence with the conceptual exploration of future scenarios.

The two activities described further demonstrate how possible futures can be embodied and experienced in the present time, as well as provide empirical evidence of how to involve emotions in the making of experiential futures.

Bringing memories from the past into the values for the future

The activity of the self-exploration is developed by Shaun Ussher, PhD Candidate at University College Dublin. The objective of the activity is to help participants to spot past memories and thoughts on the present in order to define the driving values to bring in the future. The activity emphasized the influence of past experiences and present assumptions on individuals' future visions. It underscored the importance of identifying these driving forces in order to shape not just any vision of the future, but a vision that aligns with the values we want to bring in the future (see Annex 5).

Time Travel exercise

Luca Simeone and Rike Neuhoff from Aalborg University in Copenhagen, are working on future-oriented thinking and how we can regain optimism in a rapidly changing future by engaging in contemplative and meditative practices. They have proposed an activity called Time Travel (see Annex 6), aiming to emotionally immerse participants in a future exploration by harnessing the mind's ability to embody emotions and feelings generated through imagination.

Sad-Hap-Jo-So activity

Sad-Hap-Jo-So (see Annex 7) is an activity proposed by UB to capture the feelings that people might have about the future using a 2×2 matrix (Fig. 13) by measuring them along two axes. To see where participants stand, they must answer questions related to possible future scenarios. For instance, one question might inquire about their emotional response if there was no artificial lighting on the streets during the night-time. A wide range of responses might emerge from this prompt such as feelings of insecurity, and fear, sense of liberation from reduced light pollution, the opportunity to observe the stars. These diverse answers spark debate, prompt new inquiries, and foster the exploration of possibilities and issues that may not have been considered.

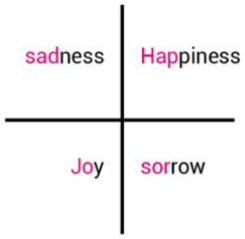


Figure 13. Matrix of the activity Sad-Hap-Jo-So

Explore around activity

The Explore Around activity is a structured walking tour that combines text, images, and sound to facilitate an exploratory experience. Its purpose is observing the surroundings while progressing from the city outskirts towards a more central location. The integration of text, images, and sound in the activity encourages participants to engage with their imagination and think beyond the immediate environment, facilitating the exploration of possible future scenarios (see Annex 8).

5.3. Objective 3: Creating a process to ensure support for the artist throughout the process

The objective 3 that informed the first proposal of the DFA method emerged from interviews with Epaminondas Christophilopoulos, Head, UNESCO Chair on Futures Research and MOMus President and Albert Barqué-Duran, PhD, Artist & Researcher in Digital Arts & Creative Technologies. Additionally, the project STEP by Fastweb in Milan, Italy served as an inspiring empirical example on how to establish a process that ensures artists are not left to work alone.

Providing guidance and support

The need of supporting artists' reflection through mentoring sessions during artistic residencies was highlighted by Epaminondas Christophilopoulos and Albert Barqué-Duran. Artists greatly benefit from receiving different perspectives on their work and new insights to challenge their own assumptions and push the boundaries of their artistic practice. Moreover, they need an environment to reflect on the progress with external actors, such as a mentor to ensure the continuous dialogue with an outside world.

As an alternative option to having a support from a mentor or guide, guidance can also be provided in the form of a virtual agent, such as it is implemented at the STEP FuturAbility District. STEP is a technological, informative, and experiential space that aims to offer a personalized and interactive experience, guiding visitors through dynamic installations, immersive spaces, and multimedia walls. In this case, a virtual creature and voice guide named FORWARD accompanies guests through the itinerary, as a constant companion, offering explanations, commentary, and prompts to enhance the overall experience facilitating a deeper engagement with the topics and themes being explored. Through its presence, visitors are encouraged to actively participate, reflect, and gain a greater understanding of the implications and possibilities of the ongoing digital transformation.

As previously mentioned, there are various ways to provide support to artists during the creative process, such as human mentoring and technological guidance. An additional alternative option that was explored by Cohen (2023) and Spaniol (2023) is the utilization of AI as a co-creator. This option bridges the artists' need for assistance with the generative and creative capacities of Large Language Model enhancing a deep intersection between technology and creativity and facilitating innovative artistic endeavours.

The following scheme (Fig. 15) represents the initial draft of the process based on the identified objectives and aimed at responding to the challenges faced during the development phase of the DFA method. The structure represents the first phase (Explore) of the DFA method, the objective and final goal of which is to create a scenario.

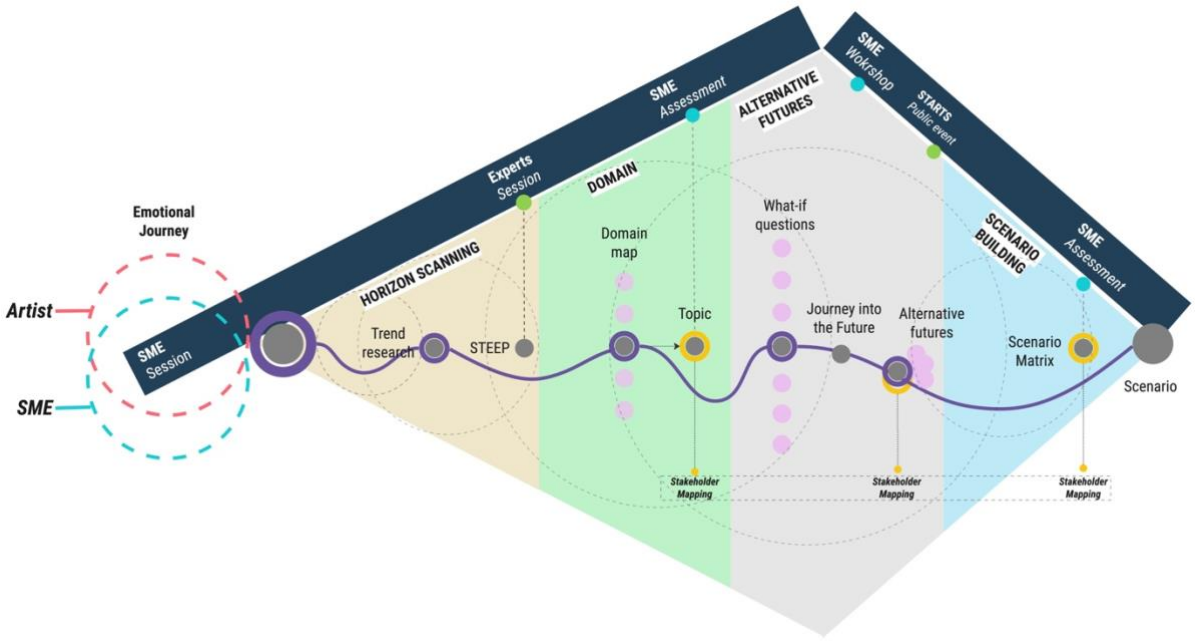


Figure 14. First draft of the main phases and activities of the *Explore* phase

The structure takes the form of a Diamond shape from Double Diamond design framework in order to create a shared understanding and language between the artist and the company. It is divided into five phases. The starting point - emotional journey, is framed as a questioning and emotional exploration phase which emerged as a result of the Bootcamp activities, involving both the artist and the company to create a shared understanding of the topic. Guidance and support of the artist throughout the process is implemented (violet thread on the scheme) by both mentoring guidance by experts, but also by "virtual" support of different AI tools. Rather than navigating the path alone, users are accompanied by the human mentors and digital co-creators who guide and support them throughout the DFA process. Various encounters with experts and SME are integrated into the process to create shared moments with activities, both strategically oriented and emotionally enhanced supported by various activities and tools. The iterative nature of the process, both strategic and artistic, is emphasized to immerse both the artist and, especially the company in the mindset of constant critical reflection and exploration.

6. Design Futures Art-Driven (DFA) methodology: Explore phase

The first version of the Explore phase of the DFA method has been crafted as a Layered Methodology, consisting of different "layers" identified to respond to various challenges that the DFA method aims to respond to. In the following section, first, the different layers of the proposed Explore phase are described (section 6.1), then the first configuration of the method is introduced (section 6.2), and finally, a visual representation of the process is developed to illustrate it along with activities and tools placed on it (Fig. 15). Lastly, the residency format (section 6.3) for the Explore phase of the DFA method is introduced.

6.1. DFA as a Layered Methodology

Drawing upon the gathered insights, the initial iteration of the DFA method has been formulated as a Layered Methodology. This structure incorporates (i) an emotional exploration as a fundamental artistic journey that will guide participants throughout the process, as well as (ii) it integrates AI as a co-creator. Additionally, (iii) it employs strategic tools to effectively navigate design futures process, as well as (iv) incorporates a format of artist-company interaction throughout the process to achieve future-proof innovation.

Emotional Exploration

The DFA method drew inspiration from artistic practice to facilitate artists' and participants' immersion in the future-oriented work. To foster emotional engagement, a guided narrative is crafted, leading participants through a step-by-step journey and storylines. Furthermore, concepts like identifying emotional feelings (such as "Sad-Hap-Jo-So") and exploring the surroundings to stimulate alternative possibilities (as seen in "Exploring Around") can respond to the challenge of integrating emotional explorations with strategic tools to navigate the future. These challenges were translated into two central activities proposed for the DFA method:

- Emotional Journey: the activity aims to provide participants with a profound immersion in the emotions associated with the past, present, and future, specifically related to the topic of interest (e.g. food). By enacting personal memories, participants explore a range of feelings including hopes, worries, and biases. The objective is to transform these emotions into values that they wish to uphold in the future. This activity serves as a neutral and inclusive platform, fostering connections and uncovering shared perspectives among individuals from diverse backgrounds and expertise, thereby facilitating the process of envisioning the future together.

- Journey into the future: the activity is a guided and immersive experience that invites participants to embark on an imaginative walking visualization, where they mentally explore and embody potential future scenarios. Through this activity, individuals are encouraged to use their imagination to vividly picture themselves in various future contexts, engaging their senses and emotions to create a more immersive experience.

AI integration

As applications of AI in different areas continue to advance, it is important to rethink its role and the role of humans in the creative process. This evolving perspective, along with the need of supporting artists throughout their artistic process led to the making of a method where artists can act as co-creators alongside AI. This responds to the objective of creating a process to support the artist throughout the process.

For the DFA method, this co-creative process integrates the use of AI tools for the following specific objectives:

- Immerse: AI-powered text-to-speech technology offers a powerful tool to create immersive experiences through audio recordings. By utilizing AI-generated voices, individuals can be fully immersed in narratives, stories, or guided journeys that engage their senses and transport them to different contexts and scenarios.
- Explore: AI can help in expanding the research of trends and signals by adopting the role of different personas (e.g. using prompts for AI personalization such as "you are a futurist", "you are an expert in food technologies", etc.)
- Define: AI can support the process of sense-making by spotting commonalities and converging trends into different related topics
- Provoke: AI can be used to generate thought-provoking what-if questions tailored for specific topics of interest and scenarios
- Communicate: AI-powered text-to-image technology has the potential to facilitate effective communication of diverse visions of the future by generating images between participants. This enables individuals to share and exchange their perspectives and representations on the futures, fostering a sense of alignment and common understanding within a group.

In order to implement the process of AI co-creation supported by the above-mentioned objectives, a set of prompts has been developed to help artists to co-create with the AI tools. In addition to response to the objective of the DFA process, the layer of AI co-creation leverages the insight of enhancing the innovative potential of technology.

Strategic tools

Strategic tools are the core part of the DFA method, as they provide a systematic and structured approaches to understanding and shaping the future. They help in analysing trends, identifying challenges and opportunities, and formulating effective strategies to navigate the complexities of an ever-evolving world. The layer of Strategic tools responds to the challenge of designing a structured process, while at the same time it leverages the insight of balancing artists' freedom with the use of structured approaches.

The following tools are the ones selected and included in the DFA method:

- *Trend research*: it identifies and understands the direction and impact of trends to inform future decision-making and strategic planning.
- *STEEP+V Analysis*: a framework used to assess and analyse the external factors that may influence the future landscape.
- *Domain Map*: It helps to identify and understand the interconnections within a topic,

provides a holistic view of the subject matter and assist in identifying gaps, opportunities, and potential future directions.

- *Stakeholder mapping*: it is a process of identifying and analysing all stakeholders and entities that have an interest or power in a given area. The purpose of stakeholder mapping is to understand the various stakeholders' perspectives, concerns, and influence, and to use this information to effectively engage with them and manage their expectations.
- *What*-if questions: it helps to create different alternative "What if ..?" questions that can be used to explore and imagine alternative futures of the domain.
- *Alternative futures:* it is a process of creating and exploring alternative futures based on the developed what-if questions.
- *Scenario Matrix*: a tool used to explore and develop alternative future scenarios.

Format of artist-company interaction

Following the main objective of the DFA method to establish a structured and vision-led process of art-tech collaboration, the format for interaction between artists and companies helps to establish, develop and navigate various moments of collaboration throughout the process. Several formats are integrated in the Explore phase of the DFA method:

- *Workshop format*: its objective is to bring together artist and company representatives to carry out various activities. The workshop is managed by the facilitator to make the participation of both artist and company equal, as well as make their involvement and contribution to the activity equally relevant
- *Assessment format*: its objective is to allow artist to present intermediate results of the process activities to the company representatives, allow them to assess the results together, in order to proceed to the next steps.

6.2. Overview of the Explore phase of the DFA method

The first version of the DFA method consists of two macro-phases: Explore and Generate, corresponding the structure of Design Futures method. The outcome of the first macro-phase “Explore” is the creation of a scenario, while the outcome of the second one “Generate” is to define a concept for a future product or service based on the scenario. Hereby in this report, the first phase of “Explore” of the DFA method is described in detail, which is divided into Onboarding, Horizon Scanning, Visioning stages. The visualization of the first phase (Explore) of the DFA process (Fig. 15) is shown below with all activities and tools included throughout the process. The co-creation process between artists and AI is depicted as an intertwined wave on the scheme, which is particularly stressed in some of the activities. The DFA method aimed at supporting the art-tech collaboration involves participation of both artist and company throughout the process of both *Explore* and *Generate* phases, which is represented by the outline of purple color on the visualization of the activities on the scheme (Fig.15), namely *Emotional Journey, Conversational Object, Domain Map, Stakeholder Map, Journey to the Future, Alternative Futures, Scenario*.

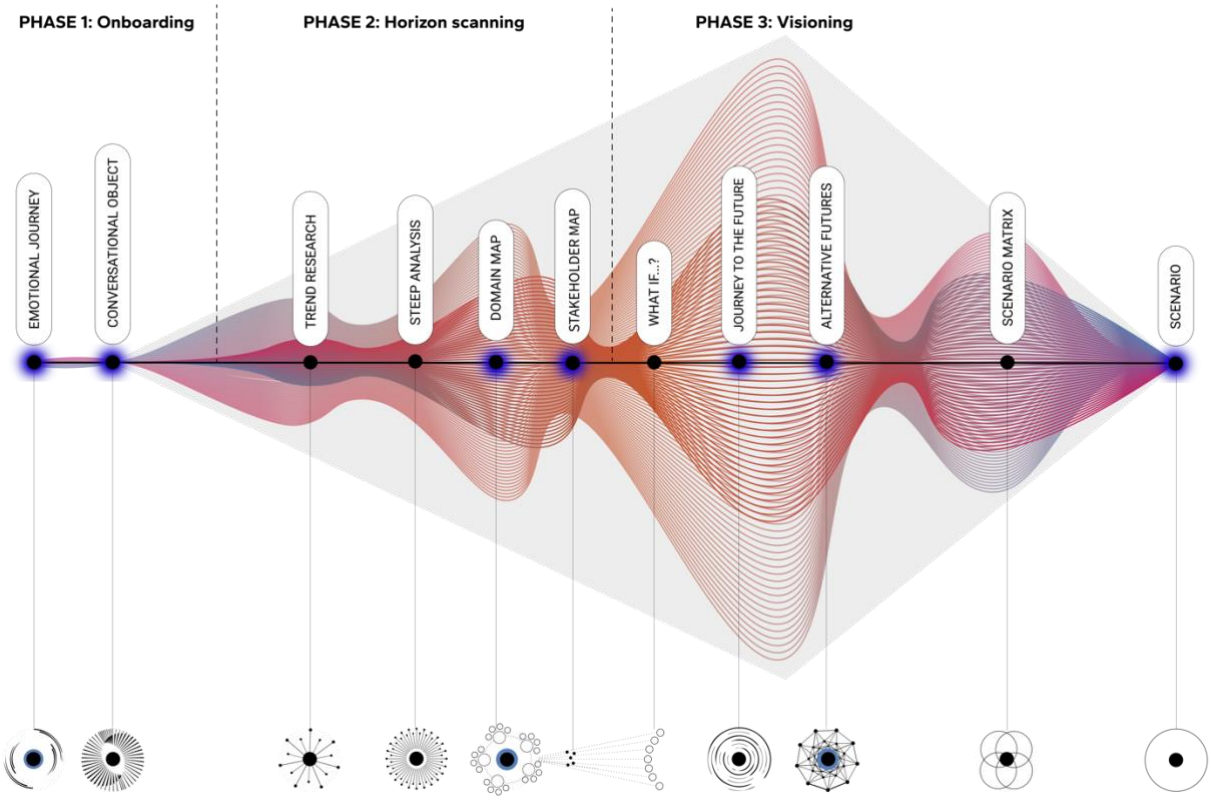


Figure 15. Visualization of the Explore phase of DFA process

Guiding voice

Along the whole phase and in each of the stages the artists are invited to follow the guiding voice, which firstly introduces the artist to the overall process by describing the main goal and all the steps, and then at the beginning of each step and activity, briefly describes its purpose and procedure. The format of the guiding voice is implemented as an audio recording and designed in a way to give inspiration and non-coercive instructions while guiding.

Phase 1: Onboarding

During this phase, both artists and company representatives undergo an immersive experience known as the Emotional Journey to explore emotions and values related to the past, present, and future of the topic. This initial immersion aims to establish the right mindset for the participants. Following this, artists will present an art-object that represents their artistic critical vision about a specific topic. This object is called Conversational Object and serves as a starting point to spark the discussion and understand the company's stance in relation to the topic, taking into account their hopes and fears. Additionally, a “Future Compass” is created, allowing artists and companies to align on the guiding values, shared hopes and fears that will shape the subsequent stages of the process.

Phase 2: Horizon Scanning

The next phase of the process is called Horizon Scanning. It involves artists conducting Trends research as a crucial part of the Design Futures process to gather relevant trends for a specific topic. This step is divided into two parts. First, artists use their own sensitivity to identify trends, signals, and drivers. Then, with the support of AI, they expand their research by assuming different

perspectives to discover additional trends. To expand the search with broad macro-trends and assess their impact on the topic, artists apply the STEEP+V analysis framework. STEEP+V analysis helps enrich the trends found, which are part of the macro-theme, adding other trends, drivers, and signals pertaining to the social, technological, economic, environmental and political areas plus values.

Once they have gathered enough information, they proceed to establish connections by creating a Domain map, which helps them develop a holistic view of the topic. Domain map identifies correlations and intersections between various trends and signals, merging them into several more specific themes. To develop a domain map, artists are supported by AI's capacity to make connections and sense-making of a large volume of data. The resulting domains will be presented by the artist to the company and together they will assess which domain aligns best with their needs, taking into consideration the values, hopes, and fears of the "Future compass" that have been developed earlier in the process. After the domain has been chosen, participants map stakeholders who might be related to the domain in different ways, especially those who might have an impact or be impacted by the domain, either in a positive or negative way. Stakeholders map will be improved, enriched, and used again in the next steps of the process.

Phase 3: Visioning

The next phase of the process is known as Visioning. As the first step, an artist develops a set of What-if questions, by using a pre-defined deck of what-if cards or using one's own sensitivity and critical vision or supported by AI to generate new provocative what-if questions based on the input from the previous research. Later, the workshop is organized, during which the artist and the company representatives together embark on an immersive experience called Journey into the Future, where participants of the workshop take part in a walking tour of a future scenario to gain a first-hand experience of a different future world. After returning to the present, they are prepared to develop Alternative futures scenarios using what-if questions created by the artist earlier. The artist and the company then engage in discussion about the potential alternative futures that arise from these questions. To facilitate conversations, a text-to-image AI generates visuals that depict participants' visions of the future, aiding them to align on a common vision of the future.

During and after the workshop, artists may explore a variety of different narratives and gather substantial amounts of data. They may also want to enrich their stakeholder map by mapping the new actors found during alternative futures discussions. Therefore, at this stage, it becomes necessary to take some time to make sense of the work done. They begin by identifying uncertainties related to their domain, selecting the ones that have the greatest level of impact and the highest level of uncertainty for the following construction of the Scenario Matrix.

Scenario Matrix is the next tool used, which guides in development of four future scenarios based on a two-axis matrix. Once the scenarios have been established, the artists present them to the company, and together they evaluate which one they wish to fully explore. From there, artists delve into the chosen Scenario by building a detailed context of it, defining the time, space, personas, and artifacts that inhabit it, as final outcomes of the Explore phase.

6.3. DFA residency format

The residency format follows the structure of the first Explore phase of the DFA method and provides a framework for the residency implementation to meet and monitor strategic and operational goals. Below described some of the components that will be used to navigate and support both artist and company throughout the process.

Individual mentoring plan
The individual mentoring plan is used to set expectations and objectives at the beginning of the process. The meeting is organized in the beginning between the artist, the company and the mentor to setup collaboration by outlining objectives and expectations, as well as to develop an individual mentoring plan that will serve as a basis for progress tracking.

Progress meeting
The progress meetings are organized bi-weekly with the mentor and artist to follow up on the progress, as well as share any raised concerns or suggestions.

Workshop format
The workshop format provides guidelines on how to organize workshops during the Explore phase of the DFA process, both (i) Emotional Journey and Conversational Object, as well as (ii) Journey into the Future and Alternative Futures workshops.

Assessment format
The assessment format is provided to be used two times throughout the Explore phase of the DFA process, and consists of “Domain Assessment” and “Scenario Assessment” during the Domain map and Scenario activities.

Expert group meeting
The format for experts and stakeholders group meeting is provided, along with the Database of the stakeholders of various expertise and backgrounds, in order to support artists and provide them with feedback and expertise on particular topics throughout the Explore phase.

Feedback format
The feedback format is introduced at the beginning of the Explore phase of the DFA process in order to collect artists’ reflections and ideas on the implementation of the method, or ideas for its further improvement. While the DFA method is designed as a structured process, it leaves space for experimentation and co-creation together with artists and companies.

7. Guidelines for the Explore phase of the DFA method

In this section, the first version of the guidelines of the first Explore phase of DFA method is described, outlining the objective, description and detailed procedural steps for each activity. The guidelines describe activities divided into the three phases of the process – (1) Onboarding, (2) Horizon Scanning, and (3) Visioning.

7.1. PHASE 1: Onboarding

Objective of the phase: The onboarding phase aims to create a neutral environment for all participants to meet each other at the beginning of the process and exchange personal reflections on the topic. It consists of two activities – (i) emotional journey, and (ii) conversational object, and has the main output of both activities in the format of the "Future compass".

Activity 1. Emotional journey

Participants

- Artist
- Company representatives
- Facilitator

Materials needed

- Immersive audio track
- "Future compass" canvas
- "Values" card deck

Description: Emotional journey is an activity that is guided by a facilitator and uses audio as a support format to help participants immerse in the activity of uncovering memories and feelings regarding the topic (in particular the topic of *food* in the course of the MUSAE project). The activity engages participants in a deep immersion in the feeling of the past, present and future to allow each person to evoke ***memories*** from the past; ***biases***, ***positive*** and ***negative aspects*** of the topic in the present; and anticipation in the form of ***hopes*** and ***fears*** in the future regarding the topic. The aim of the activity is to create a shared space for discussion for both artist and company representatives to find and map common values which will serve as their "guiding values" throughout the whole Explore phase of the DFA process.

Objectives:

1. Support participants in a deep audio-guided immersion experience of the past, present and future to extract memories and feelings about the topic;
2. Translate the evoked personal feelings and memories into common "guiding values" for all participants to be used throughout the process.

Description of the activity:

Step 0 – Introduction of the activity
Participants are sitting in the circle. Facilitator introduces the program of activities, as well as presents the supporting materials for the activities of the first phase – "Future Compass" canvas, which consists of three sections to be filled (i) Shared values; (ii) Hopes and (iii) Fears; as well as the "Values" card deck.
Step 1 – Immersion in the Past
Immersion: Audio starts to play. Participants close their eyes and take a few deep breaths to relax. Guided by the audio narrative, they visualize a place or moment from their past that brings back memories and emotions related to the topic. The audio narrative guides participants to bring their memories to life by using all their senses: what did they see, hear, smell, taste, and feel.
Reflection: Participants open their eyes and try to recall what *memories* have evoked from their past in relation to the topic. They share it with the group in as much detail as possible and describe any emotions or feelings that came up for them. Each participant writes one memory per post-it and put it on the board. With the help of a facilitator, participants try to group similar memories together based on the emerged themes.
Step 2 – Immersion in the Present
Immersion: Audio starts to play. Participants close their eyes and take a few deep breaths to relax. With the audio narrative, they are guided to think about positive and negative aspects of the topic of the food in the present, as well as uncover biases and assumptions that they have in relation to the topic.
Reflection: Participants open their eyes and share their thoughts with the group. They describe it in as much detail as possible and share any emotions or feelings that came up for them. Each participant writes on the post-it one thing that emerged as *positive*, *negative aspects* and *biases* in relation to the topic of food and put it on the board. With the help of a facilitator, participants try to group similar ideas together based on the topics.
Step 3 – Immersion into the Future
Immersion: Audio starts to play. Participants close their eyes and take a few deep breaths to relax. With the audio narrative, they are guided to think about their hopes and fears related to the future of the topic of food.
Reflection: Participants open their eyes and share their thoughts with the group. They describe it in as much detail as possible and share any emotions or feelings that came up for them. Each participant writes on the post-it one thing that emerged as *hopes* or *fears* in relation to the topic of food and put it on the board. With the help of a facilitator, participants try to group similar ideas together based on the themes.
Step 4 – Defining shared values

The facilitator introduces the definition of "value" to the participants. Together with participants they summarize all generated ideas and synthesize them into shared values that participants want to bring in the future. If necessary, the facilitator introduces the prepared card deck of "Values" to help participants better formulate their emerged values. As a result of the activity, the section of "Shared Values" of the Future Compass canvas is filled based on the discussion.

Activity 2. Conversational object

Participants

- Artist
- Company representatives
- Facilitator

Materials needed

- Artwork based on the artist's vision
- "Future compass" canvas

Description: The activity aims to set up the ground to develop a critical reflection on the specific topic by both the company representatives and the artist. To achieve this, the artist represents his/her critical vision of the topic using any preferred artistic medium and presents it to the company representatives in order to start a conversation and evoke critical reflection on the topic.

Objectives:

- Evoke critical reflection of the company in relation to the future of the topic they are exploring (its hopes and fears) based on the artistic representation ("conversational object") of the artist

Description of the activity:

Step 1 - Creating a "conversational object"
Format: workshop Before the workshop the artist brings to life their vision of the future of the specific topic as a critical reflection on it. It can be done through various mediums – object, audio, poem (text), video, etc. The main goal is to represent the vision in a format that could provoke and start the discussion among participants.
Step 2 - Presenting the object
Format: workshop The artist presents the "object" during the workshop in a free format of choice using artistic medium.
Step 3 - Discussion
Format: workshop The participants share their ideas in relation to the presented vision of the future and the "conversational object". Each participant reflects on the object by giving two statements: "I

hope…" and "I fear….". The facilitator collects all reflections on the board. The participants (both the company and the artist) try to identify *common hopes* and *fears* that they share regarding the future of the topic.
Step 4 - Summary
Format: workshop The facilitator summarizes the hopes and fears from the "Conversational object" and combines them with the shared values from the "Emotional journey", and finally puts them together to create a "Future compass". The facilitator makes a statement about how the "compass" will be used further throughout the Explore phase of the DFA process. The participants reflect on the final output, if they are aligned or wish to add something more.

7.2. PHASE 2: Horizon Scanning

Objective of the phase: the aim of horizon scanning is to explore the topic as wide as possible in order to understand trends, signals and new developments guiding it, in order to choose a particular focused theme to continue working with further. It consists of four activities – (i) Trend Research; (ii) STEEP+V Analysis; (iii) Domain mapping; (iv) Stakeholder mapping.

Activity 1. *Trend Research*

Participants

- Artist

Description: Trend research is a process of identifying and analysing patterns of change and development across various areas. It implies collecting and analysing data from a wide range of sources, such as reports, academic sources, social media, demographic changes, technological advancements, but also observations of life around oneself in order to identify established and emerging patterns, signals and trends of the topic and anticipate future changes of it.

Objectives:

- Explore and collect trends from different areas relevant to the topic

Description of the activity:

Step 1. Exploring the sources
Format: independent work To begin the trend research, the artist needs to identify sources where to look for them. The DFA process provides a "library" of various sources (academic, reports, social media, patent repositories, etc) to inspire and facilitate the search for trends and signals.
Step 2. Starting the collection of trends
Format: independent work

The artist has two options to look for trends – (i) either by exploring the provided library of trend sources, or (ii) use AI support to expand the trends and signals search.
Step 3. Collecting trends and signals
Format: independent work The artist collects the trends and signals to make it easier to keep track and make sense of them in further research by summarizing and clustering them and identifying the source for each trend.

Activity 2. STEEP+V Analysis

Participants

- Artist

Materials needed

- *STEEP+V impact canvas*

Description: STEEP+V is a tool used to explore the external context and factors that may impact the topic. The acronym STEEP+V stands for *Social*, *Technological*, *Economic*, *Environmental*, *Political* factors, and additionally includes *Values*. Social factors include demographics, culture, lifestyle, and societal trends. Technological factors include advancements in technology, innovations, and the impact of technologies. Economic factors refer to the impact of economy, unemployment, and economic growth on the topic. Environmental factors include ecological and environmental trends, such as climate change, resource scarcity, and environmental regulations. Political factors include government policies, legislation, and political events. Values include new ethics and values emerging in the world.

Objectives:

- Identify general macro-trends and trends in general beyond the specific topic of exploration
- Map and understand the impact of broad macro-trends on the theme of exploration

Description of the activity:

Step 1. Looking for macro-trends in each STEEP+V area
Format: independent work The objective is to get abstract from the specific topic, zoom out and look around at the macro changes that are happening in the world. Expanding the search with trends and macro-trends ranging from social to technological, political and other areas which are not exclusively related to the specific theme of interest, can enrich the specific theme and show the impact of these macro-trends on the topic. In order to conduct this step and look for macro-trends within each STEEP+V area, three options are available for implementation: Option 1: Desk search Using the same sources from the library from the previous exercise of Trend Research, macro-trends outside of the topic of interest can be found there, by looking for and observing the major developments that are happening in the world.

Option 2: AI support
Using prompts, AI tool can suggest new additional macro-trends within each area of STEEP+V, which can be used to further inspire and expand the exploration by the artists themselves.

Option 3: Experts
Using the network of stakeholders (experts in art, design, technologies, innovation, specific topic of interest, and others), the artist can reach out to experts in one of the fields of STEEP+V areas to gain more qualitative information in their field of expertise in order to enrich the research and understand the impacts of macro-trends on the topic.

Step 2. Mapping the impact of STEEP+V on the topic

Format: independent work
Identify and map the impact of each identified macro-trend within STEEP+V on the topic (combination of STEEP+V and Impact mapping). The objective is to understand what kind of impact (positive or negative) identified macro-trends have on the theme of exploration.

Activity 3: Domain map

Description: Domain mapping is an activity that helps to grasp the interconnectedness of the identified trends and signals and cluster them into sub-themes. Mapping helps to visually sense the intricacy of the emerging themes by observing correlations and interconnections, where sensitivity and curiosity are crucial to spot and give meaning to the emerging domains.

Participants

- Artist
- Company representatives

Materials needed

- Domain canvas

Objective:

- Converge identified trends and signals into several interconnected domains for exploration
- Based on the discussion between artist and company, select one domain for further exploration

Description of the activity:

Step 1. Grouping trends and signals

Format: independent work
The objective is to experiment in different ways by grouping trends and signals that might be interconnected, related to each other, and constitute an interesting specific domain for further deeper exploration. In order to conduct this step and create domains, three options are available for implementation:

Option 1: Domain canvas

Using a framework for domain creation, trends and signals are mapped according to categories, as well as interconnections between them are identified, which helps to create and make sense of the specific domains. Option 2: AI Support Using prompts, AI can find and suggest new interconnections between trends and signals, which can be used to inspire and build upon to further create and map domains. Option 3: Free choice It is possible to use one's sensitivity to map the identified trends and signals.
Step 2. Creating and describing domains
Format: independent work The identified domains are described in detail by giving reason and meaning for their creation. Domains should be described by elaborating on (i) what trends/signals/drivers led to their creation; (ii) the relevance to the macro-theme.
Step 3. Domain assessment
Format: assessment meeting The facilitator organizes the assessment meeting for the artist and company representatives. At the meeting, the artist following the presentation guidelines presents the developed domains to the company representatives. The goal of the meeting is to select the most interesting and relevant domain for further exploration.

Activity 4. Stakeholder mapping

Description: Stakeholder mapping is a process of identifying and analysing all stakeholders and entities that have an interest or power in the chosen domain. The purpose of stakeholder mapping is to understand the various stakeholders' perspectives, concerns, and influence, and to use this information to explore a variety of futures which could potentially engage, affect or be affected by them within the chosen domain.

Participants

- Artist
- Company representatives

Materials needed

- Stakeholder map
- Power/ impact matrix

Objectives:

- Map stakeholders who might be related to the domain in different ways – if they can either impact or be impacted

- Improve, enrich, and iteratively use the created stakeholder map in the next steps of the process

Description of the activity:

Step 1. Identifying stakeholders
Format: assessment meeting Once the domain is chosen, the artist and the company representatives identify and map together all stakeholders that might be relevant to the domain. The company being an expert in the domain brings to the table its practical knowledge of the stakeholders, while the artist brings his/her criticality and open mind to bring new perspectives on the involved stakeholders. Both human and non-human stakeholders are explored, as well as from different levels they are operating on – local, national and international. Participants are invited to explore a wide variety of stakeholders among civil society, NGOs, local community, industry and business, academia, government.
Step 2. Mapping power and impact of the stakeholders
Format: assessment meeting The goal is to map the identified stakeholders on the matrix of power and impact, i.e. those who might have an impact or be impacted by the domain, either in a positive or negative way. The following questions can help: (1) who might be affected by the domain; (2) who has the power to influence the domain?

7.3. PHASE 3: Visioning

The objective of the visioning phase is to create and explore a multitude of alternative futures in order to identify uncertainties in the domain and build scenarios. The visioning phase consists of five activities – (i) What-if questions; (ii) Journey into the Future; (iii) Alternative Futures; (iv) Scenario Matrix and (v) Scenario Building.

Activity 1. What-if questions

Description: Activity helps to create different "What if ..?" questions that can be used to explore and imagine alternative futures of the domain.

Participants

- Artist

Objectives:

- Create “What-if” questions to be used in the Alternative Futures exercise

Description of the activity:

Step 1. Creating What-if questions
Format: independent work

The objective is to create a variety of "what-if" questions that will be used in the next activity together with the company representatives in order to provoke critical thinking and imagination to explore alternative futures. In order to conduct this step and create "what-if" questions, two options can be implemented.

Option 1: AI support
Using prompts, what-if questions are co-created with AI support.

Option 2: Free choice
Using one's sensitivity it is possible to construct what-if questions based on the input from the previous activities, such as "Future compass", trend research, domain or stakeholder mapping.

Activity 2. Journey into the Future

Description: It is an activity that helps participants to immerse into imaginative exploration of the future of a particular domain and explore and embody their experiences within it.

Participants

- Artist
- Company representative
- Facilitator

Materials needed

- Audio

Description of the activity:

Step 1. Immersing into the future

Format: workshop
The audio starts to play. The participants close their eyes and guided by the audio narrative, immerse themselves into the future of the chosen domain they are exploring as a time travel exercise.

Step 2. Reflection

Format: workshop
The participants open their eyes, and share what kind of future of the specific domain they have envisioned and experienced. They share it with the group in as much detail as possible, and describe any emotions or feelings that came up for them.

Activity 3. Alternative futures

Description: It is an activity that introduces what-if questions to the participants in order to create and explore visions and contexts of alternative futures based on them.

Participants

- Artist
- Company representative
- Facilitator

Materials needed

- What-if card deck
- What-if questions created in the previous activity

Description of the activity:

Step 1. Exploring alternative futures
Format: workshop What-if questions are presented to the participants. By choosing specific "What if ..?" questions the participants create alternative futures and explore them by imagining their context, as well as what impact it can have on their domain.
Step 2. Visualizing alternative futures
Format: workshop Using image-generated AI tools and prompts, the participants generate visualizations in relation to the alternative futures that are being discussed by the participants in order to create a common vision of the futures discussed.

Activity 4. Scenario Matrix

Description: Scenario matrix is a method used to explore and develop different possible futures or scenarios based on the investigation of trends, alternative futures and uncertainties identified within the domain.

Participants

- Artist

Description of the activity:

Step 1. Identifying the critical question and uncertainties
Format: independent work Based on the reflections on the alternative futures activity, as well as all previous research, a critical question(s) in relation to the domain should be formed. The criticality of the questions should allow the identification and development of a number of uncertainties for the domain. To conduct this step and find uncertainties, three options are available for implementation: Option 1. Impact/ Uncertainty matrix The matrix helps to map all the identified uncertainties according to their importance and uncertainty. As a result, it helps to see the most uncertain and the most impactful trends for the domain.

Option 2. Free choice One can use their own sense and the input from previous research and reflections to develop the uncertainties. Option 3. AI support Using prompts AI tool can be used to co-create and co-generate options for critical uncertainties based on the input of the previous activities.
Step 2. Creating the matrix
Format: independent work By considering which two critical uncertainties could be the most interesting for the domain, and placing them on both axes, it is possible to construct four different scenarios. It is crucial to choose and place the two axes in a correct way so that the matrix would contain four meaningful and different from each other scenarios.
Step 3. Creating scenarios
Format: independent work After the matrix is done, each quadrant should be explored as a scenario by giving name to each one with keywords and a short description.
Step 4. Scenario assessment
Format: workshop During the workshop, guided by the facilitator, the artist presents four developed scenarios to company representatives. The presentation of the scenarios includes the general narrative, as well as narration describing the related trends that have influenced and builds up each scenario, as well as each scenario is described according to the STEEP+V areas, including all stakeholders identified for each scenario (their power, struggles, opportunities). Together with the company representatives and based on their interest as well as "Future compass", both the artist and the company choose one scenario which they would like to be developing further in the next phase.

Activity 5. Scenario building

Description: Scenario building is an activity that uses different narrative techniques to build a compelling representation of the future.

Participants

- Artist

Description of the activity:

Step 1. Scenario worldbuilding
In order to create a narrative of the scenario, several components can be used: Context

The context of where the scenario takes place is described. The areas of STEEP+V could be used to describe the scenario from different perspectives.

Stakeholders

The description of personas living in the scenario can help to immerse and understand the specific aspects of the scenario through their "daily life" and stories. Personas can be visualized in a variety of ways, such as drawings, videos, images, audio recordings of their voices from future scenarios.

Artefacts

Artefacts can represent the scenario and serve as medium to communicate the scenario and its context to the audience.

Step 2. Scenario visualization

In order to make a coherent story based on the developed components, scenario can be visualized through various mediums which can be mixed, such as

Visual format

- Images, sketch, storyboard
- Video
- Animation
- Website

Audio format

- Audio
- Sounds
- Podcast

Bibliography

- Bureau Sylvain, *Art Thinking: A method for creating the improbable with certainty*, Entreprendre & Innover, Volume 42-43, Issue 3-4, pages 88 to 103, 2019.

- Bureau Sylvain, *The Art Thinking Method – re-shaping Business Education*, Published by Say Institute of ESCP Business School, 2022.

- Care' Deborah, Smarrelli Marcello, Paolino Chiara, *Innovating business with art, The Fondazione Casoli Method*, Egea Bocconi University Press, 2022.

- O'Dea Tom and Alacovska Ana and Fieseler Christian, *The Role of Art in Enterprise* Artsformation Report Series 2020.

- European Institute for Culture, Art+Tech Report, 2019.

- Formica Piero, Edmonson John, *Innovation and the Arts: the Value of humanities Studies for Business*, Hardcover, 2020

- Kristefan Minski, *Collaboration in experimental art: case studies in co-creation, transdisciplinarity and art-science practice at Ars Electronica Futurelab*, University of Newcastle Research Higher Degree Thesis, 2020.

- Nissley Nick, *Arts-based learning at work: economic downturns, innovation up- turns, and the eminent practicality of arts in business*, Emerald Group Publishing Limited, Journal of Business Strategy, 143 Vol: 31, n°:4, pp. 8-20, 2010/7/6.

- Segre Bruno, *Adriano Olivetti. A model of humanism for modern times. Commitments, proposals and projects for a more human world*, Imprimatur, Bologna, 2015.

- Strauß Anke, in *Dialogues between art and business: Collaborations, cooptations, and autonomy in a knowledge society*, Cambridge Scholars Publishing, 2017.

- *Thomas, James . Review of 'From the Archives: Art and Technology at LACMA, 1967– 1971, 2016. Caa.Reviews, 8–10, doi:10.3202/caa.reviews.2016.73*

- *Whitaker Amy, Art thinking: How to carve out creative space in a world of schedules, budgets and bosses, NY: HarperCollins, 2016.*

- *Scenario Reports, Futures shaping art/ art shaping futures , Copenhagen Institute for Future Studies, 2021*

The table of conducted interviews

Name	Affiliation	Date of the interview
Shaun Ussher	Artist and PhD researcher, University College Dublin	Apri 6th, 2023
Albert Barqué-Duran	PhD, Artist and Researcher in Digital Arts & Creative Technologies	April 17th, 2023
Epaminondas Christophilopoulos	UNESCO Chair on Futures Research and MOMUS President	May 15th, 2023
Aisling Murray	Creative Producer, Curator, and Arts Consultant	May 9th, 2023

Annex

1. POLIMI - DF method
2. Gluon – AKAW Game process
3. Gluon – Art Driven Innovation Report
4. Gluon - Local Expert Group
5. MUSAE Co-Creation Workshop
6. Time travel exercise
7. UB – Sad-Hop-Jo-So
8. UB - Explore Around

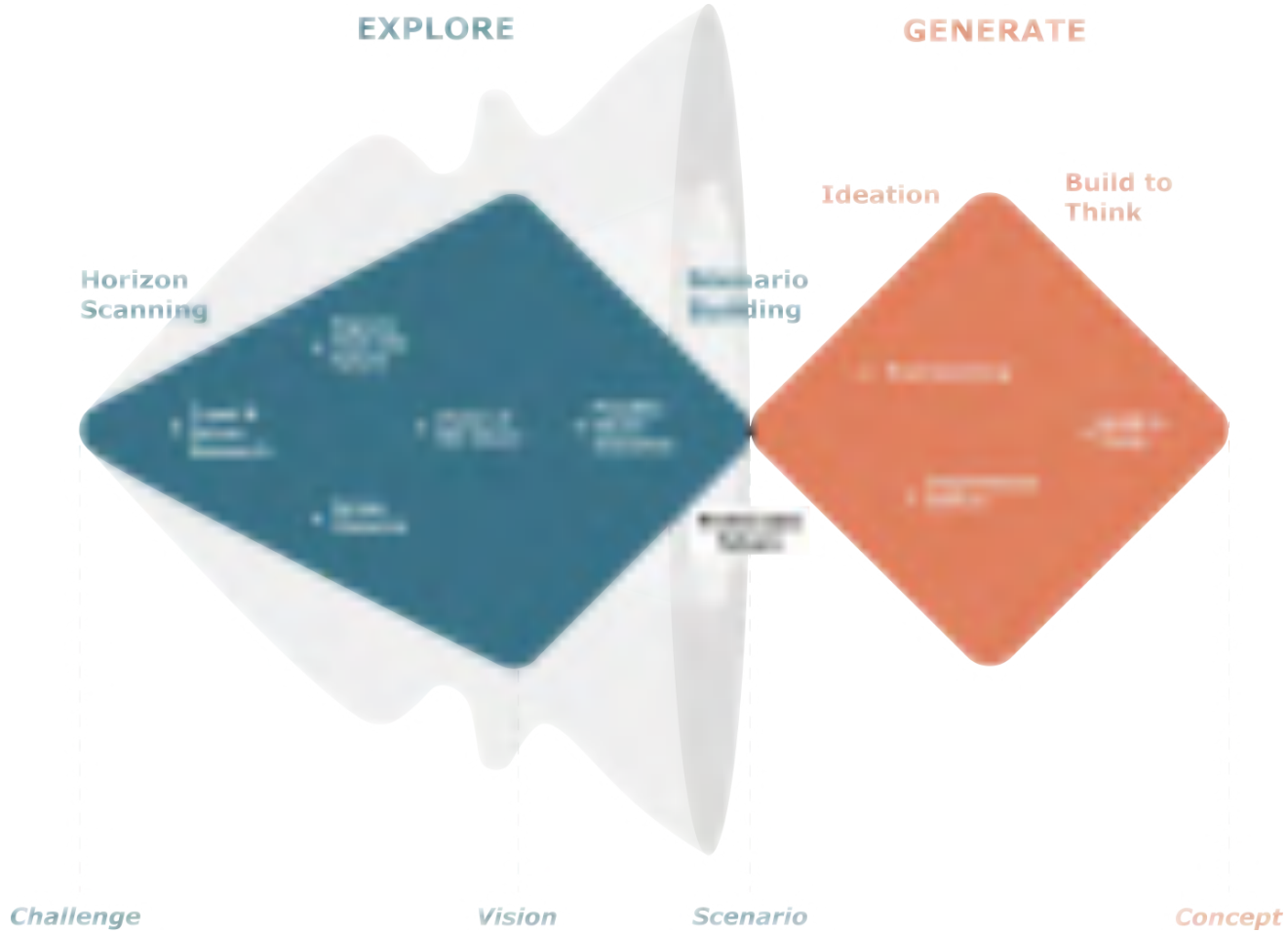
1. POLIMI – DF method

Design Futures method

10/11/2022 | DFA Method Refinement meeting

Design Futures (DF) method | Introduction

Design Futures method was developed by POLIMI as an integration of the *Futures Thinking* (FT) process, aimed at anticipating potential futures, and the renowned *Design Thinking* (DT) process

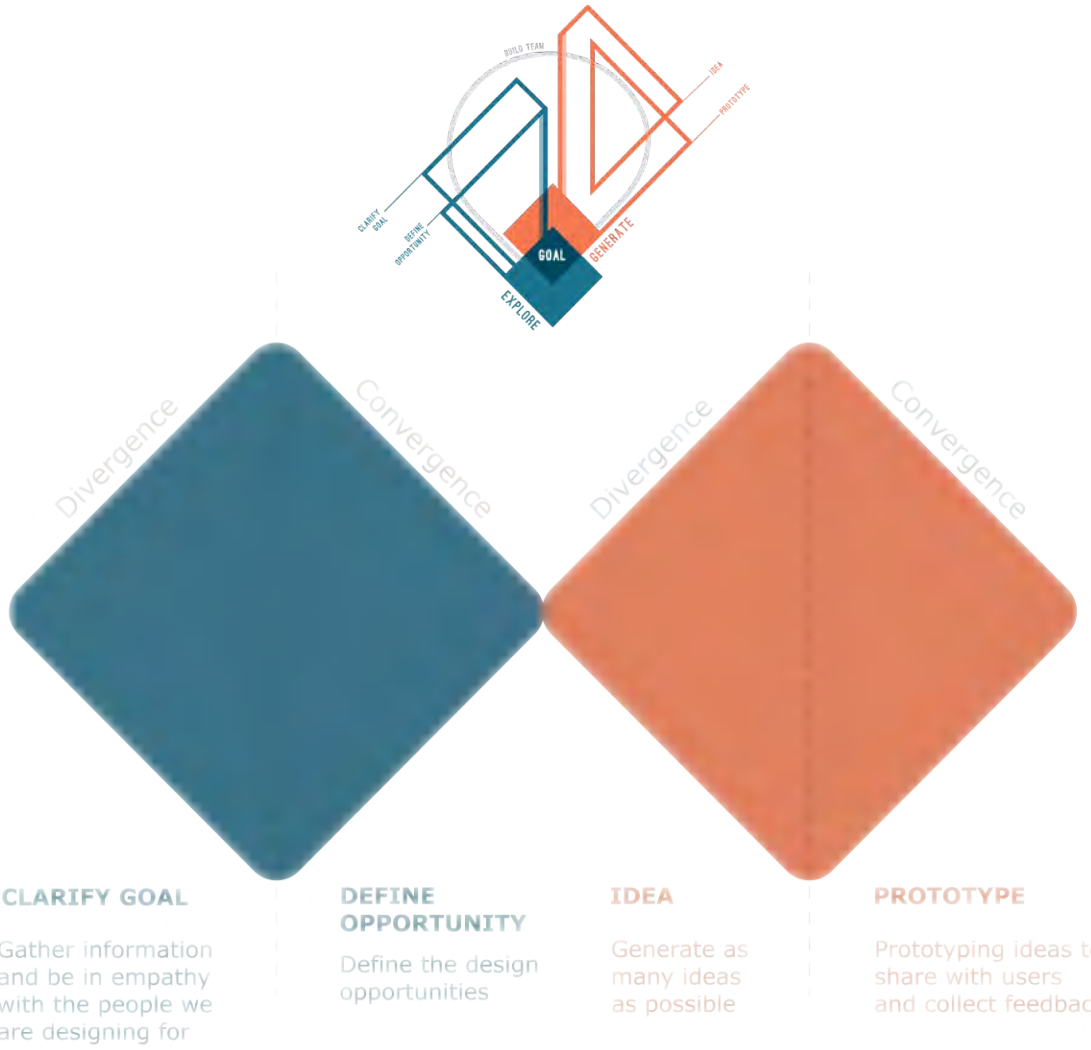


Design Futures method by POLIMI

Design Thinking | a human-centered approach

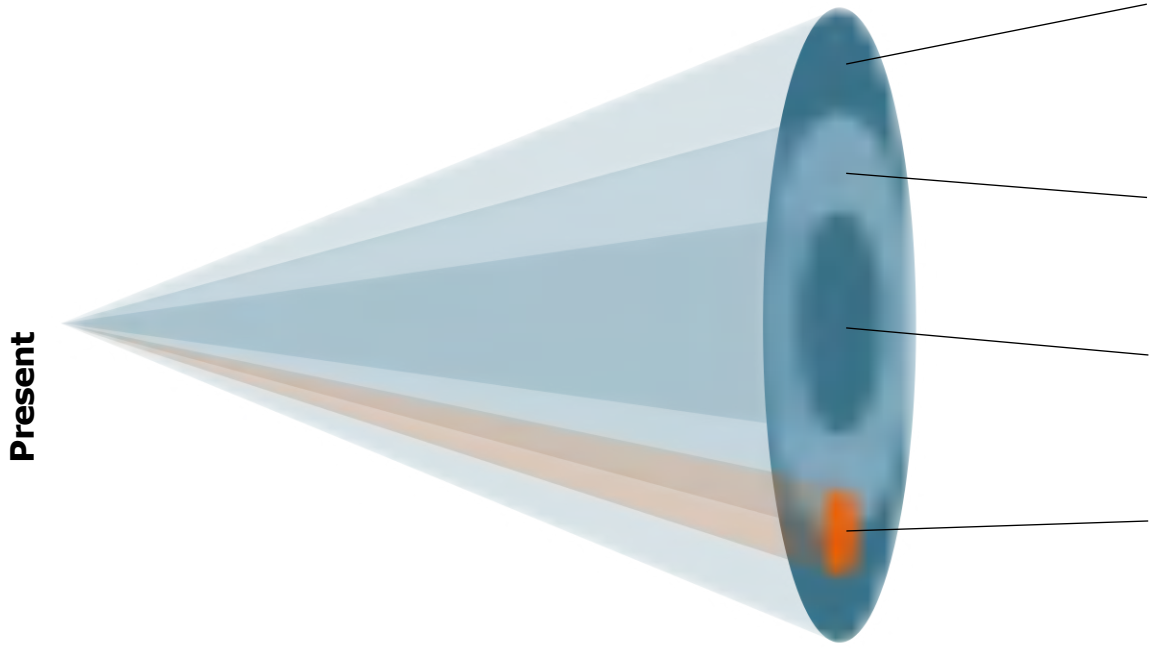
Design Thinking is
- useful **to achieve** large scale **innovation** and be competitive on the market
- focusing on **human needs** and looking for new perspectives
- able to recognise patterns of behaviour and interaction

DT alternates *divergent* and *convergent* phases of exploration and generation.



Futures Thinking | a forward-looking approach

Futures Thinking is a **creative** and **exploratory approach** to *strategic design* that uses divergent thinking **to envision** the **multiple possible futures** ahead to **identify the most preferable one** and inform decision-making in the present.



Possible Futures *might happen*, based on some future knowledge we do not yet possess, but which we might possess someday;

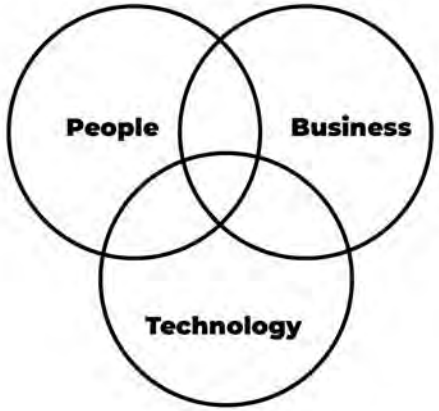
Plausible Futures *could happen* based on our current understanding of how the world works

Probable Futures are *likely to happen*, usually based on (in many cases, quantitative) current trends

Preferable Futures *should or ought to happen*, normative value judgements as opposed to the mostly cognitive ones above

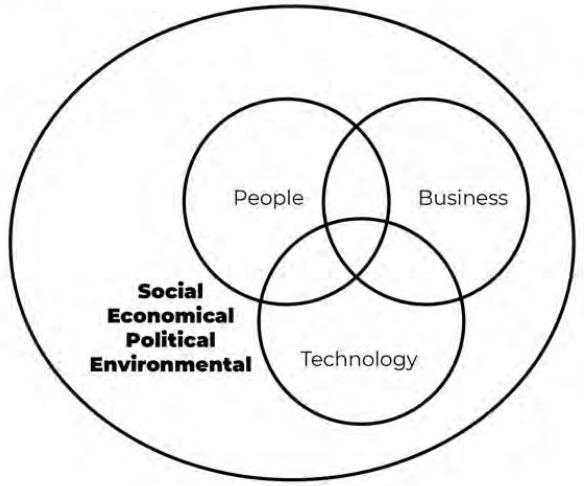
Taxonomy of Futres based on the Futures' Cone by Joseph Voros (2003)

Design Thinking vs Futures Thinking



Scenarios based on
actual needs

The design process ultimately leads us to **create a final solution that is taken to market**. The goals are **products, services, and experiences for today's world** (Roumiantseva 2016).



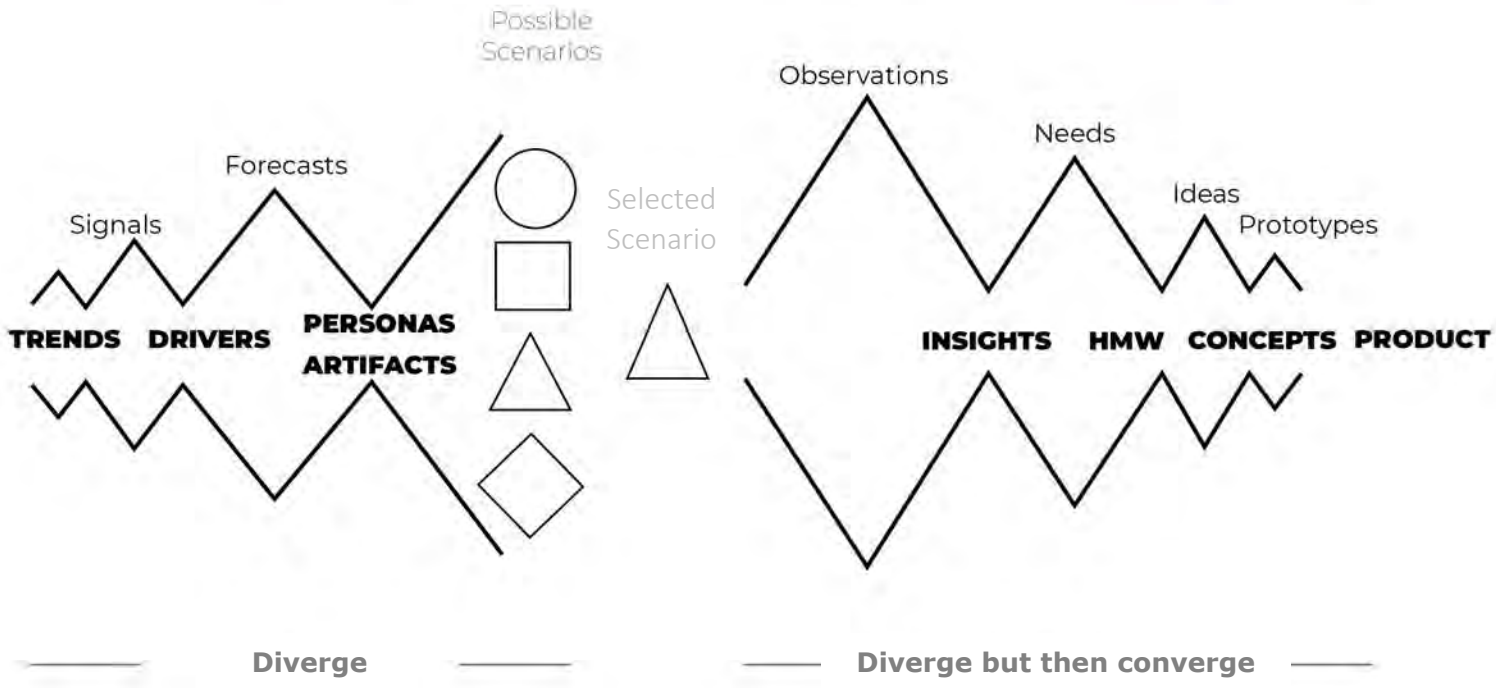
Scenarios based on
opportunities

Futures process invites **inspiration and exploration of opportunities in the future** that may or may not happen. Futures is a kind of design that is concerned with **asking 'what-if**?

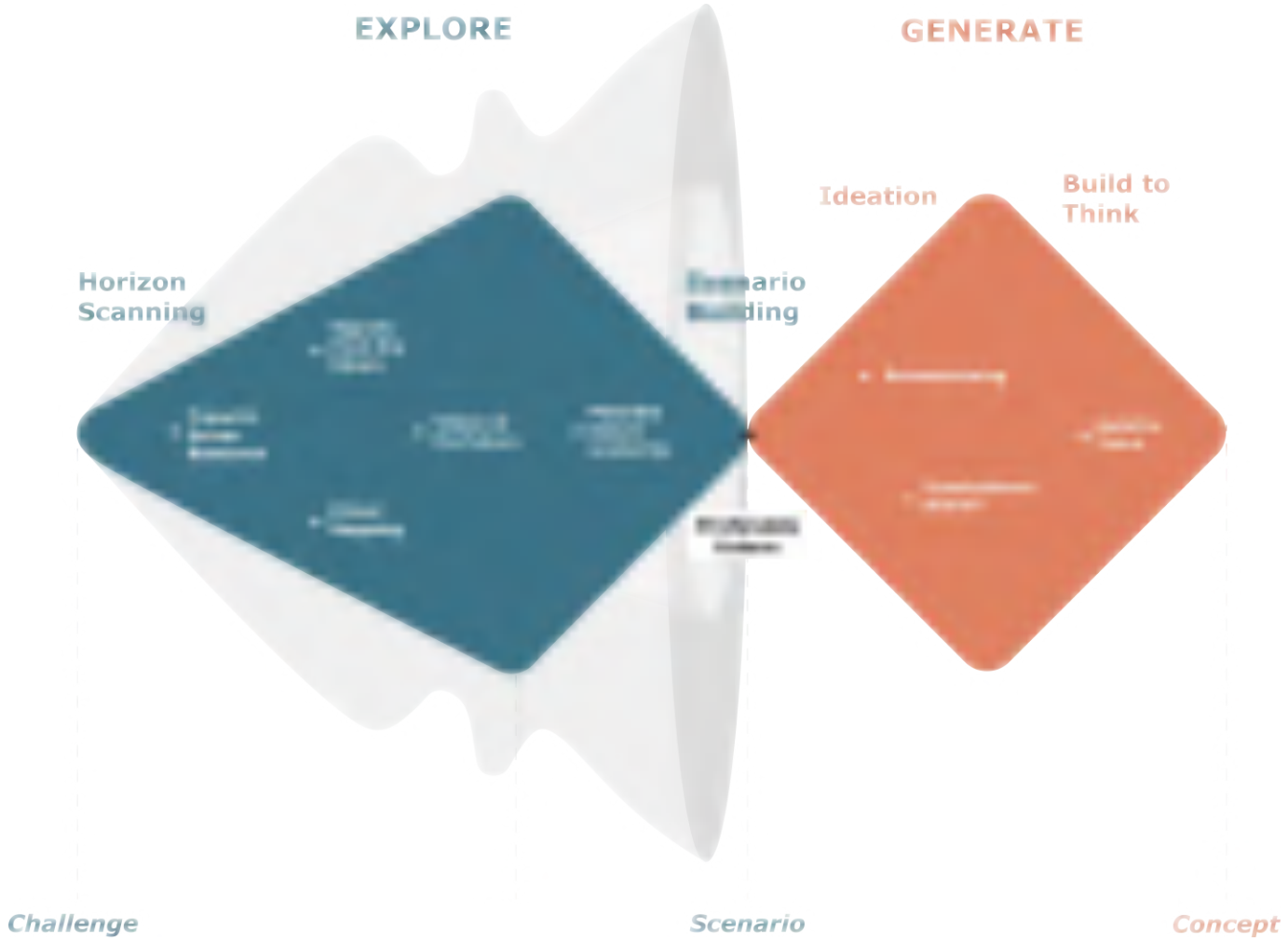
It builds an **anticipatory attitude to better handle uncertainty** (Roumiantseva 2016).

DESIGN THINKING
empowered by
FUTURES THINKING

to **design future-proof products, services or strategies.**



Design Futures | process



FUTURES THINKING **DESIGN THINKING**

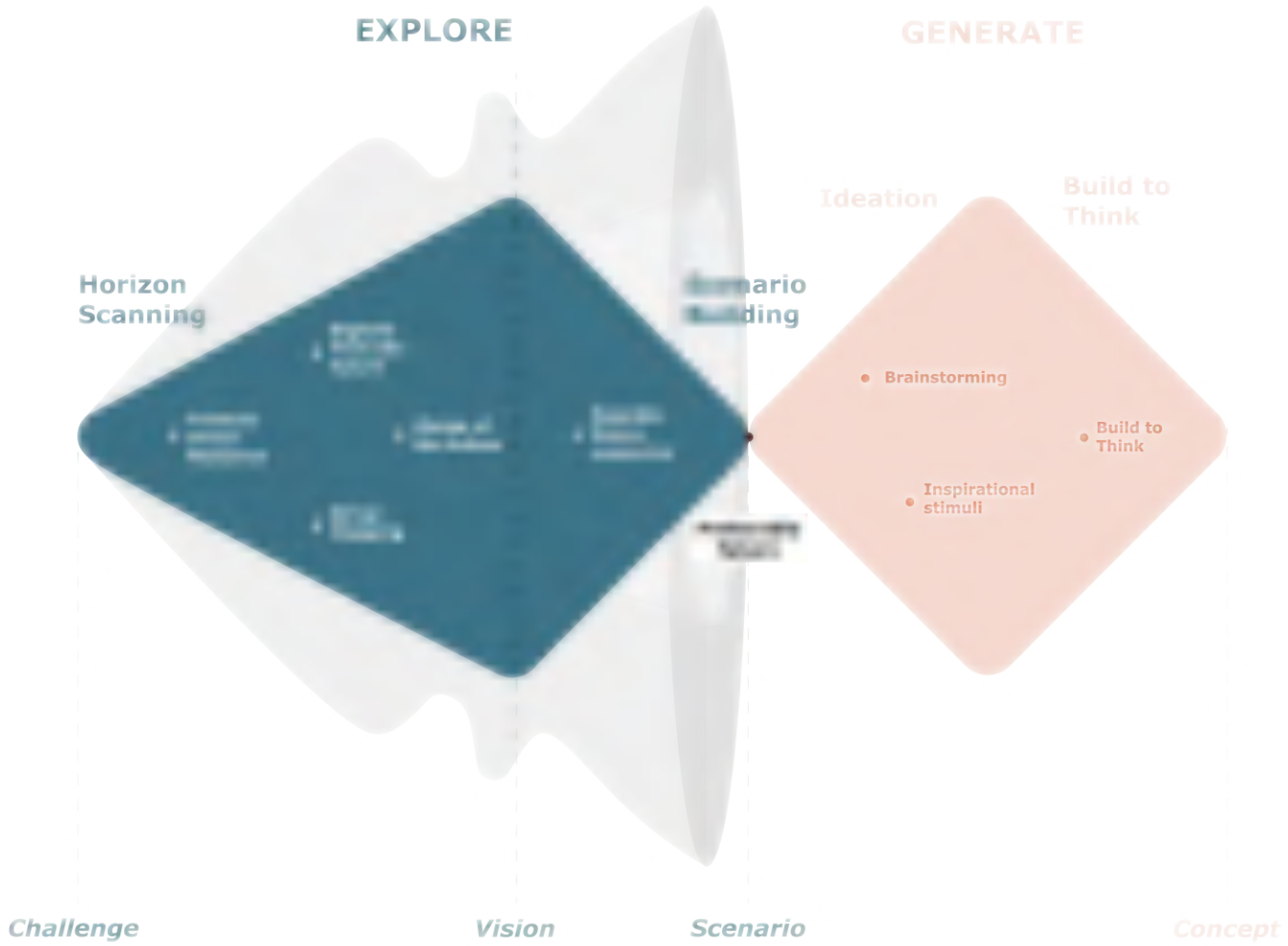
DF method | Explore

Explore aims at the creation of **functional views of alternative futures** and possibilities.

It fosters and facilitates the **analysis** of the social, technological, economic and political signals to shape and influence the future, **defining a clear vision** and **constructing scenarios** to reveal and anticipate new design opportunities.

It is divided into *two phases*:

1. **Horizon Scanning**
2. **Scenario Building**



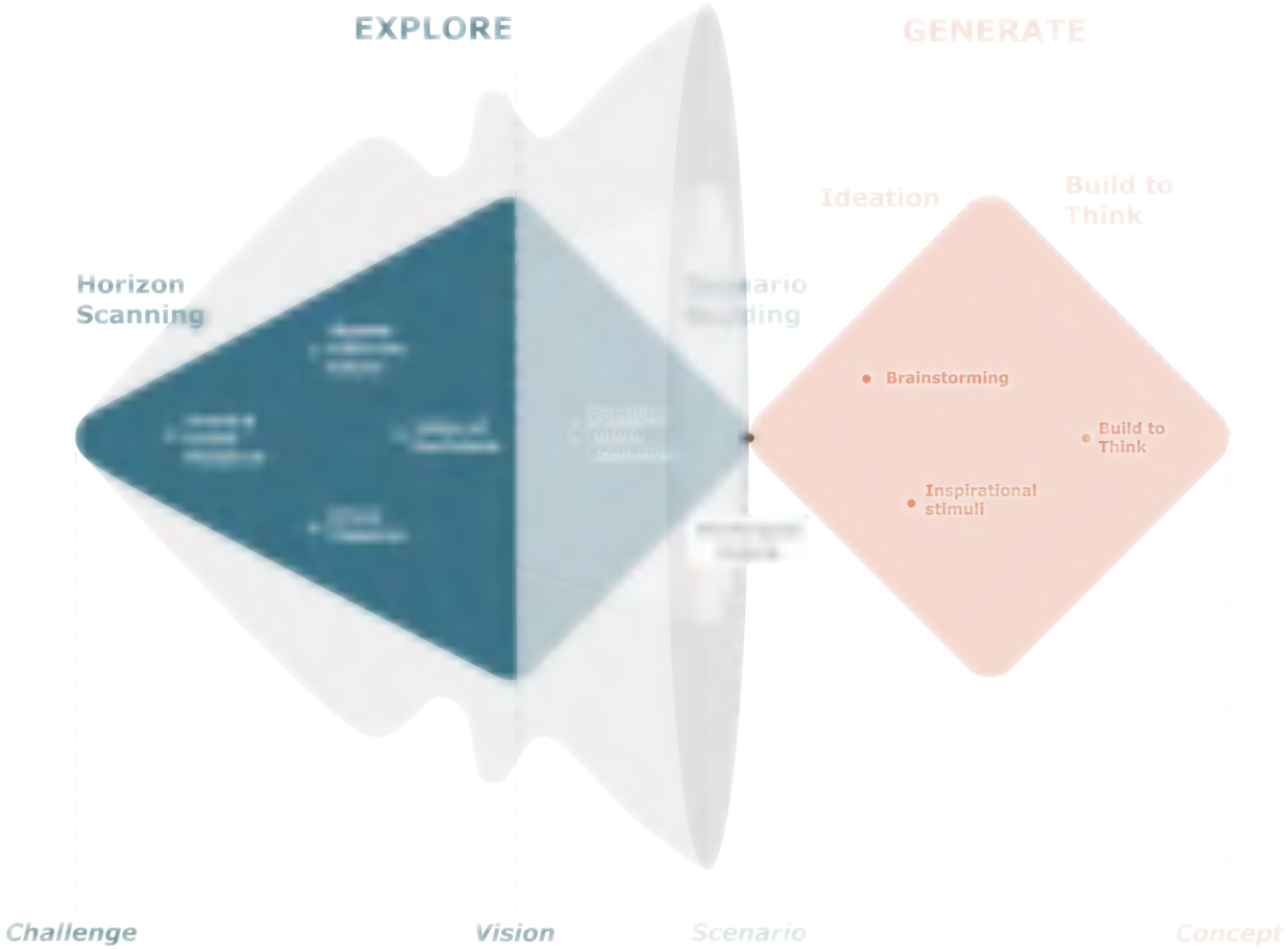
DF method | Explore | **STEP 1 - Horizon Scanning**

DEFINITION
Horizon scanning is a process to **identify long-term trends** and interesting developments that could have an impact on the future of a specific area, allowing to create maps of the future emerging landscape.

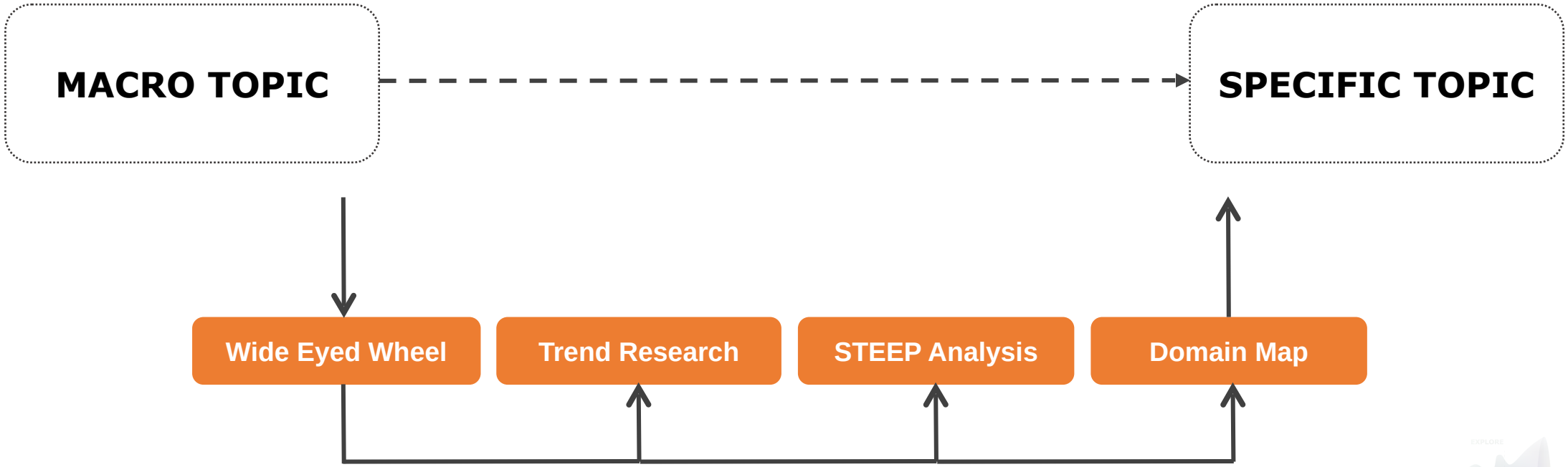
HOW
Trends are identified by scanning the social, technological, economic, environmental and political drivers.

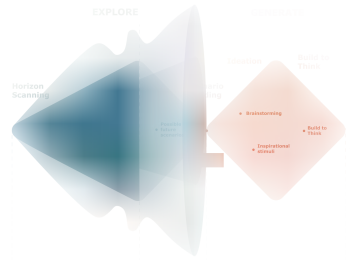
It helps to broaden the thinking, imagining new opportunities and challenging the status quo (through industry and government reports, scientific publications, patents, news, conferences and surveys)

OUTPUT
Series of scans recording information on emerging trends and developments that could impact the chosen area in the future.

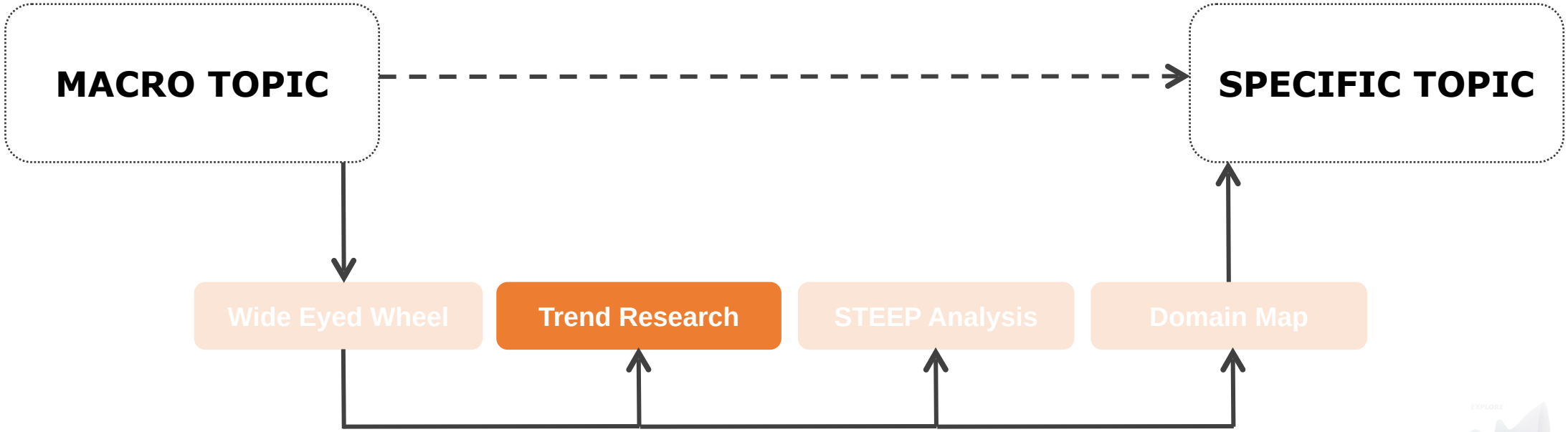


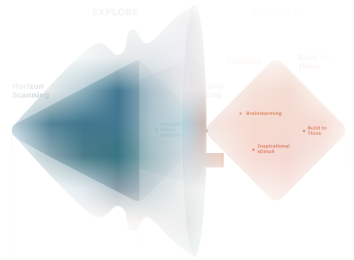
DF method | Explore | **STEP 1 - Horizon Scanning**
TOOLS





DF method | Explore | **STEP 1 - Horizon Scanning**
TOOLS





DF method | Explore | STEP 1 - Horizon Scanning
TOOLS / TREND RESEARCH

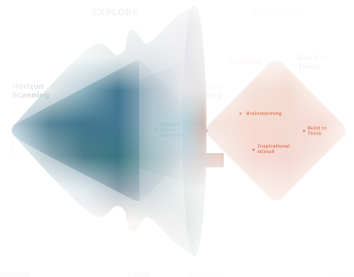
TREND

Definition
General direction of changes or developments

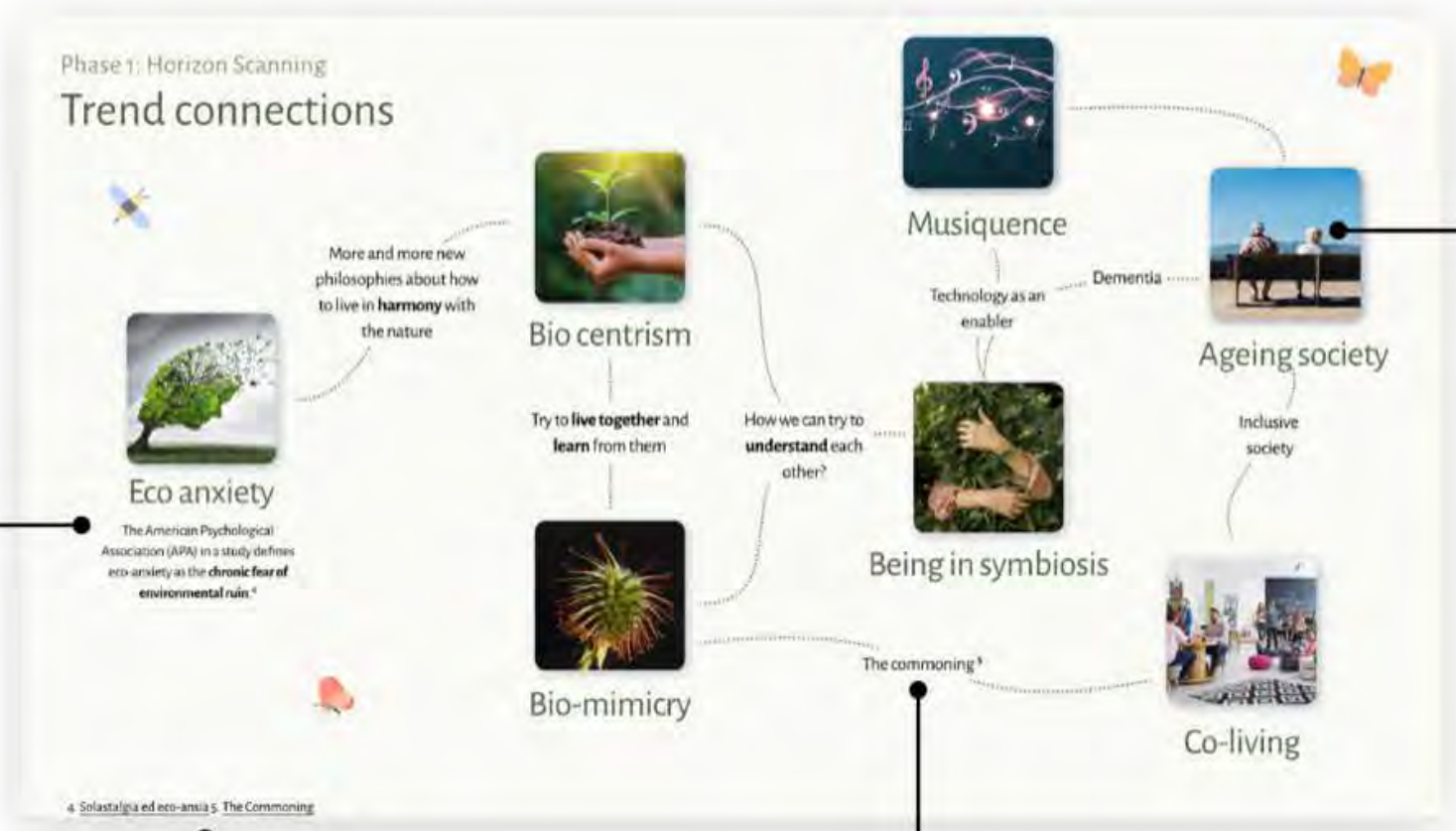
Process
1. Digging deeper in the macro-theme supported by reliable scientific sources;

2. Mapping the findings and grouping trends into thematic clusters;

3. Making connections between trends visual with images, pictures, diagrams, illustrations etc...



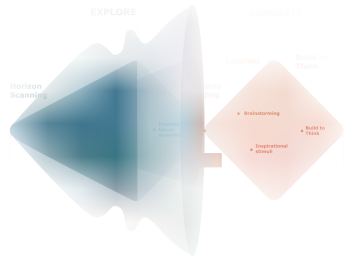
Naming the trends with simple **keywords** and short texts makes them more recognizable and understandable



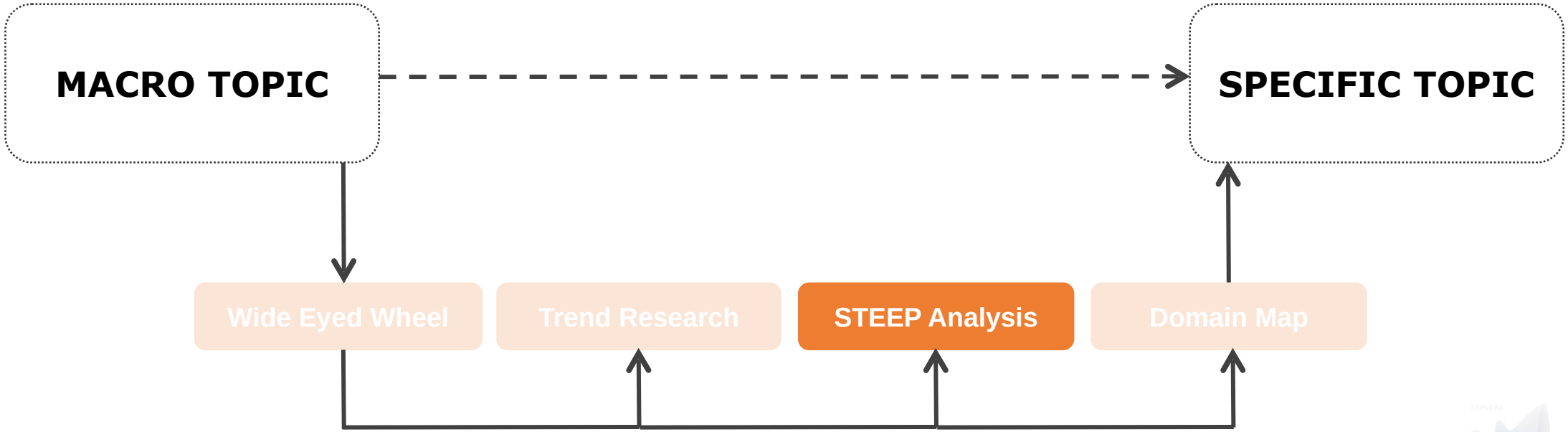
Make trends **visual**: the right pictures can describe trends avoiding too many words

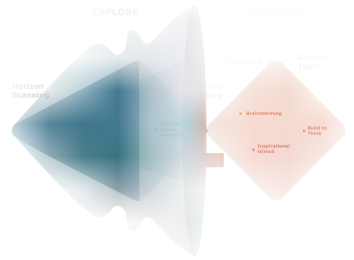
Support trends research with **sources and references**

Identify and clarify the **reason why** some trends can and should be connected



DF method | Explore | **STEP 1 - Horizon Scanning**
TOOLS



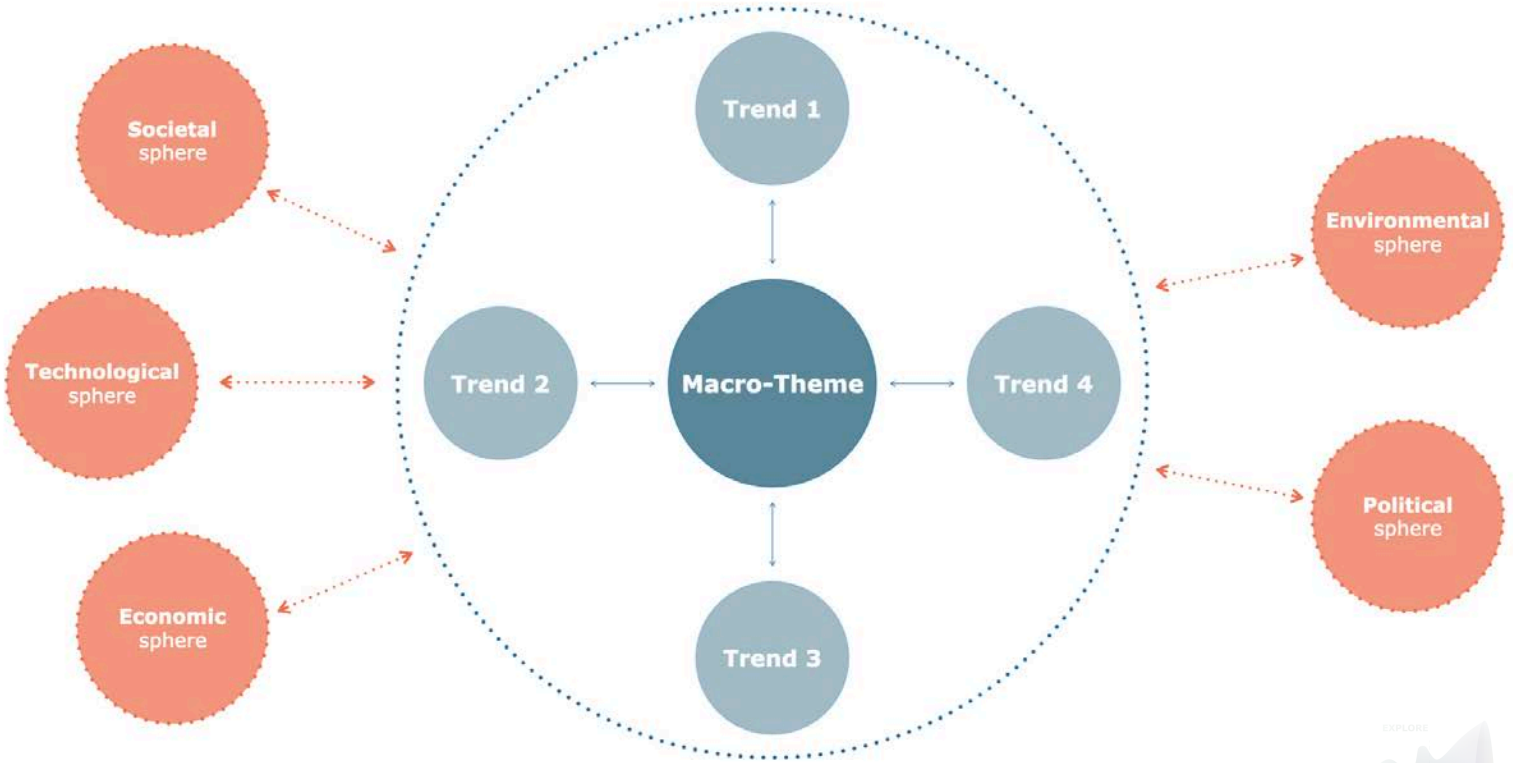


DF method | Explore | **STEP 1 - Horizon Scanning**
TOOLS / STEEP ANALYSIS

STEEP ANALYSIS

Definition
A STEEP analysis is used to evaluate external factors that may impact the macro-theme.

Process
Considering which trends are impacting or are impacted by the societal, technological, economic, environmental and political sphere.



DF method | Explore | **STEP 2 - Scenario Building**

DEFINITION

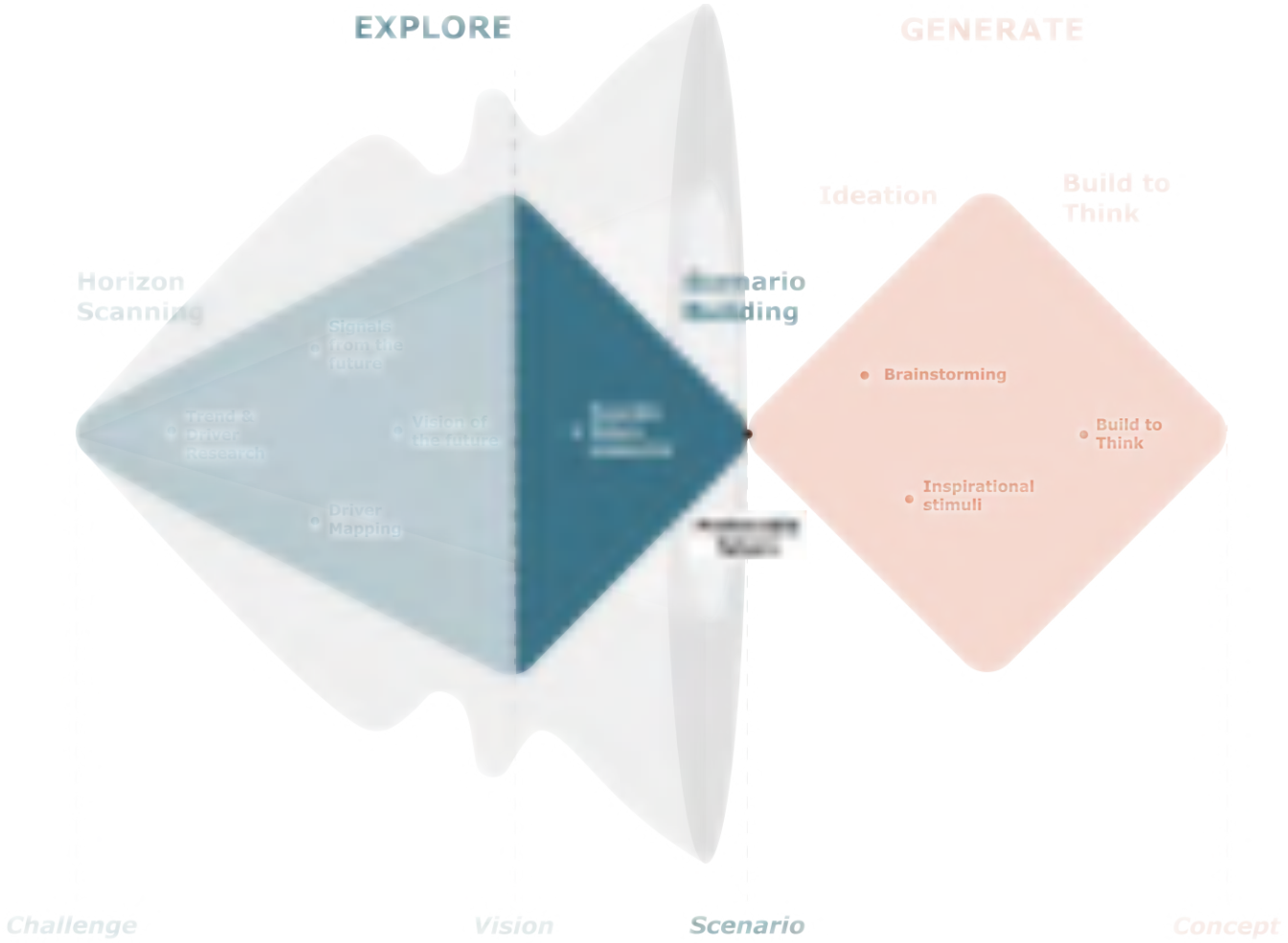
Scenarios are stories that describe alternative ways in which an area might develop in the future.

HOW

Each scenario explores how different conditions might favor or hinder the achievement of strategic goals. Scenarios are not predictions. They are not meant to be "right" or "wrong," "good" or "bad," but to offer **interesting pictures of the future**.

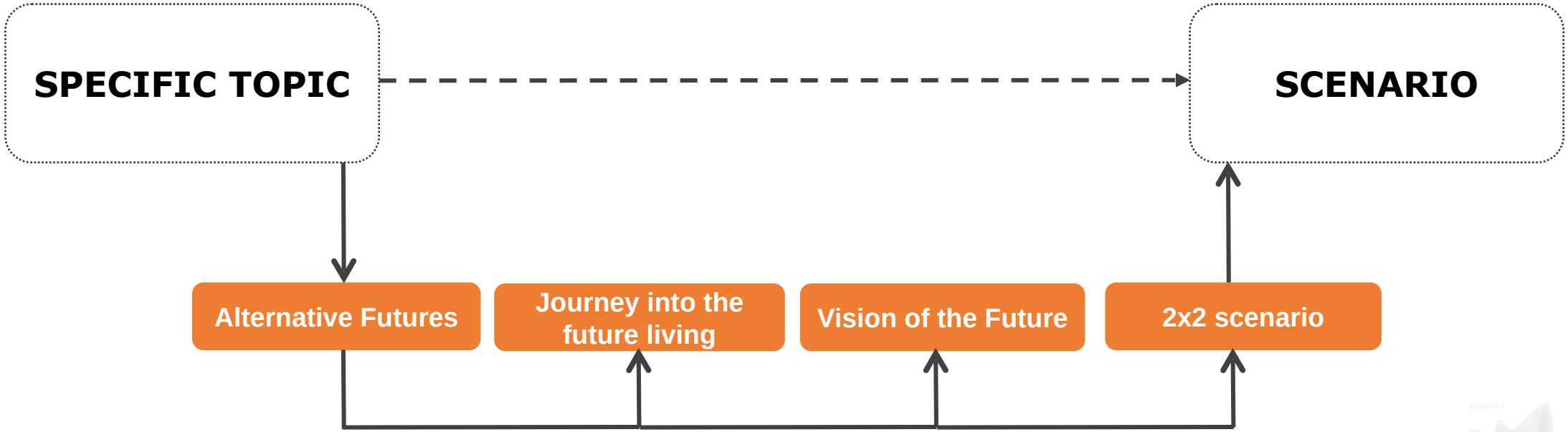
OUTPUT

Several plausible scenarios. One will be selected to develop the concept in the next steps

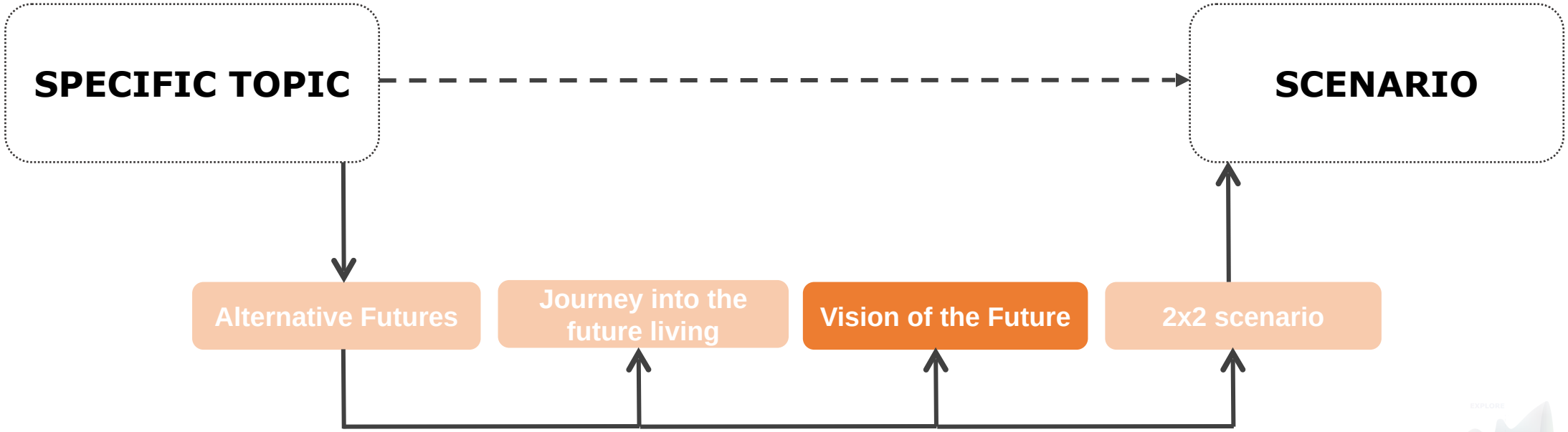


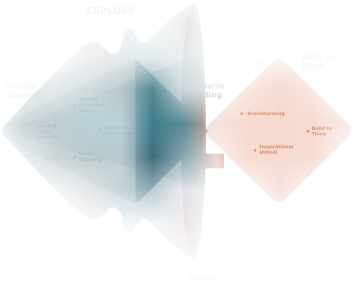
DF method | Explore | **STEP 2 - Scenario Building**

TOOLS



DF method | Explore | **STEP 2 - Scenario Building**
TOOLS / VISION OF THE FUTURE



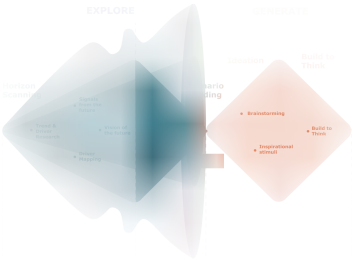


DF method | Explore | **STEP 2 - Scenario Building**
TOOLS / VISION OF THE FUTURE

VISION OF THE FUTURE

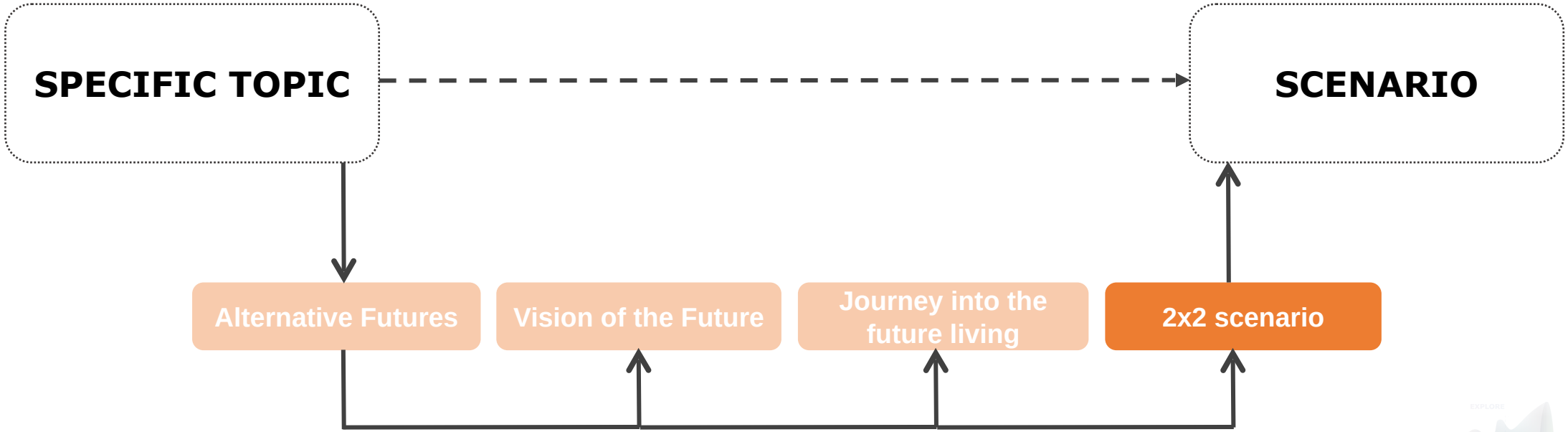
Definition
Storytelling tool that creates a statement of the future. It helps to set the basic concepts from which to start and explore various scenarios.

Process
- Complete the sentence
- Create a statement of the envisioned future



DF method | Explore | STEP 2 - Scenario Building

TOOLS

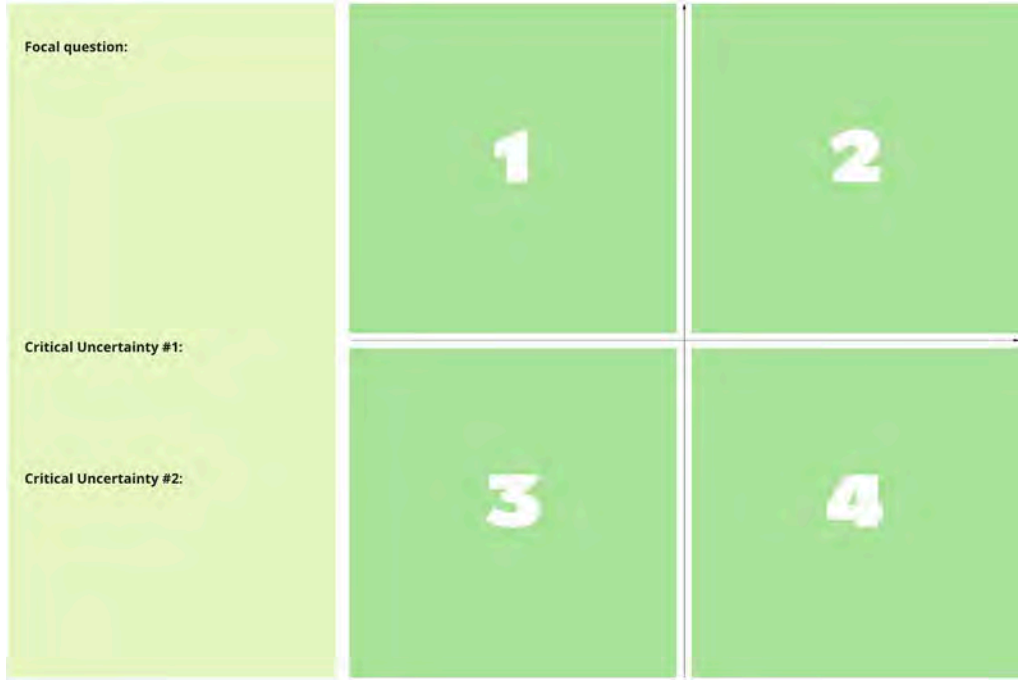


DF method | Explore | STEP 2 - Scenario Building
TOOLS / SCENARIO MATRIX

SCENARIO MATRIX

Definition
Method that helps generate four distinct future scenarios based on investigation of the trends. By identifying critical uncertainties that might influence the future of the topic, 2x2 Scenario Matrix is used to map them and construct scenario narratives.

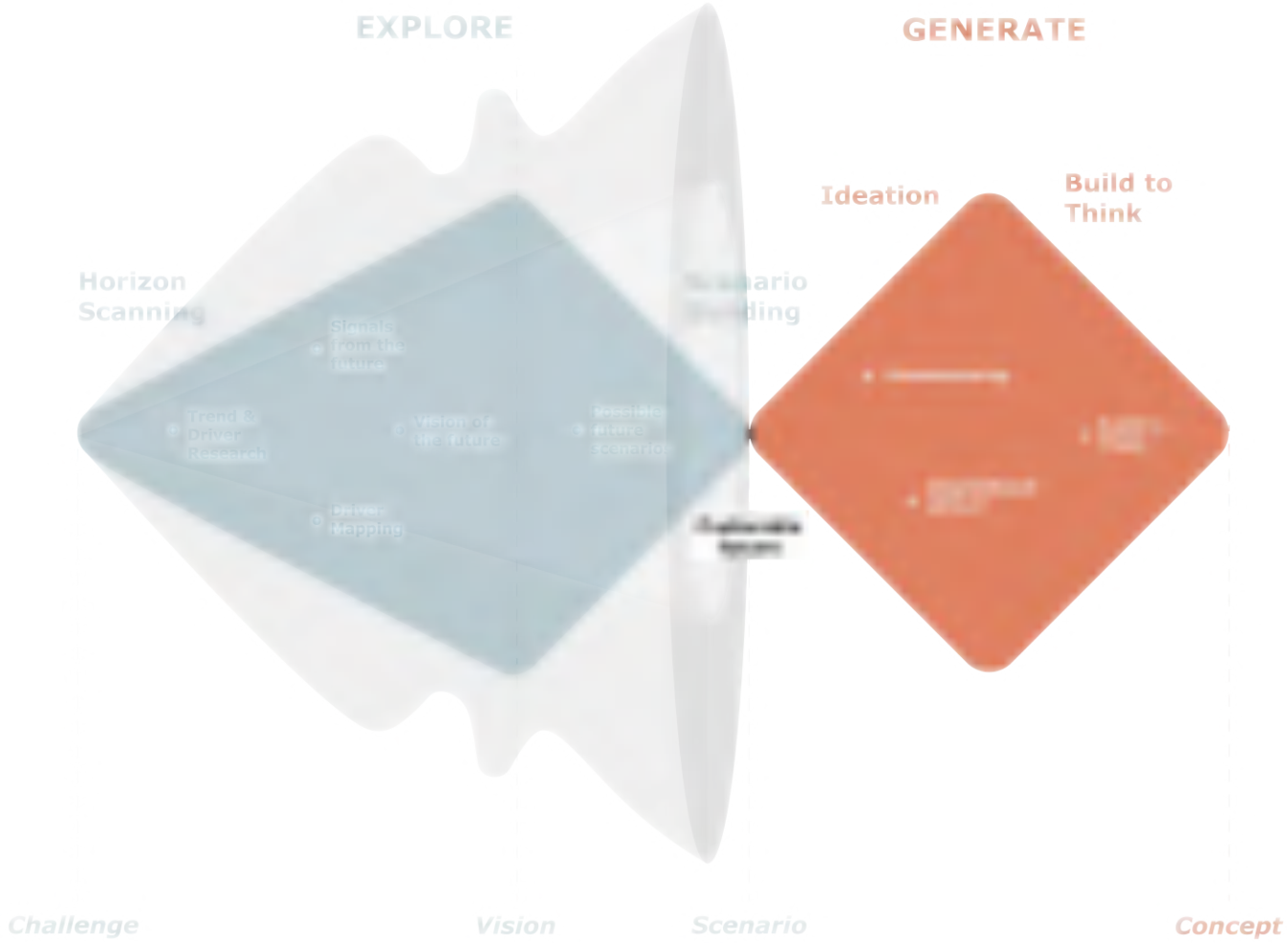
Process
- Identify the focal question
- Identify 2 'Critical Uncertainties' (i.e.: main contingencies) whose outcome will have a major influence on the future of the topic
- Arrange uncertainties in a 2 x 2 matrix
- Develop the 4 possible scenarios



DF method | Generate

Generate aims at making the **ideas tangible**, **propose** adequate **solutions** in line with the context and the objectives of the project. This stage allows the generation of **innovative and technological ideas**, **pertaining to the developed future scenario**. The generation stage is divided into two phases:

3. **Ideation**
4. **Build to Think**

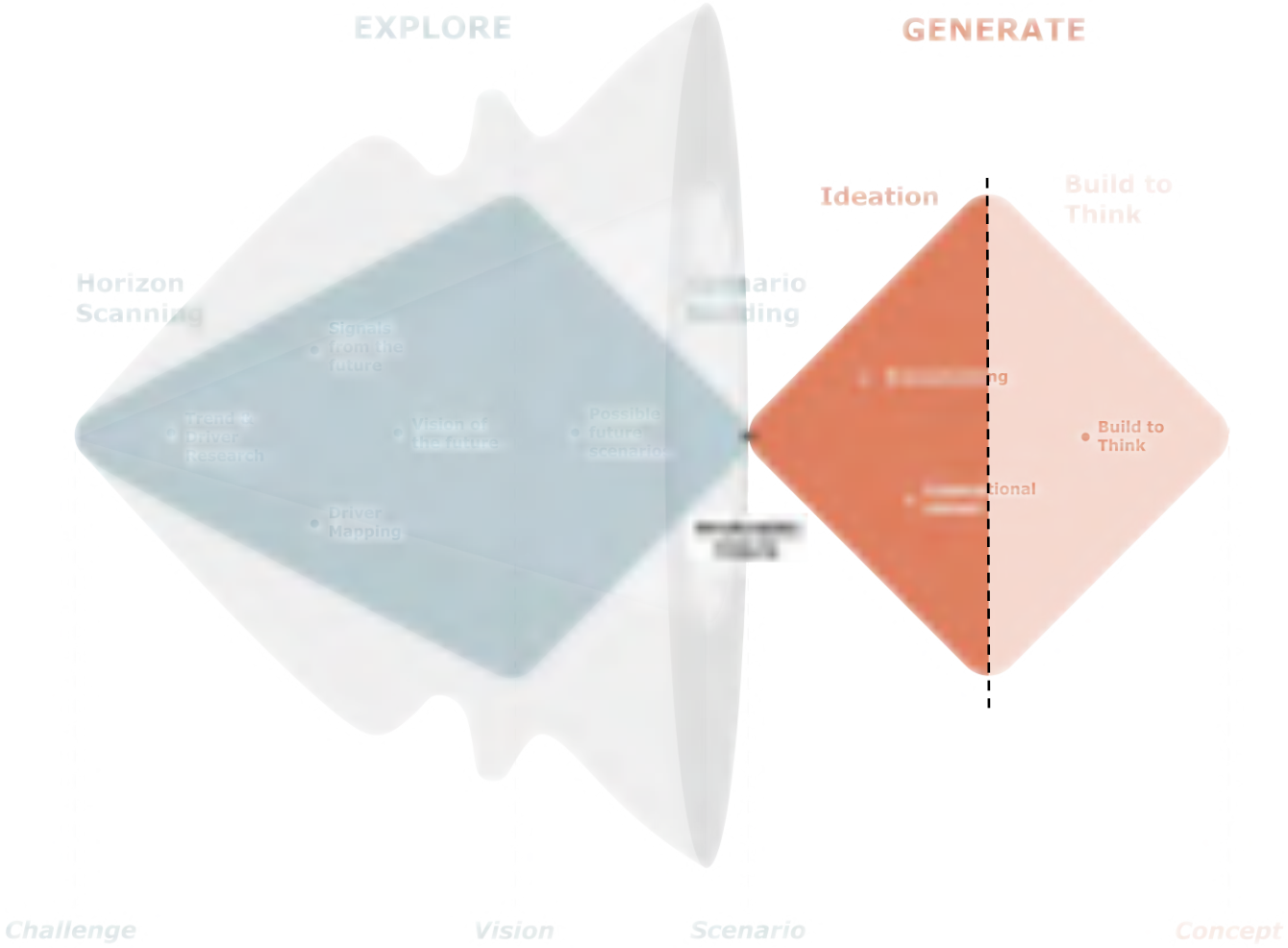


DF method | Generate | **STEP 3 - Ideation**

DEFINITION
Ideation is focused on the **generation of innovative ideas** for the scenario framed and envisioned, using techniques that help identify opportunities and solutions for design.

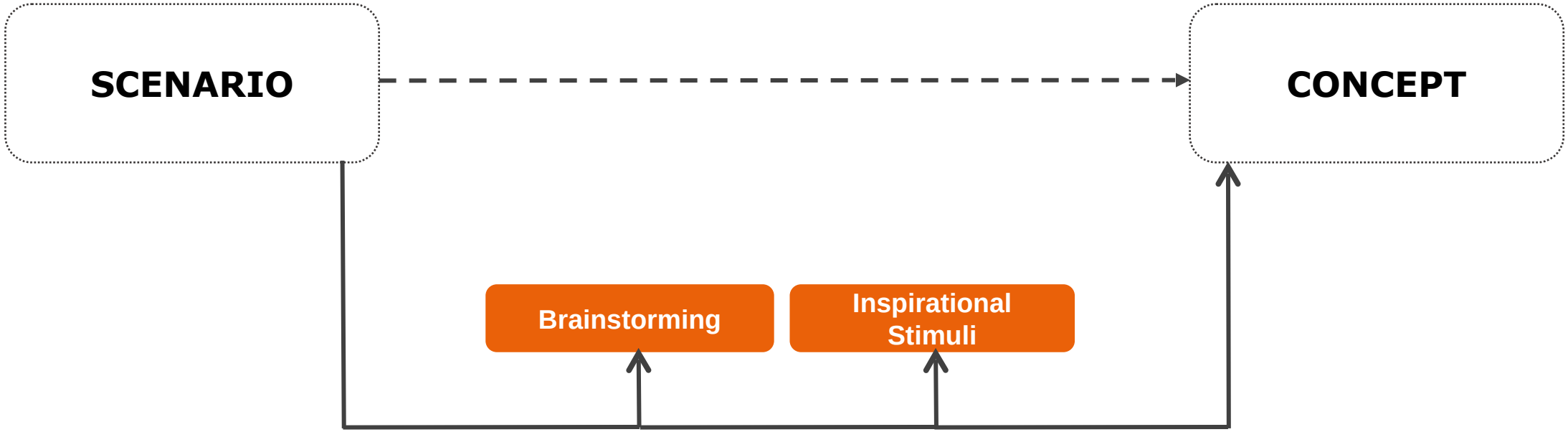
HOW
The generated **ideas are clustered into affinity group**s, evaluated according to feasibility and originality criteria, and then selected to converge into a single, strong idea to be worked on for the rest of the process.

OUTPUT
Concept of product, service developed within the selected scenario.



DF method | Generate | **STEP 3 - Ideation**

TOOLS



DF method | Generate | **STEP 4 – Build to Think**

DEFINITION

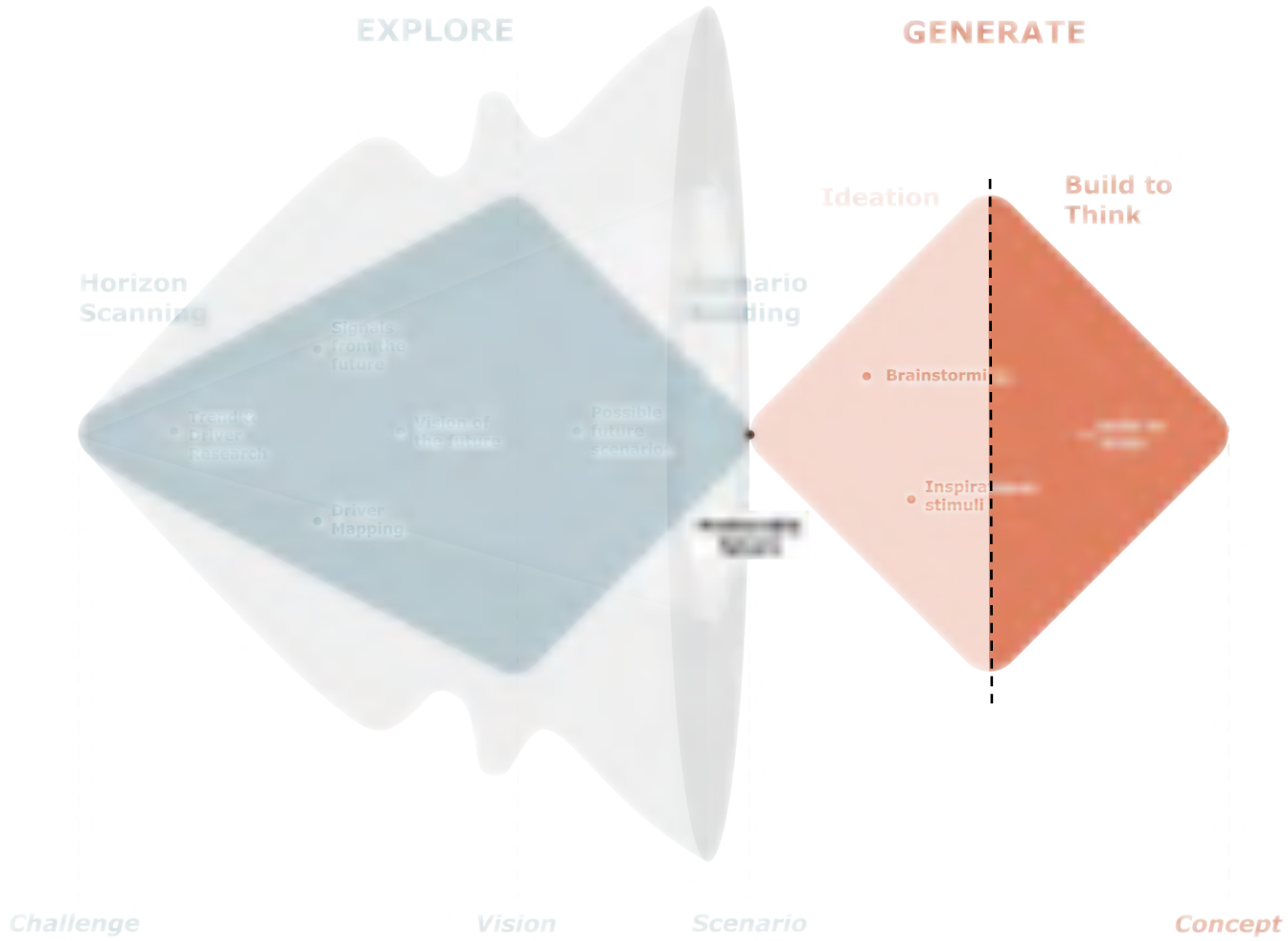
Build to Think aims to **enrich and refine the idea**, through tangible artefacts. This step gives way to constant reinterpretation throughout the prototyping activity, to continuously re-establish priorities and achieve a collective product.

HOW

One idea is selected and built through rough and rapid prototyping techniques, using the available material (scrap, waste material etc...). Prototyping is useful to quickly assess the idea, get and include feedbacks in a very short time to iterate and further develop the concept.

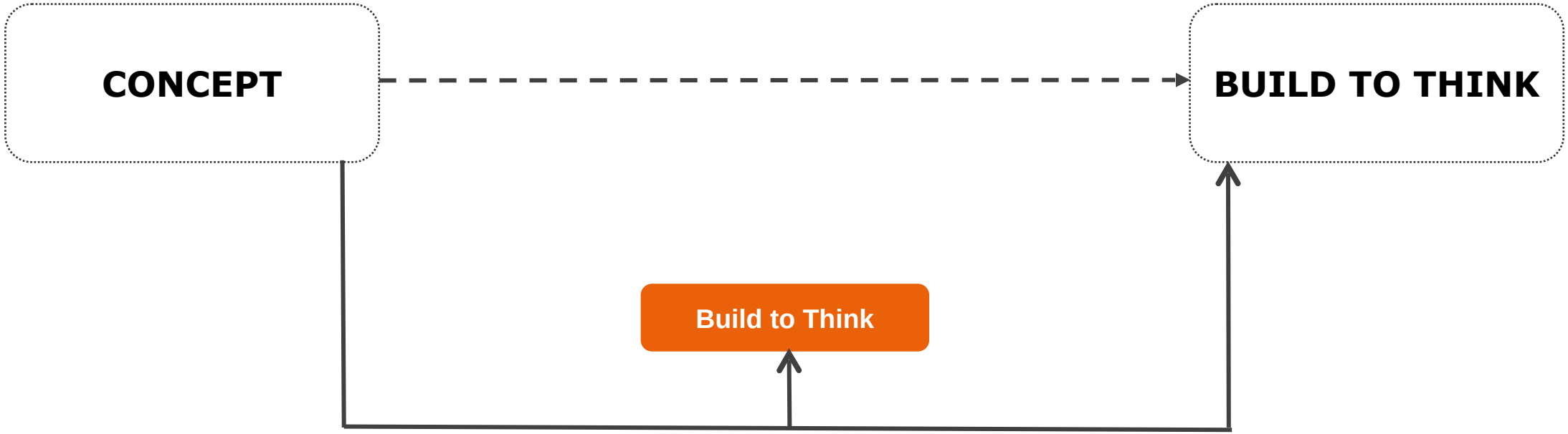
OUTPUT

Prototypes (they can be either physical or digital).



DF method | Generate | **STEP 4 – Build to Think**

TOOLS



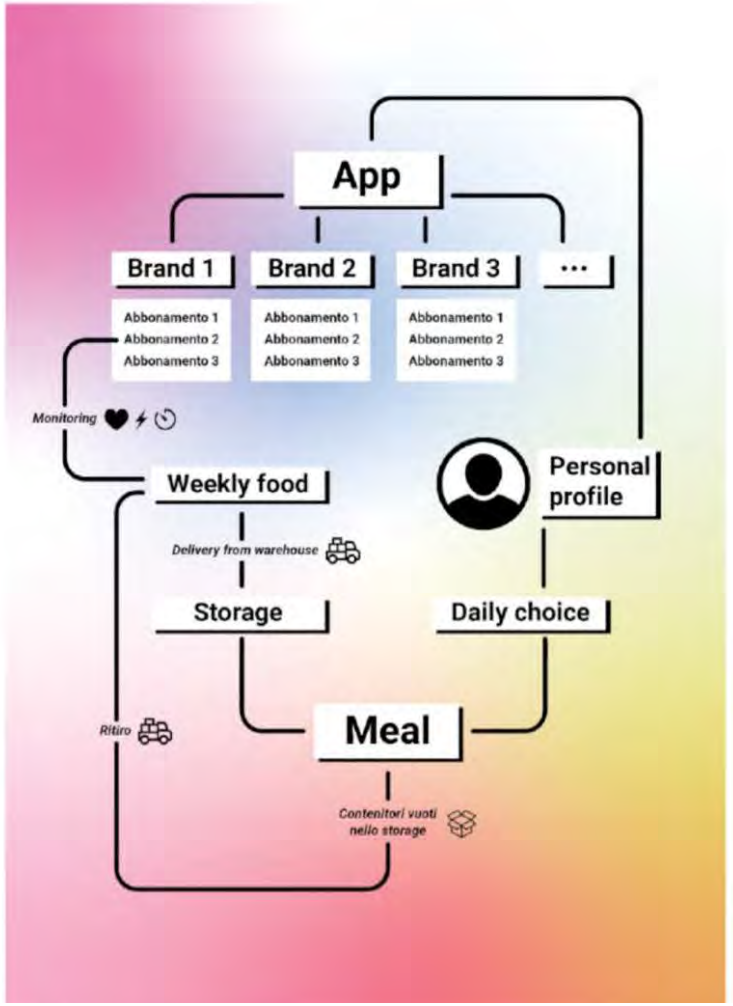
#4 SUPER PERSONAL

Algorithms and the Big Data revolution have brought personalization of well-being. We are be surrounded by devices that monitor our lifestyle, daily life and determine our diet in order to make it as efficient as possible.

Keywords

#personal
#awareness
#obsession
#health
#self-medication
#medicine
#leisure time
#personal coach

We're in 2031...
How does the food system work?



SCENARIO → CONCEPT → BUILD TO THINK

2x2 scenario

Brainstorming | Inspirational Stimuli

Build to Think

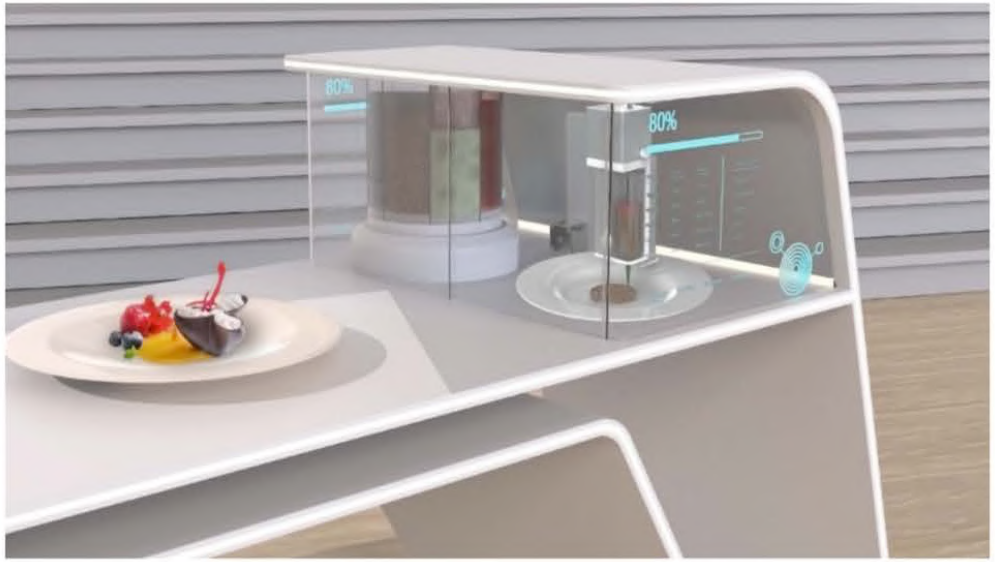
How do meals look like in 2031?
Case 1: Lonely life

SCENARIO → CONCEPT → BUILD TO THINK

2x2 scenario

Brainstorming | Inspirational Stimuli

Build to Think



SCENARIO → CONCEPT → BUILD TO THINK

2x2 scenario

Brainstorming

Inspirational Stimuli

Build to Think

DF method | Validation

The **method has been tested** and **validated** in 2 Master Degree courses in Integrated Product Design at the School of Design, Politecnico di Milano

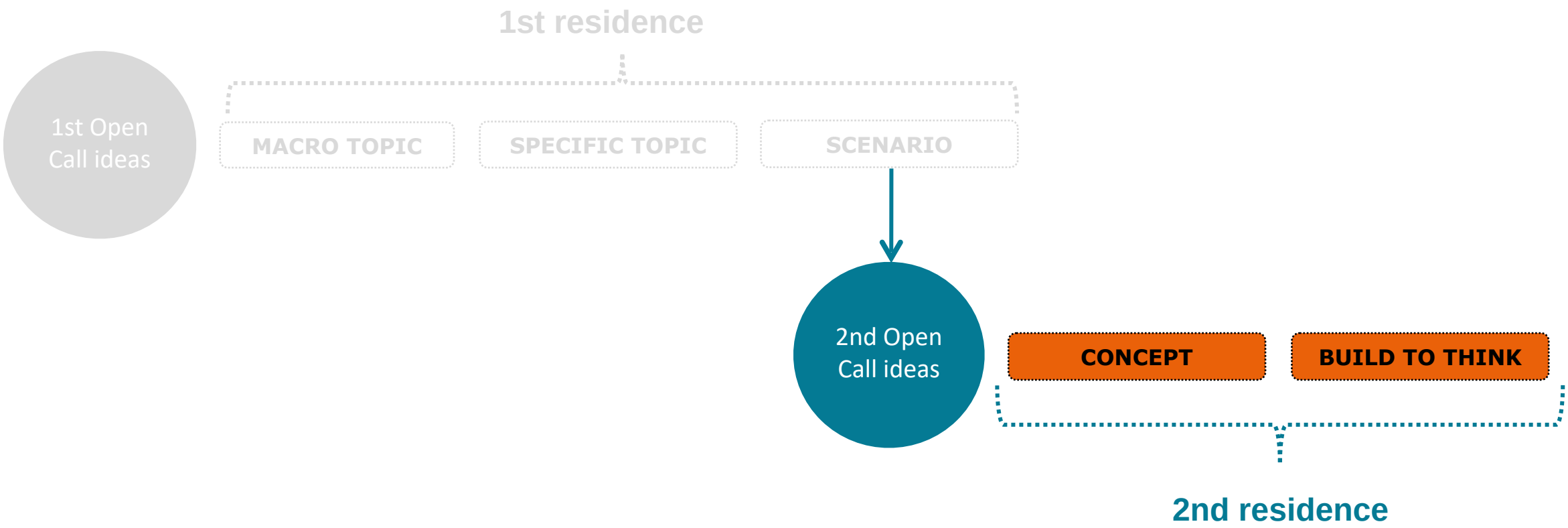
TOPIC

Food as medicine. The challenge was to design the next generation of tech domestic products that help produce, consume, recycle food for the human and the planet well-being

OUTCOMES

- **1 tech company**;
- around **100 students** involved;
- **20 future products** developed.

DF method | 2nd Residence



Q&A | Discussion

TO BE DISCUSSED WITH PARTNERS

- Would it be possible for UB Art and POLIMI to apply the DFA method to assess and pre-validate it with students?

- What will the artists be required to submit for the First Open Call?

- What will the teams (artists + speculative designers + end users) be required to submit for the Second Open Call?

https://miro.com/app/board/uXjVPFJTma0=/?share_link_id=301134419972

2. Gluon – AKAW Game process

Time	Duration	Action	Description	Purpose	Setup / Tools	Additional information / moderator notes
2 Future Visioning: from present challenges to desirable futures -> Acquiring a common knowledge base -> Collecting main challenges of the topic today and how they might impact future developments -> Reframing by exploring desirable future possibilities -> Deriving motivation for action by contrasting current challenges with desirable futures [please see below for additional module 2a to be used before module 2]						
12:00:00	0:05:00	Welcome back & overview of part 2	Welcome back the participants and give overview of what will happen in the next part of the session		Sit in a circle. Possibly use video projector to show slides.	
2.1 Present challenges and anticipated future			The first phase of the workshop focuses on creating a common knowledge base and collecting facts about the current state of the topic and its impact on 3 key areas for sustainable development: people, planet and prosperity. These are 3 of the 5 Ps of the sustainable development goals.			
12:05:00	00:10:00	Intro part 2.1	Give brief motivation about the topic and its current challenges. Make sure to emphasise the regional aspect! Explain participants about the silent brainstorm. Guiding questions for the brainstorm: How do you view the current situation of the topic? What challenges are we facing today? Think from the following perspectives: people, planet, prosperity.	Get a broad overview of anticipated challenges connected to the topic. Involve everyone and include also silent voices.	Sit in a circle. Possibly use video projector to show slides.	Draw 3 circles on the whiteboard and label them with: people, planet, prosperity. Explain about the 3 P's of the SDGs, which should be used as perspectives for the brainstorm: people, planet, prosperity. References/Further Reading: https://www.coursera.org/lecture/sustainable-development-ban-ki-moon/how-to-remember-the-sdgs-the-5-ps-IH3Xc https://unfoundation.org/blog/post/the-sustainable-development-goals-in-2019-people-planet-prosperity-in-focus/
12:15:00	00:10:00	Individual, silent brainstorm	Each participant writes individually on post-its (one post-it for each idea). Try to get several inputs from each participant.		Post-its, pens.	Keep silent / no exchange during brainstorm. Go for quantity. No judgement.
12:25:00	0:20:00	Share-back	Guided by the moderator, all participants share their post-its on the whiteboard in the respective area of the 3 perspectives.		Whiteboard.	Order the post-its using the 3 perspectives.
12:45:00	0:15:00	Clustering & Discussion	Moderator together with participants clusters the post-its according to shared topics. Discuss and talk about the observations.		Whiteboard.	Involve the participants in the clustering.
13:00:00	01:00:00	LUNCH BREAK				
14:00:00	0:05:00	Welcome back & overview of afternoon	Welcome back the participants and give overview of what will happen in the afternoon and the next part of the session.		Sit in a circle. Possibly use video projector to show slides.	Use a warm-up / energizer exercise to wake up people after lunch break before you start with the content.
2.2 What does a desirable future look like?			Use wishful thinking and discuss: how might a desirable future look like by 2040? Think from the following perspectives: people, planet, prosperity. Use same process as above.			

Time	Duration	Action	Description	Purpose	Setup / Tools	Additional information / moderator notes
14:05:00	00:10:00	Intro part 2.2	Give brief summary of challenges in part 2.1 and motivate to now leave the space of rational thinking and delibaratively enter dreaming mode. Now it is all about the most utopian and desirabe scenarios we can imagine. Encourage participants to not let themselves be restrained by rational thinking. Explain participants about the silent brainstorm. Guiding questions for the brainstorm: how could a most desirable future scenarion connected to the topic look like by 2040? Again, use the 3 perspectives (planet, people, prosperity) to guide the brainstorm.	Leave behind the focus on challenges and create space for collective dreaming	Sit in a circle. Possibly use video projector to show slides.	Use a new flipchart or whiteboard and label it "desirable futures". Do not erase old content, we will need it again. Draw 3 circles on the whiteboard and label them with: people, planet, prosperity. Explain about the 3 P's of the SDGs, which should be used as perspectives for the brainstorm: people, planet, prosperity. References/Further Reading: https://www.coursera.org/lecture/sustainable-development-ban-ki-moon/how-to-remember-the-sdgs-the-5-ps-IH3Xc https://unfoundation.org/blog/post/the-sustainable-development-goals-in-2019-people-planet-prosperity-in-focus/
14:05:00	00:10:00	Individual brainstorm	Each participant writes individually on post-its (one post-it for each idea)	Break narrow thinking habits and create space for talking about desirable alternatives by reframing and dreaming about utopian futures.	Post-its Whiteboard Music	Keep silent / no exchange during brainstorm. Go for quantity. No judgement. You can use meditative music during the silent brainstorm to help participants to "get into the mood" and be reflective.
14:15:00	0:20:00	Share-back	Guided by the moderator, all participants share their post-its on the whiteboard in the respective area of the 3 buckets			Order the post-its using the 3 perspectives.
14:35:00	0:15:00	Clustering & Discussion	Moderator together with participants clusters the post-its and looks for commonalities.			Involve the participants in the clustering.
14:50:00	0:15:00	Closing & collective reflection	Compare the whiteboard "Challenges" and "Desirable Futures" and discuss together: what differences/patterns can you observe?		2 whiteboards (from before)	Make sure to give clear contrast between challenges and desirable futures
15:05:00	00:15:00	COFFEE BREAK				
3 Diving into the project -> narrowing down and formulating a proposal for a concrete residency project -> making the challenge concrete and attractive for potential artists to apply						
15:20:00	00:10:00	Intro	Mention everything that is already fixed and/or potentially available during the residency: ressources, timelines, exhibition possiblities, ..			
What are concrete opportunities / key technologies / stakeholders / sites / etc that should be visited and included? What role can technology play? Where are interesting entry points?						

Time	Duration	Action	Description	Purpose	Setup / Tools	Additional information / moderator notes
15:30:00	00:10:00	Wrapping-up: Finding a title for the challenge	Formulate title suggestions to wrap up insights of challenge as a one sentence "how might we..." question		Post-its Whiteboard Music	Use silent brainstorm before discussion to get input from everyone. Do not decide on title in the session, but rather collect input. You can use meditative music during the silent brainstorm to help participants to "get into the mood" and be reflective.
15:40:00	00:10:00	Discussion Topic 1: Potential technologies	Discuss what technologies are relevant and potentially available for the artists during the residency		Flipchart	Moderator notes everything down on flipchart. When ready, pin flipchart on wall as reference for everyone.
15:50:00	00:10:00	Discussion Topic 2: Relevant stakeholders / residency sites etc	Discuss what stakeholders, are relevant and potentially available for the artists during the residency		Flipchart	Moderator notes everything down on flipchart. When ready, pin flipchart on wall as reference for everyone.
16:00:00	00:10:00	Discussion Topic 3: Expectations on artist	Discuss what are the expectations on the artist during the residency. What kind of artist are we looking for? What should be selection criteria?		Flipchart	Moderator notes everything down on flipchart. When ready, pin flipchart on wall as reference for everyone.
16:10:00	00:10:00	Discussion Topic 4: use cases	Discuss relevant use cases in the area and local dynamics that need to be recognized		Flipchart	Moderator notes everything down on flipchart. When ready, pin flipchart on wall as reference for everyone.
16:20:00	00:45:00	Summarizing the input	How can we bring it all together? How could we form a meaningful residency process out of our input.		Whiteboard, post-its	Take care to go through all the relevant aspects of the project: Timing/schedule Important residency hosting sites and events Crucial ressources / technologies Refer in moderation to flipcharts from before. Write down topics on the whiteboard and note input from participants (on post-its or directly on board).
17:05:00	00:15:00	Commitments, final thoughts and reflections	Ask the participants to share their final thoughts (on the day and residency) and their commitments of how they might want to be further involved in the project.		Sit in a circle. Moderator records/notes down input from participants.	Note down questions on whiteboard. Start with all participants silently writing up their thoughts on the two questions: 1) how was the day for you? 2) what are you thoughts on the projects? 3) how do you offer to be further involved? Then each expert briefly shares their statements (about 1min each). Moderator takes care to write everything down.

Time	Duration	Action	Description	Purpose	Setup / Tools	Additional information / moderator notes
17:20:00	0:10:00	Brief wrap-up and "what's next"	Moderator wrap-up the day and shares the next steps in the project.		Prepare slide beforehand with info and next steps in the project and desired commitment from the experts.	Prepare slide beforehand with info and next steps in the project and desired commitment from the experts.
4 Social part						
17:30:00	1:30:00	Sharing food & drinks	Bringing people together for lunch/dinner.	Investing into relationships. Giving gratitude and reward.	Create a nice and warm atmosphere that inspires participants to relax and engage in personal conversations.	Prepare setup on day before. Ideally use different location / room to break the working atmosphere. Get nice food and drinks, e.g. from local caterer. Think about whether you can create culinary references to the project theme.
19:00:00						
19:00:00		END				

ADDITIONAL MODULES

2a Collective Dreaming

-> Explore future possibilities through creative play together.
-> Boost your imagination and adopt new perspectives.
-> Connect and apply important future trends and emerging technologies.
-> Learn to think with the Sustainable Development Goals (SDGs).

This module can be used before module 2. It is powerful as a tool to explore together from a high-level point of view the possible areas and challenges for the residency to focus on.
Also, it will help to get participants in the right mindset and prepare them for the more concrete tasks of module 2.

In order to use the module, you need to get AKAW card decks from STATE. The AKAW deck consists of 25 cards in 4 categories. Each card contains a hand-drawn illustration and descriptive text.

8 Trend cards: Describe major global forces that shape our future like population growth, urbanization or climate change.
8 Technology cards: Contain technological innovations which are transforming our world like artificial intelligence, blockchain or genome editing.
5 Perspective cards: The 5 dimensions of the Sustainable Development Goals: people, planet, prosperity, peace and partnership.
4 Ideation cards: Lenses you look through to guide your thinking into different directions: positive and negative, likely and unlikely.

00:00:00	00:10:00	Welcome & intro	Explanation of intention & how the card game works		Get 1 AKAW card deck for each group of 3 participants: https://akaw.vision/shop/p/akaw-the-futures-card-game-limited-edition	
00:10:00	01:00:00	Collective play	Play AKAW together. E.g. 3 rounds of 20min.		Tables/chairs to form separate groups of 3 players each.	Walk from group to group to help players.
01:10:00	00:20:00	Reflection	Discuss together in the plenum: How was your experience? What did you learn from playing the game? Could you identify local connections? What could your learnings mean for defining a potential residency challenge?			
01:30:00		END				

3. Gluon – Art Driven Innovation Report

Art-Driven Innovation Report

Title	Hyper Rhizome
Artist	Diana Scherer
Period	2019
Domain	Materials for a Sustainable Future

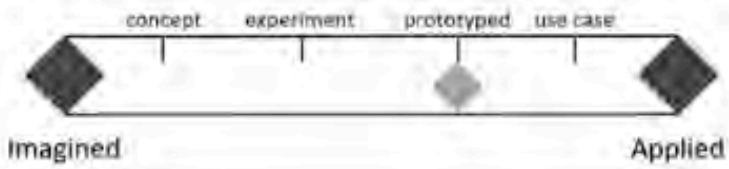
Artistic Interest

Explore new Paths to progress

Form x Material

Pattern grown root structures

Stage of Development



SDGs

value drivers

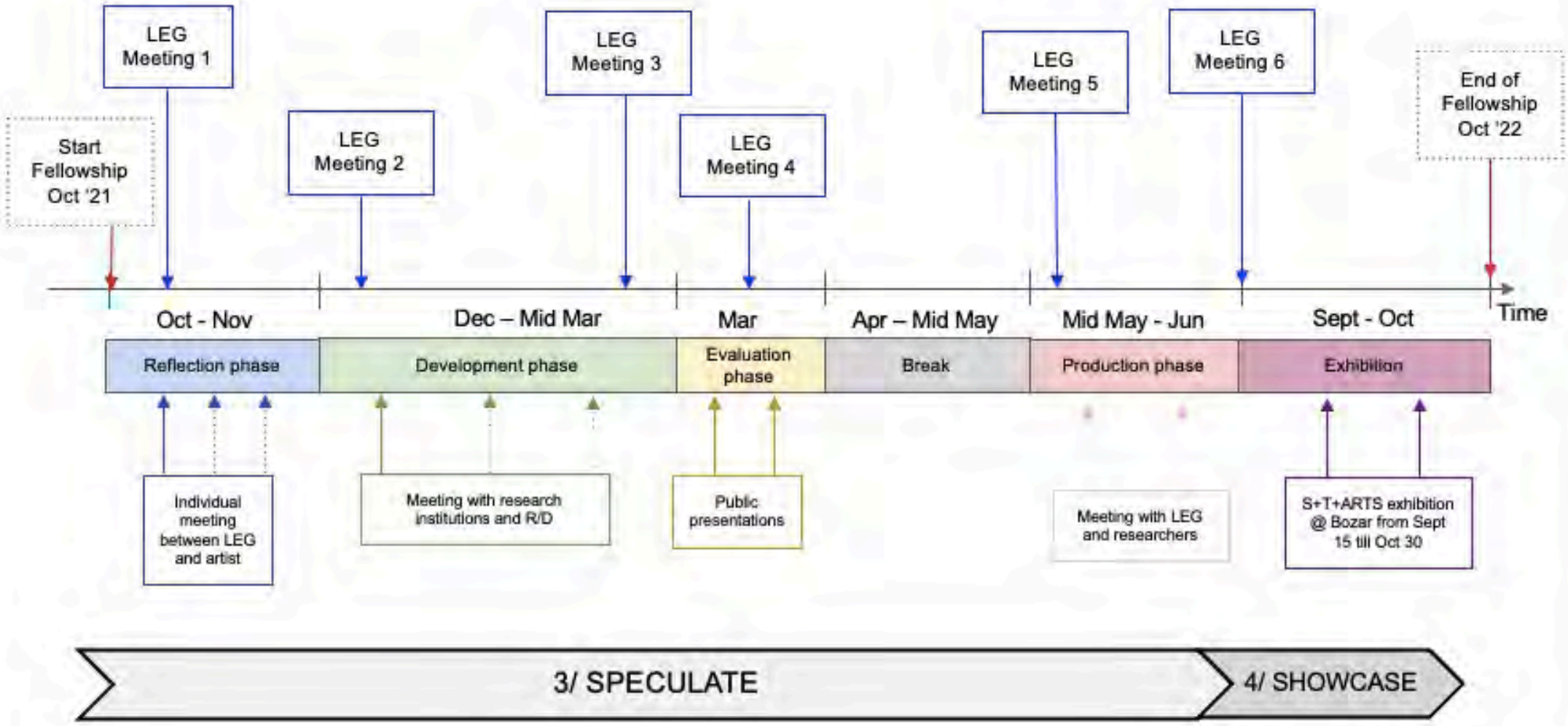
- Improve Productivity
- Efficient use of Resources
- Reduce Waste

break through

Group	Biohybrids
Field	Plant Communication
Likelihood	low — high
Promise	Collaborations between humans and plants based on their environmental condition monitoring sensors, social relations and processes

In4Art
guiding curiosity...

4. Gluon - Local Expert Group


LEG Meeting 1
LEG Meeting 2
LEG Meeting 3
LEG Meeting 4
LEG Meeting 5
LEG Meeting 6
Start Fellowship Oct '21
End of Fellowship Oct '22
Oct - Nov
Dec – Mid Mar
Mar
Apr – Mid May
Mid May - Jun
Sept - Oct
Time
Reflection phase
Development phase
Evaluation phase
Break
Production phase
Exhibition
Individual meeting between LEG and artist
Meeting with research institutions and R/D
Public presentations
Meeting with LEG and researchers
S+T+ARTS exhibition @ Bozar from Sept 15 till Oct 30
3/ SPECULATE
4/ SHOWCASE

5. MUSAE Co-Creative Workshop

Shaun Ussher
MUSAE Co-creation Workshop

"*Close your eyes. Begin with 5 slow deep breaths*

We will begin today by thinking about food, what food is and what the different ways food gives us meaning.

Food is more than just eating to be full. I want you to think about your relationship with food at different times in your past.

Think back to a time, deep in your past, back to your childhood what food do you remember being around? I want you to first think about what you can hear, think about the environment you are in, look around, where are you? You maybe in your childhood home, a friends house, or a grandparent. You may in you your town or village, what can you smell, what can you feel.... now think of what you can taste."

Repeat in a similar way 2 more times.

"*We will now begin to travel forward in time, towards the time in your life where you became independent. You may have cooked your first meal; you may move away from home. You might be on your own or with your friends.*

Lastly, we will travel forward again to the present day. What was the last great experience you had with food? Who were you with, what did you eat what did you talk about"

Always get the listener to think about - where they were, who were they with, what were they doing, what they could hear, see, smell, touch and taste.

6. Time travel exercise

Time Travel

I would like to encourage you to take a comfortable seat. Really find a comfortable position for the next few minutes. Make yourself ready for a time travel. And if you want you can close your eyes now. Even if it might feel weird, as there are so many people in the room. It can also feel quite nice because these are all fellow time travellers.

Start with a few deep breaths and allow your body to relax. Breathing in through the nose and out through the mouth. Take some time just to relax and ground yourself in the present year of 2023.

And as you breathe in feel how the body expands, the lungs taking in fresh air … As the body exhales, feel a sense of letting go of whatever is going on in your mind.

Do this a couple of times at your own pace.

Your mind is probably quite busy … so, for a moment just allow your mind to do its own thing. Don't try to stop your thoughts, let them just wander by, and bring all your attention into your body and to your breath. Arrive deeper in your relaxation.

And now I'd like you to take a last deep breath in 2023, and slowly prepare yourself, get ready, put on your helmet, and take all the energy that you can to catapult yourself behind the boundaries of 2023 and land into 2050. Land in the future.

And I invite you to take a look around. Where did you land? What does the city look like? Try to immerse yourself in this unfamiliar environment. What can you see? What can you hear? Are there any particular smells? What is the weather and the temperature like? Take a moment to arrive in this world.

Now when you gathered the first impressions of this planet in 2050 let's dig a bit deeper into what it is like to live here. If there are people around you – can you spot your persona among them? Try to read her facial expression? Is she relaxed, stressed or happy? Can you see how she feels? What does your persona do? Imagine how it is to be her and live in this world. How does she spend her day in this world? What does she eat? Where does the food come from? How does she take care of herself? Do you see what the role of technology in her life? If you got some images already, try to make them even more futuristic.

This is just a very short time travel today. So I'd encourage you to now take all your impressions, the sensations, the images, the feelings, all the emotions, as many as you can. Put them in your backpack, your time travel backpack, (lower music). And

then put on your helmet again and enter your imaginary time machine. And slowly but surely come back to the here and now … to 2023.

Welcome back everyone.

And I'd like you to take 10 minutes to capture what you have experienced during your journey. What did you see? What did you hear? What did you feel? What did you sense? Write down everything that comes to mind, without judgment or editing ... Let your thoughts flow freely and see where they take you ...

Some exemplary questions for the reflection exercise:

1. Did the time travel affect your scenario-building process and the generated output? Could you elaborate how?
2. To what extent have you considered the interests of actors that are not human in your scenario-building process and the generated output?
3. Did this exercise help you to better visually define and visualize (on Miro, on sketch) specific artifacts for your vision/ scenario? If yes, write what artifacts this exercise helped you to define.

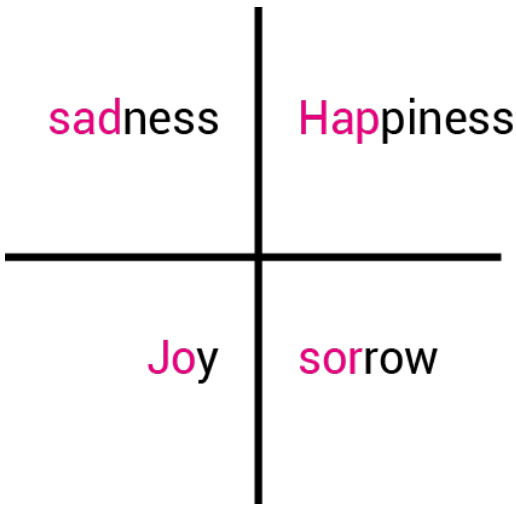
7. UB – Sad-Hop-Jo-So

Adapted Activity

1. Sad-Hap-Jo-So

We propose to adapt the activity described last week, which referred to how the artists could feel about certain future problems related to food.

Instead of positioning the artists in the space around a cross, and thus creating four different sections to which four emotions are associated:
- **sadness, happiness, joy and sorrow** –



this activity could be carried out online, in a graphic form.

That is to say, a cross could be drawn through an online drawing programme such as **Miro**, so that artists could place themselves in one of the quadrants - such as the one with anger, for example - drawing a dot on it.

At first, they illustrate where each of them stands with regard to a specific problem, for example:

"how does it make you feel to think that in the future your diet will be based on ingesting nutrients via pills?"

Action:

Once **the artists are positioned in the four quadrants**,
they will have to **explain** to the others **why they are there.**

Finally, in a later phase, **the artists will change positions**

- those of the rage will move to the fear, and those of the joy to the sadness.

From this new place, they have to explain to the others how they feel, even though it was not their first proposal.

The aim is to generate empathy, debate and flexibility in everyone's perspectives.

Why?

As to the question of where I have used this dynamic, I want to explain that I participated in this dynamic in the European programme "Cultures d'Avenir".

It was part of a workshop called "Emotional networking", and it was led by the artist Hester Dibbets, who drew on a full-length canvas a cross and made us position ourselves in the squares, making the dots manually.

One of the questions that was asked, to give an example, was: **“How it would make you feel not to have artificial light on the streets?**".

There were many different answers, such as those from women who connected with insecurity and the fear of being unprotected, showing different levels of privilege within the group itself, or from people who felt liberated by reducing light pollution and being able to see the stars...

The answers generated debate, opened new questions and helped us to imagine possibilities and problems that we wouldn't have thought of individually.
The objective with the artists of Musae, I think, would have to go this way

8. UB - Explore Around

Adapted Activity

1. EXPLORE ARROUND AND GLOSSARY

Contextualize and expand Local - Global dimension of the project

Previous definition to start.

A

- Art (A) understood as a way of doing things that combines thought, research and action, in order to propose reflections, speculations and activations, through specific processes and practices that affect the cultural, social, political and/or the economic sphere.

AR

- Artistic Research (AR) understood as the process-based research on the art practice and directed through it, which raises issues and problems that are relevant from the cultural, social, political and/or economic aspects; as well to generate self-knowledge for the artistic practice themselves.

G

- The Glossary is understood as a set of concepts, sounds and images related to each other, defined in a particular and proper way, which in this case are linked or suggested from the tour and exploration of a peripheral space of the city. (In MUSAE would be the general concept, for example: "explore the future of food to improve human and planetary well-being", or related to the thematic track, ex. "Reducing the carbon footprint in dietary behavior").

Activity:

1. Exploration.

Carrying out an exploratory tour in order to know-recognize a section of the city and make sound recordings and capture images.
The route is detailed by the attached maps.
The tour will be done collectively so that, based on the experience lived and the records taken, each one can give it a specific formalization.

- Each one must explore a space with similar characteristics, in any city:
tour from the outskirts of the city to a more central space, from a space with informal urbanization to an urbanized space.

- Bring as a work tool:
mobile phone and/or camera and/or sound recorder.

- During the tour, take elements that are located between contrasting polarities, such as:
specific - generic, natural - artificial, construction - ruin, presence - absence, connection - isolation, inhabited - uninhabited, human - non-human, danger – safety, continuous – discontinuous…

2. Work to be done from the exploration.

- Propose several concepts and define them from a personal point of view.
- For each concept propose an image. The image can be a graphic, a photography, a visual, a composition...).

- Define a wicked problem, understood as a place where the concepts can define relationships between them. (This could be linked to the thematic track)
- Make a map where you put the concepts in relation the concepts, the images, and the wicked problem, where you can propose imaginative responses to the specific problem.

Example where the exploration was in the periphery of the city:
https://www.idensitat.net/en/current-projects/sounds-of-our-cities-3/voices/1650-glossary-on-peripheral-spaces

Name of the activity:
Explore around. Contextualize and expand Local - Global dimension of the project.

Steps:

Define how the social context would be engaged. Define connections between your interests and the interest of the others (specific group, related to the context...). Build something that explain the relationship between local and global items and its consequences.

Result: Graphic or map, or other possible visualization.