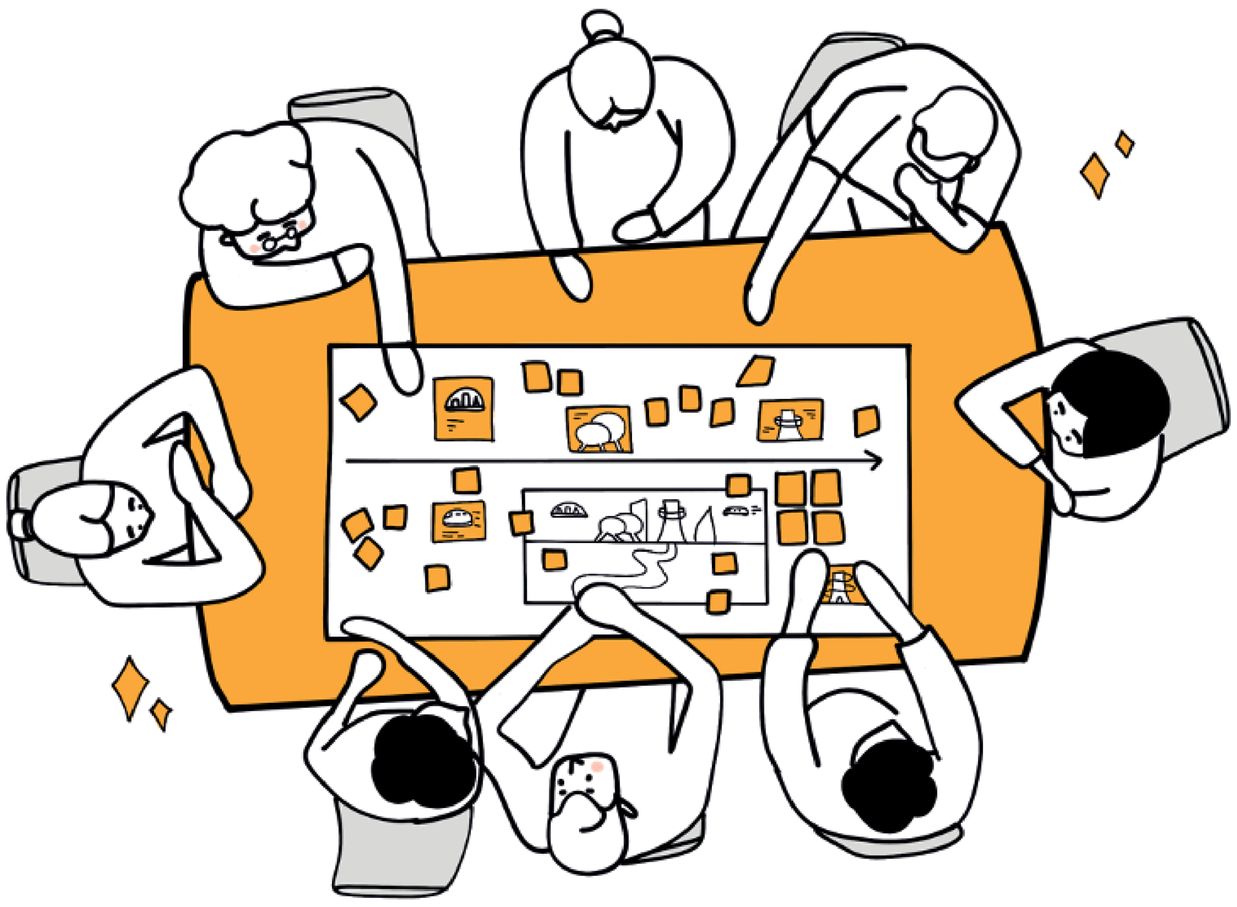
Future framing method

Utilizing the power of co-creation and AI when envisioning the future



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Master thesis

TU Delft

Master thesis
Design for Interaction

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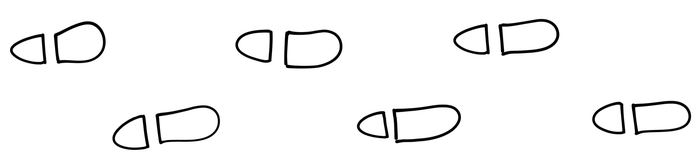
Preface

When I started my master Design for Interaction, I had a more traditional image of what an industrial designer does and is able to do within their work. This master is where I feel I could flourish into the designer I am today, combining my passion for user experience and design. My journey throughout the master, its mandatory courses, my elective space, and my internship, allowed me to prepare for and end up with this final graduation project. This project was the perfect storm of elements to end my student career with.

This project was everything I wanted it to be, although I could not have done it without the support of my graduation team. Suzanne, you helped me when complexity took the overhand, when I lost sight of my goals, or when I became a little too ambitious. Your guidance and dependability combined with your knowledge provided me with the clarity and motivation to continue every time we talked. Derek, your unique views and approaches helped me learn to look for inspiration outside the bounds of this project. I appreciate the challenges you presented to take the project to new levels. Finally, Ilse, your new insights and perspectives helped me explore new depths within this project. When I talked with you, you always thought along with me and my project like it was your own. Also, providing wisdom on efficient ways to tackle a graduation project. I could not have completed this project to these lengths without the help of you all. So, thank you.

I also want to thank my family for supporting and helping me where you could. The website and video would not be the same without you. Finally, I want to thank every person who took the time to talk to me, share their thoughts and knowledge, and all participants who joined one of my sessions. I could not have done it without you.

Lastly, I want to thank the Future Mobility Network and the Seamless Personal Mobility Lab at the TU Delft for the opportunity to collaborate on this project. I appreciate the freedom and trust I got to take this project outside the range of mobility too.



Executive summary

Society currently faces many complex and significant challenges, dilemmas that lack straightforward solutions and are deeply interconnected. These problems demand a transformative approach that involves reevaluating people's values, beliefs, attitudes, and behavior. Amidst these ongoing challenges, there is a collective hint of pessimism regarding society's perception to effectively overcome them.

To navigate this era of transformative change, it becomes increasingly critical to engage in dialogue and define future goals. However, the process of generating specific visions and objectives for the future currently lacks guidance. This project seeks to bridge this gap by integrating futuring methods, creativity, co-creation, and Artificial Intelligence (AI). AI has the ability to enhance the abilities of people in this process. Through this innovative approach, the aim is to empower collective envisioning and goal-setting, enabling individuals and organizations to actively explore and shape desirable futures. More positive images of the future can motivate the broader collective as well.

The initial phase of the project involved an extensive exploration of existing literature on co-creation, future visions, the impact of positive future visions, creativity, and AI. In-depth interviews provided valuable insights from each distinct aspect: creating art with AI, facilitating co-creation, and developing future visions. Furthermore, a cultural probe shed light on the aspects individuals require more guidance in when contemplating the future. The findings underscored the relative ease with which people envisioned negative futures, and potential future inventions, while demonstrating a lesser emphasis on the underlying rationale and societal value of these inventions. Additionally, the perceived difficulty level varied considerably, and the outcomes were diverse. In this regard, the utilization of tools can prove beneficial, facilitating smoother and more efficient conversations while helping individuals initiate and navigate discussions with greater ease.

The accumulated basis of knowledge formed a buildable concept, applying the structure of the creative facilitation phases: problem, idea, and solution finding. This buildable concept was tested through four short sessions. Adding and altering its basis to establish the Minimal Viable Method (MVM) and expand to longer sessions. All sessions were conducted in a real setting with a diverse range of topics relevant to the problem owner(s), allowing for continuous improvement and addressing specific research questions during each session. Participants actively engaged in providing feedback and evaluating their experience based on predefined design criteria.

The end result of this project was a Version 1 (V1) design of a toolkit to guide people through a co-creation session using AI to create future visions. The toolkit allows participants to focus on their specific goals and type of futures, it is designed with a facilitator in mind to guide the process. Although, the toolkit includes explanations and guiding signs usable by people without knowledge of these elements. The toolkit includes underlayments, a card deck; a professional and newbie version, different inspiration museum topic sets, and a more elaborate optional manual to guide new users using AI, creating future visions, and vision statements. The toolkit is available through the website: https://future-framing.nl.

This project adds to the current literature by providing a new method to envision the future in co-creation. Evaluation results from these sessions validate the positive impact of the method on participants through specific design criteria. The majority of participants expressed interest in joining another workshop. Additionally, it finds a general interest of people to acquiring skills to use AI. The design goal, to spark empowerment and ownership in participants while creating their own desired future vision in a co-creation session, is successfully implemented with this project. The findings suggest future development of the V1 toolkit and method can further improve experience and outcome. This correlates with future developments with AI, that shape both too.



Figure I The future framing toolkit contents

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01. **Introduction.**

This chapter focuses on introducing the topic of this graduation project, its context, the problem it tackles, and its approach.

> “ … they (dreams) can also inspire us to imagine that things could be radically different than they are today, and then believe we can progress toward that imaginary world. ”

(Duncombe, 2007, p.182)

1.1 Introduction

We constantly come into contact with decisions that impact our trajectory for tomorrow. Decisions that change our future. It starts at a young age, for example by choosing what sport you decide to play. Or a little later in life, when you decided what you are going to study. And so on. These choices, from small to big, require a different amount of exploration to discover what you feel fits you.

How does one individual tackle these choices about their future? Let's focus on choosing your study to illustrate this. You probably went to a few open days for different types of studies, listening to the structure of this study, the types of future jobs you can pick, the type of school it is, the type of people who go to this school, etc. Before making this decision you take this information and choose based on what you envision fits you for the future. Do you see yourself working in a lab after studying? No, maybe you feel you are more fitted to be a designer. When it comes to making these decisions, you can imagine yourself doing this particular thing in the future. And so you go for it.

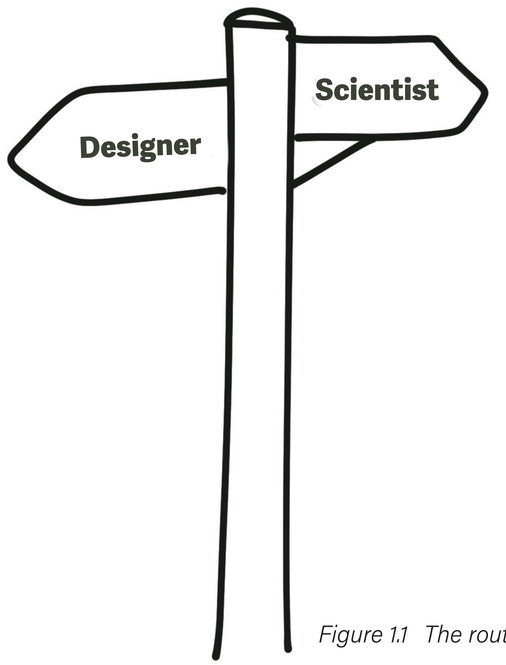


Figure 1.1 The route to the future

It takes time and effort to decide where you, as one individual, want to go. Imagine doing this for bigger things. What do we, as a society, want our educational system to be like in the future? This becomes even more complex to answer.

It is hard to depict where we will be in 50 years and what our society will look like. We've seen this in the past too. Think of all types of inventions we are using today that we did not have 50 years ago. Frans Bromet (2016) conducted an interview in 1998 asking people what they thought of a mobile phone. They all replied it felt unnecessary to take a phone with them when leaving the house. Look at us now.

Even though the future is unknown, anticipating and exploring possible futures is part of the process to decipher what our needs are for this future. To create a narrative we want to work towards. It motivates us to work towards something and can help us decide to take action that fits this future state (McPhearson et al., 2016). The relevancy of looking ahead has never been greater, Veenhoff and Pater (2022) deem this as the 'decade of change'. New technology advances provide new opportunities to rethink the way we look toward the future. Since it is difficult to envision something so big, why not use technology to help us? Help us make it come alive and make it visible.

Let's explore the future.

1.2 Problem

The future is unpredictable, we know this if we look at new inventions that have taken over our lives like previously unimaginable. Think of the mobile phone, or the internet. Some inventions take us by storm and change the way we operate in almost every sense. This creates excitement, what is coming next? Where will technological developments go?

If we consider the future of our society, these visions seem to focus on the negative (Slaughter, 2004; McPhearson et al. 2016). They highlight challenges we as a society are running into and all the ways in which our society will demise. Many global warming scenarios focus on dystopian narratives (McPhearson et al. 2016). These negative visions do have a function, they help us understand harmful transformations. Although, if this is the main source of inspiration available, it hinders direction, inspiration, and motivation to transform.

News outlets prioritizing negative news over positive news creates a similar effect; leading to people avoiding the news altogether (Overgaard, 2021). In evolution, humans that paid more attention to threats were more likely to survive. This means people are more impacted by negative than positive information. When information, like the news, is primarily negative, people feel negatively impacted or disempowered (Overgaard, 2021). These negative emotions even reduce people's intention to take positive action regarding solving societal problems (Baden et al., 2019). This negative effect on people, results in less likeliness of action.

This negativity turns into a feeling of apathy, a lack of empowerment which hinder efforts to transform (McPhearson et al. 2016). Overgaard (2021) discusses the change in approach within journalism towards positive psychology when presenting news to increase positive societal change.



Figure 1.2 The feeling of apathy

1.3 Purpose of this project

Our society encapsulates big and difficult problems in the current climate we live in- complex societal issues or wicked problems. These problems are dilemmas with no straightforward solution and intertwined problems. Global warming or the health care crisis are examples of such wicked problems. These problems are unfixable short-term and require a different way of overcoming them, the solution lies in changing our values, beliefs, attitudes, and behavior (Dunne & Raby, 2013; McPhearson et al., 2021).

The purpose of this project is to open the box of possibilities to the future and to start the discussion on what we do and do not want for our future. Enabling collaborative exploration of the future in a co-creation setting. Developments within the field of Artificial Intelligence (AI) create the opportunity to add a new perspective to this collaborative exploration. We will use AI to enhance the ability to explore the possibilities of the future more in-depth and quickly. The end product of these collaborative sessions is future visions showcasing different types of futures. This process incorporates what people do not want while focusing mainly on what they do want.

An organization interested in the possibilities of the future is the Future Mobility Network (FMN). FMN is an organization with the goal to realize the mobility of tomorrow. Providing people with a way from A to B in a sustainable, safe, and healthy way. This project is in collaboration with them. They work together with all types of clients, from municipalities to (mobility) technology companies to realize their projects. Their current approach in a project depends on the demand of the client (and available technology). They are interested to explore future visions to spark new innovative solutions and use a pull marketing approach to attract customers. Their focus is solely on mobility, but this project explores topics outside the bounds of mobility too.

The goal of this project is to develop a methodology and approach for co-creating and visualizing future visions using AI technology that is user-friendly, accessible, and effective. Incorporating and designing a toolkit to enhance this.

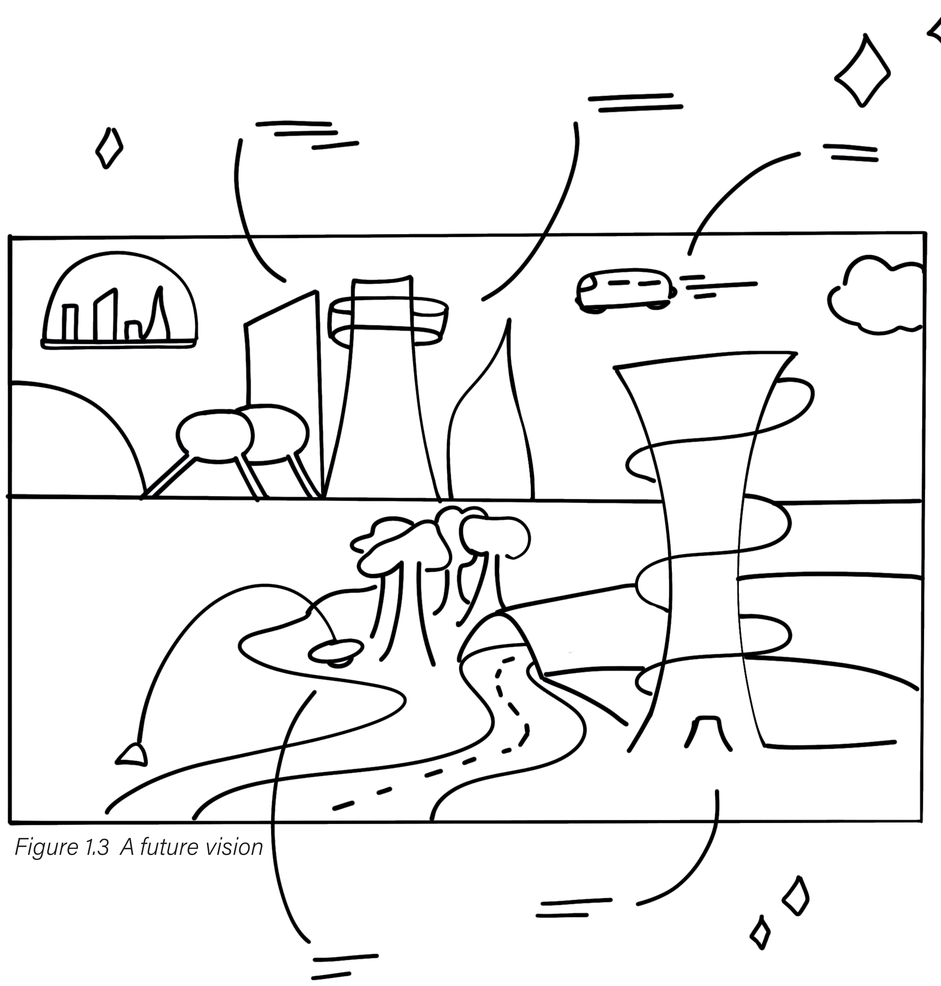


Figure 1.3 A future vision

1.4 Approach



Figure 1.4 The Double Diamond model

The approach for this project is research-through-design, essentially this means applying design practice to gather new knowledge (Zimmerman & Forlizzi, 2014). For this project, it is most effective to put the method to the test in its intended environment and design an effective process through the application of the method. The project follows the Double Diamond model, moving through its four phases: discover, define, develop, and deliver. Figure 1.4 shows a visualization of these phases.

The discover phase focuses on accumulating existing knowledge of future visions, futuring methods, and AI tools. The goal of this phase is to create initial guidelines for the "design of the method". The next phase, also known as the define phase, uses these guidelines and accumulated knowledge to identify the solution space and define a more specific outcome and intended effect for this project.

The develop phase applies iterative cycles to design and test possible aids and session set-ups. Building on ideas provides the chance to quickly find, combine and create a better design. Initial short sessions provide low effort for participants while generating a lot of feedback. Also, exploring ideal circumstances of the session, including time. After establishing the minimal viable method, which proves an effective session structure, longer sessions allow for more in-depth development of the future visions. This includes the possibility of more involvement of AI.

Finally, the deliver phase builds on the knowledge of the sessions and provides a final concept. Ending this project with recommendations to build on the design and explore this topic further.

02. **Discover.**

This chapter focuses on discovering relevant topics related to this project, existing literature, expert opinions, and translating these findings into guidelines to take into the next phase.

Methods: literature review, interviews, cultural probe

> “Rather than looking at the world in terms of problems, we feel it is much more productive and challenging to look for possibilities and opportunities to contribute to the lives, dreams, habits, peculiarities and goals of people...”

(Hekkert & van Dijk, 2011 p.16)

2.1 Introduction

Individuals can feel a lack of impact to make a meaningful difference in shaping the future. One research found people's view of their country's or the world's future much gloomier than their own because it is often rooted in the assumption that its future will follow the course it is on now (Rubin, 2013). And yet, we all have a stake in the outcome of this ongoing trajectory. As we try to navigate this landscape, new tools and technologies offer us an opportunity to explore in unexpected ways.

One such technology is AI, which has the potential to revolutionize the way we approach complex problems and envision the future. Before diving into this new and shiny technology, we discover the relevant elements involved in the entire process and collect literature. These elements relate to the field of futuring, how do you think about the future and build different types of futures? And creative facilitation, how can you help individuals be creative in an organized session? Afterward delving into AI, what is it? Wrapping up this chapter, we involve experts and people to discover what they have discovered before or what their needs are in relation to the previously mentioned elements.

Figure 2.1, on the right, shows the layers present inside this project and this chapter. It separates the method and the vision. As the vision is the product and the method is the way to get there. This method further breaks down into AI, process elements, and co-creation. AI involves digital elements to apply its technology inside or outside the sessions. The process focuses on environmental and process-related elements. Finally, co-creation applies techniques to stimulate creativity in a group setting.

To provide clarity for the reader this chapter is split into the sub-chapters:
- The product: a future vision
- The process of creating a future vision: includes the co-creation process, AI, and creative facilitation techniques
- The people: experts and our target group
- The guidelines for the next phase

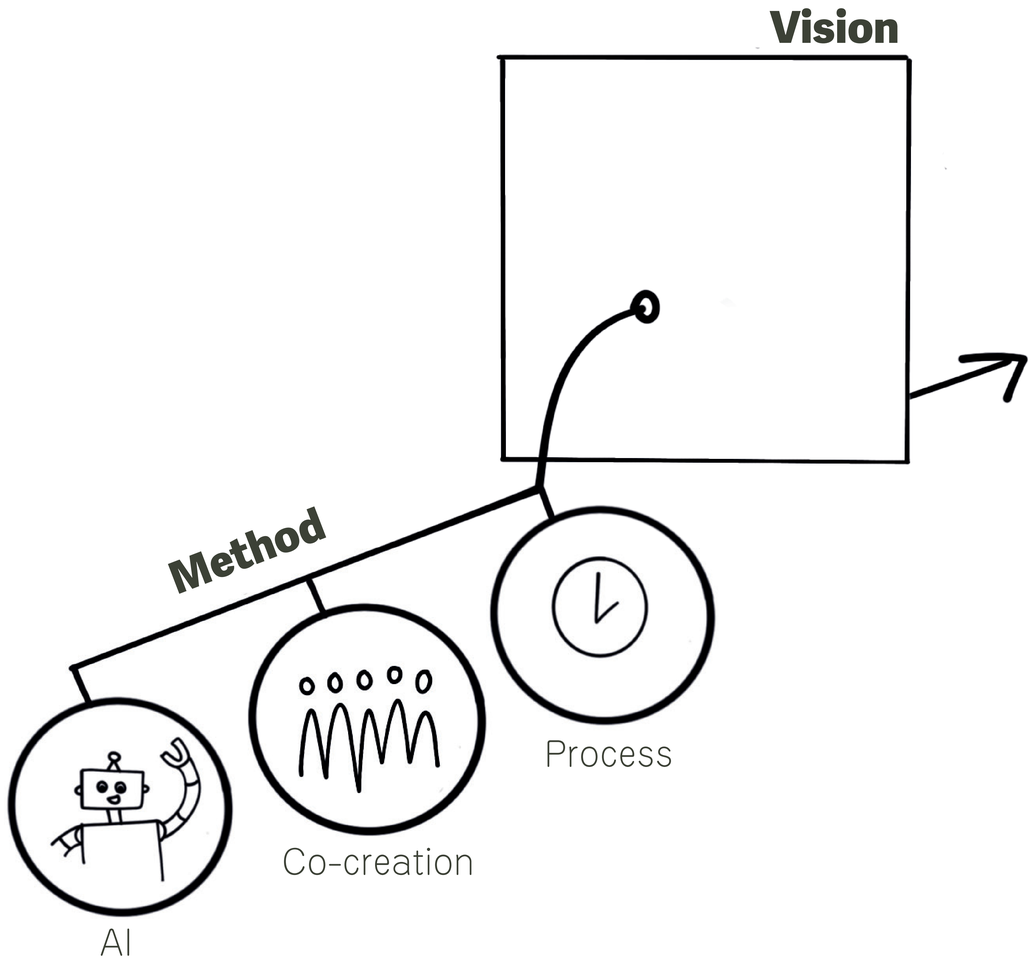


Figure 2.1 Clarification of the layers within this project

2.2 The product: a future vision

A future vision describes: 'a desirable future state' (McPhearson et al., 2016). This vision is free of structure to allow its maker to alter it based on their goals for the future. A time frame for this future is subjective depending on the topic. As some fields develop more quickly than others, this makes different time frames relevant to focus on differing topics. An impact on the rate of development and visibility is people's acceptance of this type of technology and technological maturity. These two elements form the hype cycle model (Dedehayir & Steinert, 2016). This explains why for example AI is developing quickly while a field like genetic modification moves much slower. For a future vision to be relevant for AI, six months might be interesting enough while the same goes for 50 years for genetic modification.

Types of futures
One can focus on different types of futures. We differentiate between plausible and desirable futures (Bai et al., 2016). It is possible to differentiate between more types of futures, for clarity reasons, we defer between these two. Plausible futures focus on a broader range of futures that can happen based on current trajectories, while desirable focus on ambitious futures in which it is assumed society overcomes current crises. These visions should be ambitious, challenging, and far enough in the future (Bai et al., 2016). The goal of such visions is to create new perspectives and provide a platform to discuss and debate alternative ways of being. The vision makes it a tangible thing to talk about and build on, helping people to become concrete and iterate on this future.

The effect
The effect of a future vision can do two things, it can provide clarity through exploration or it can create action through guidance. Firstly, exploring different futures brings clarity, purpose, and reduces anxiety while building empowerment (Slaughter, 2004). Secondly, future visions provide a platform to discover and differentiate needs from wishes, inspiring and motivating us to shape our path forward (McPhearson et al., 2016). If an individual takes action and changes their behavior according to this desired future, this ownership creates a sense of identity and community (McPhearson et al., 2016). Besides focusing on the desired outcomes, discovering and exploring tensions that arise during the process of making them also clarifies the focus area. The end product should convey a future people want to live in. De Vries (2018) discusses futuring pioneer Fred L. Polak's career and impact on the importance of images of the future. Polak researched three thousand years' worth of future visions on societies in his book 'De toekomst is verleden tijd' (English title: the image of the future). Polak's conclusion: he found that positive visions of the future were present in every instance of a civilization flourishing, whereas negative visions of the future were significant contributors to the decline of a culture. According to Polak, the sources of inspiration for future-oriented visions are primarily emotional, aesthetic, and spiritual, rather than rational or intellectual. This is because awareness of ideal values is crucial for creating compelling imagery that resonates with people. Polak argues that positive images of the future can motivate individuals and groups to pursue strategies for achieving desirable change in the future.

The impact of a future vision on an individual
A positive future vision can have an impact on an individual level too. The purpose of the paper by Ellen et al. (2012) is to explore the effect of using future self-theory and imagery to stimulate saving for retirement due to the declining American retirement saving rates. The results showed more preparation of individuals with more vivid imagery of a positive future retired self. Moreover, Pham and Taylor (1999) in Ellen et al. (2012) describe imagining the future leads to a greater chance to engage in the processes that result in the desired behavior. To conclude, they mention: "having a positive perception of a future state is associated with taking actions that can bring about the desired state" (Ellen et al. 2012, p68). This underlines the impact envisioning the future in a positive light can have, while fear-focused futures hinder preparation. Interestingly, this imaging becomes more vivid when it involves the individual itself ((Bone and Ellen, 1992) and (Krishnamurthy and Sujan, 1999) in Ellen et al., 2012).

Captivating future vision
Previously mentioned are the setting and effect of a vision, but what ingredients make it captivating? According to the Delft Design Guide (Van Boeijen et al., 2020), a vision establishes a tension between ‘what is’ and ‘what could be’, providing long-term direction for innovations. The method of future visioning focuses on expressing a desired future. In the book, they describe it as a strategic reference point that motivates innovators in an organization. According to the book (Van Boeijen et al., 2020), a strong future vision includes four properties. These are visualized in Figure 2.2. The properties are:

1. **Clarity of the desired user experience**: the explicit expression of future innovation in a desired end state
2. **Value drivers**: highlighting unmet user needs or unsolved dilemmas faced by a user group in the future
3. **Artifacts**: translation of imagined value wishes through concrete images
4. **Magnetism**: ‘the thing’ of vision designers’ passion and articulated in a way that energizes others to direct their actions toward it

Visioning captures people’s wishes, passions, desires, and aspirations for the future into a concrete outcome.

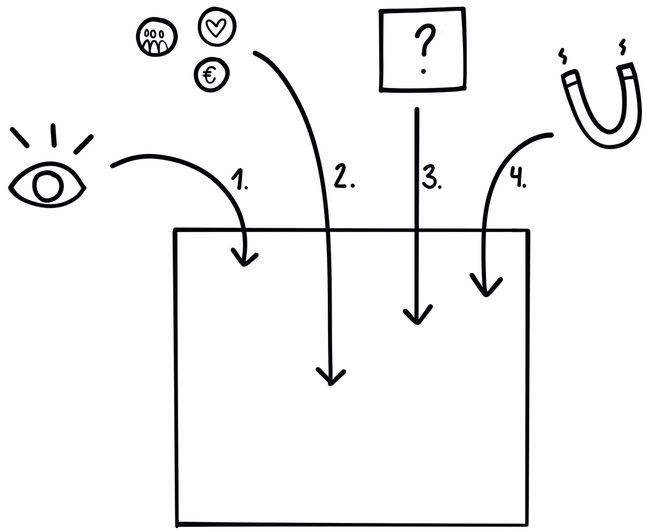


Figure 2.2 The properties of a strong future vision

In short, how do you follow the future visioning method? See Figure 2.3.
- Turn trends into value drivers
- Create vision statements on the desired future experience (max 3-5)
- Translate the vision statement by focusing on the value drivers to illustrate the future vision. It is possible to build on this image to create a future vision.

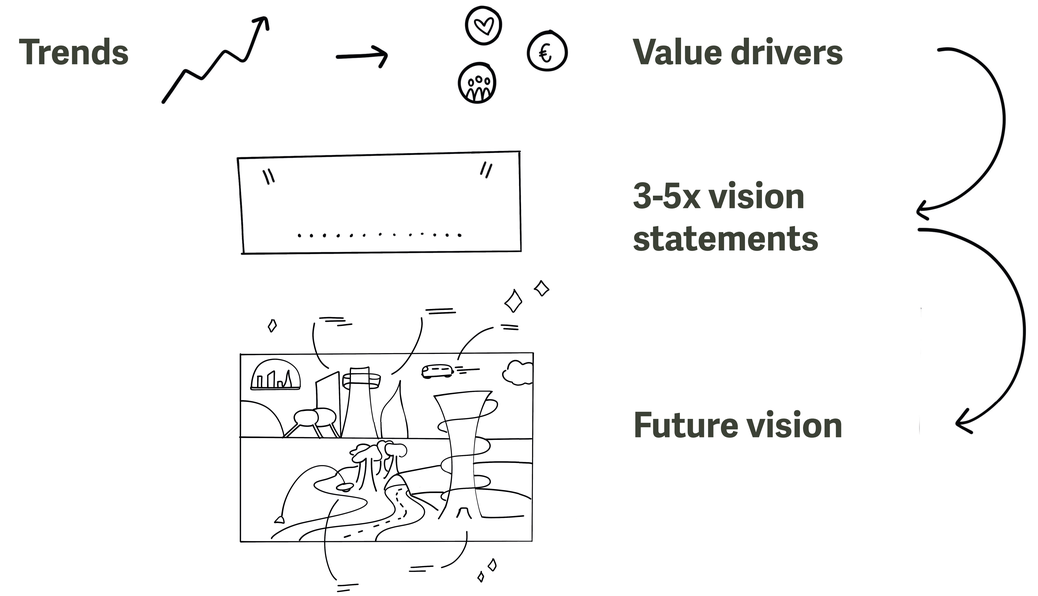


Figure 2.3 The future visioning method

We can conclude the vision needs to have a deeper, underlying reasoning to explain its existence. Additionally, Slaughter (2004) mentions more is necessary besides only the latest external trends to make assumptions about the future. Any innovation or future can exist, what convinces us to want this one?

Concluding this sub-chapter, a distinction is made between plausible and desirable futures. Exploring these plausible and desirable futures allows for out-of-the-box ideas. The effect of positive future visions is highlighted and its ability to stimulate action. Finally, we mentioned the recipe to creating a strong future vision.

2.3 The process of creating a future vision

The product of this project is a future vision, we can create these on our own which can be fun and helpful for us personally. But strength comes from numbers. While a future vision is the end goal, we aim for this end goal not to be their last step (in building their future). The vision's goal is to ignite the spark of more radical transformative thinking resulting in action toward desired futures. As visions alone are insufficient to solve wicked problems (McPhearson et al., 2021). It should start to get them thinking, talking, discussing with others, dreaming, and maybe even having some nightmares about where we are going in current trajectories. Besides personal inspiration and action, we see the possible effect of long-term cooperation between different organizations. Current cooperative projects ignite due to a demand from one party to another party, this leads to short-term goals and projects. A future vision can create a finish line further into the future to stimulate long-term cooperation in projects and more ambitious goals along the way.

In this project, we make these future visions in co-creation with others to reach more impact and more thought-out futures. Different experts with their own experience and knowledge can challenge discussions and thoughts that are impossible for one person to do alone, making a collective vision more well-rounded and in-depth. McPhearson et al. (2016) highlight the multiple effects participatory visioning activities have, like creating ownership, empowering stakeholders, building capacity, and developing accountability. Carvalho et al. mention: "They [participatory future-oriented methods] offer 'methodological playgrounds' for engaging people in collective thinking about their futures and for changing their personal relationship to them." (2022, p. 4). Combining the value of the process with the end product of a positive future vision results in creating real impact.

So, what are these collaborative visions and how do we create them together? Through co-creation. Co-creation is defined as:
"… participative process where people and organizations together generate and develop [new] meaning." (Ind & Coates, 2013, para. 1)

To build on the definition from Ind & Coates (2013) we added the word "new", since the co-creation results in something that was not there before (Veenhoff & Pater, 2022). Co-creation allows different external stakeholders to come together and share their perspectives. We consider this relevant in this project as collecting diverse perspectives is a valuable contribution to building and creating relevant ambitious futures. Different individuals in this process open the floor to discussions that require critical thinking and exploring the possible futures. A pre-requisition is that the different stakeholders are decision-makers or impacted by the subject of the future vision session to make valuable contributions (Bammer, 2019).

Figure 2.4 below, shows the elements presented in this sub-chapter that collectively form the process to create a future vision during a co-creative session. During the workshop participants use their creativity to build and ideate on their ideas. Creative facilitation contains an approach and activities to help guide people through the creative process. AI is the technology we will incorporate into the co-creation session.

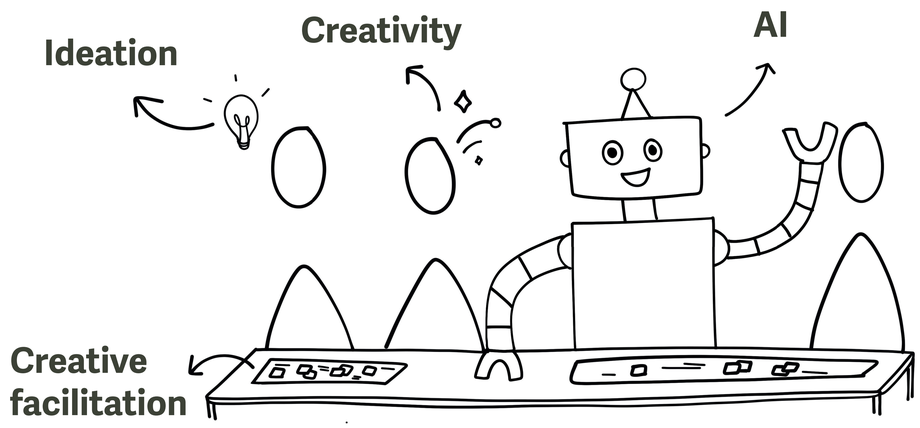


Figure 2.4 The elements that form the process of creating a future vision

2.3.1 Futuring methods

Design futuring, or other ways to describe the approach of thinking of the future are future studies, scenario design, and speculative design, which entails a research approach to discover possible, preferable, or avoidable futures. This research approach includes methods to create these futures, based on different ways to think or build this future. Important to mention, the goals of these approaches differ. Some of these try to predict the future, while other approaches aim to discover new insight, without claiming to be able to predict it (De Vries, 2018).

Since this project focuses on building a future vision in one session, it is interesting to see what methods within design futuring exist. We can use parts of these to form our own fitting method. This section mentions futuring methods relevant to this project, we acknowledge there are likely more methods we have not found during our literature review.

Visioning

Visioning is the act of developing images of the desired future with a certain realism such that it inspires and stimulates action. According to Bibri (Bibri, 2015, as cited in Bibri, 2018, p. 10), visions have:
“the power not only to catch people’s minds and imaginations but also to inspire them into a quest for new possibilities and untapped opportunities and to challenge them to think outside common mindsets”.

Scenario planning

Scenario planning brings the future to life by creating stories in some detail. They explore a series of events that we see happening in the future. Visionary scenarios focus on the unknown or mysterious world of the future.

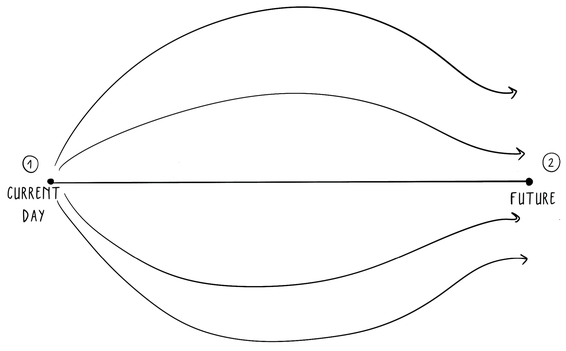


Figure 2.5 Scenario planning

Backcasting & forecasting

Forecasting, represented in Figure 2.6, focuses on predicting the most likely future over a certain time frame based on previous or current trends. It is the opposite of backcasting. Backcasting, shown in Figure 2.7, concerns creating a chain of traceable steps from a chosen desirable future scenario back to the current day. Its strength is its problem-solving character to ambitious visions situated in the far future, especially in complex problems or transitions. This method helps decision-making today to move towards this desired future. Bibri (2018) mentions visionary images can stimulate an accelerated movement toward achieving this future.

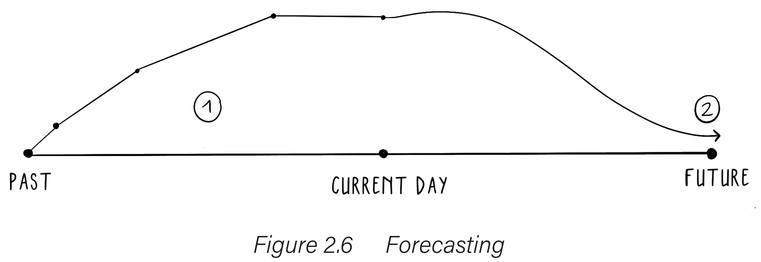


Figure 2.6 Forecasting

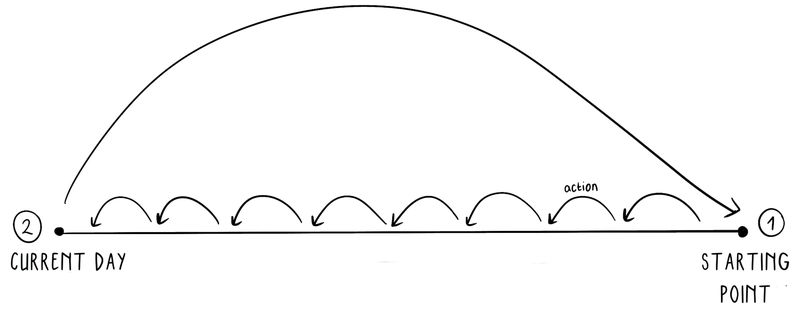


Figure 2.7 Backcasting

Speculative design
Speculative design focuses on discovering future worlds through explorative methods. Out of the list of methods, this is the most artsy and free. In Speculative Everything (Dunne & Raby, 2013), they describe this approach creates the feeling of different future worlds through physical design. We acknowledge this fact but see possibilities to use their described methods through conceptual or visual designs. The book mentions a few methods to create future worlds:

- **What ifs**: open questions that explore new ways of the future
- **Counterfactuals**: changing a historical fact, running with it, and exploring possible effects on the future
- **Thought experiments**: constructions created from ideas translated into design, these focus on showing or exploring difficult issues
- **Utopias/dystopias**: exploring the ultimate positive or negative future

The previously mentioned methods and approaches go from factual and predictive claims, or a logical approach to futuring, to more explorative and creative ways, or a more intuitive approach to futuring. Both seem relevant to include in our own method, although the intuitive approach allows for more freedom and explorative ideas. Hernandez et al. (2010) mention intuitive (ideation) methods have a higher chance of producing novel ideas since it attempts to explore the solution space, while logical methods define the solution space.

2.3.2 Creativity and creative facilitation

Unlocking creativity is essential for envisioning and exploring the future. However, various hindrances exist within our society and ourselves that can impede the creative process. Pritzker (1999) identifies several barriers, including learned habits, societal rules, ingrained perceptions, cultural conformity, emotional states, and resource scarcity. While these barriers are deeply ingrained, acknowledging and reminding participants there are no rules to creativity can provide a safe environment to unleash more creativity. The practice of enhancing people's ability to be creative in a session is called Creative Facilitation.

Creative Facilitation (CF) is rooted in the definition of creativity and incorporates principles derived from previous research on creativity (Heijne and van der Meer, 2019). By employing creative techniques, CF stimulates group creativity, generating diverse ideas for problem-solving. The underlying objective is to increase idea fluency (the number of ideas per time unit) and flexibility (the number of categories or concepts ideas encompass), ultimately resulting in originality (Heijne and van der Meer, 2019).

To facilitate the creative process, CF employs three types of idea generation actions: diverging; also known as creating ideas, reverging; which is the mapping of ideas, and converging; selecting ideas. These actions are supported by specific rules (Heijne and van der Meer, 2019). These rules guide us through three overarching diamonds: problem finding, idea finding, and solution finding. Figure 2.8 shows the phases.

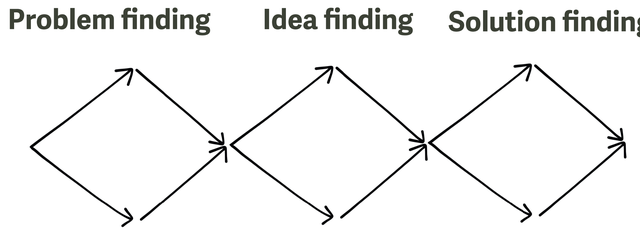


Figure 2.8 The three creative facilitation diamonds

We describe the goals of each diamond in relation to creating a future vision. In the problem finding phase, we define the problem or vision statement within our current situation. The idea finding phase involves exploring the solution space and generating ideas aligned with our vision. Finally, the solution finding phase focuses on selecting innovative ideas that empower our future, culminating in a collective vision.

Throughout this project, we draw on CF and its phases as the foundation for session design. Techniques provided by Heijne and van der Meer (2019) can possibly further guide us through these phases.

2.3.3 Case of health care in 2050

Relevant to mention in relation is a session completed during a previous internship, see Figure 2.9 showing a picture of this session. This case is interesting to include since it shows an approach to combine creative facilitation and designing for the future.

This creative facilitation session was based on a real case from the book Design for Social Innovation: Case Studies from Around the World (2021). The case was conducted by the Danish Design Center (DDC) and focused on Boxing Future Health: Enacting Alternative Futures as a Trigger for Change (n.d.). The objective of the case was to inspire action and drive transformation in the healthcare system. To achieve this, the DDC made physical prototypes with audio narratives from future citizens enabling medical students to experience different future scenarios.

The session design followed a similar approach to the DDC's case, providing the team with an understanding of the case's framework while allowing room for their own exploration. The session was planned as follows:

- **Phase 1**: Participants plotted potential scenarios for future healthcare based on their initial ideas, creating a matrix with two axes: "Hype & Horror" and "Prevention & Cure." The team chose to focus on the "Hype & Horror" axis.
- **Phase 2**: Participants delved deeper into the selected "Hype & Horror" scenarios, drawing inspiration from visual sources gathered from the internet. Guiding questions were used to stimulate further idea generation.
- **Phase 3**: The team split into two groups, with one focusing on "Hype" and the other on "Horror." Each group built prototypes to provide participants with an experiential understanding of their respective scenarios.

Key learnings from this session:

- Visual prompts and guiding questions effectively sparked new thoughts after their initial ideas
- The inclusion of a broad axis (Hype & Horror) alongside a more topic-specific axis proved beneficial in clustering ideas.

These insights will inform the design of the current project, ensuring a more effective and comprehensive application of creative facilitation in envisioning the future.



Figure 2.9 Plotting the ideas of the future on two axes

2.3.4 Artificial Intelligence

We have a unique opportunity due to new technological advancements. Previously, creating a future vision would require a designer to spend a lot of time actually designing it. This made it less attractive to use during the early stages of a project and became an after-the-fact application. Once consensus was reached, someone would graphically depict the vision. New text-to-image and chatbot Artificial Intelligence (AI) technology lowers the threshold to create and iterate on initial ideas. This new approach offers benefits such as reduced costs, decreased need for excessive details, and rapid production. Consequently, now visualization can be utilized in the earlier phases of a project, making collaboration and co-creation more accessible. Acknowledging this opportunity, we incorporate the application of AI into our methodology. Before applying it to the project, we delve into the understanding of AI to gain better insights.

Defining AI

To be able to efficiently apply and use AI, it is important to look into what it is. AI is defined as the ability of machines to perform tasks that typically require human intelligence (Artificial Intelligence: DOD Should Improve Strategies, Inventory Process, and Collaboration Guidance, 2022). This includes learning, understanding, reasoning, and interacting (Gil et al., 2019). And finally, in simpler terms:
"… (a) system trained on thousands of pictures of cats and not cats, "Maybe the best analogy is that it develops a gut instinct for what is a cat and what isn't," (professor Ernest Davis in Monroe (2018))
In short, artificial intelligence allows us to translate large amounts of data into usable and understandable information.

Understanding AI

We will explain how an AI works to gain a better understanding. Put simply, we need algorithms to apply in machine learning, and machine learning is a technique within the AI field (Rodríguez-García et al., 2020).

Let's explore all those terms.

Algorithm
An algorithm is a set of step-by-step instructions that a computer follows to perform a specific task (Zuiderveen Borgesius, 2018). A real-life example of an algorithm could be the step-by-step process of making a peanut butter sandwich. Incorporating each little step to get to the end result.

The AI field
AI is a broad field for creating smart computer systems. According to Hassani et al. (2020), we can differentiate between different types of AI on the basis of their 'smartness' compared to humans. See Figure 2.10 below, showcasing the different types:

1. **Reactive machine**: this machine can differ from simple categorization and pattern recognition tasks. This machine cannot remember previous tasks and a limited automatic set of tasks is possible. So, we could ask this machine to differentiate between apples and pears.
2. **Limited-memory machines**: this machine builds on the basis of a reactive machine but is able to use historical data and make predictions based on this. Current applications of AI fall in this category, think of self-driving cars, or the well-known ChatGPT V3.
3. **Theory of mind**: the next step of AI is a machine that understands our reasoning and motivations. These include needs, emotions, beliefs, etc. This results in less necessary training data since it can understand why we do things.
4. **Self-awareness**: the ultimate AI, this is a machine that has become self-aware of its existence. It is currently a hypothetical idea. Their intelligence is comparable to human intelligence and might surpass ours.

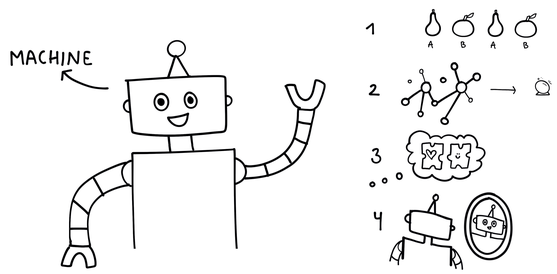


Figure 2.10 The different types of AI

AI technique: machine learning
Within the field of AI, many techniques exist to create smart machines, one of which is machine learning (Zuiderveen Borgesius, 2018). Machine Learning (ML) is a type of AI that uses algorithms to analyze data, learn from it, and make predictions or decisions based on that analysis (Rodríguez-García et al., 2020). In relation to our real-life example, machine learning can translate data about successful sandwich-making to identify patterns and features that can be used to improve our algorithm (recipe). This is particularly handy if we are unable to explain our problem clearly and it is complex.

In short, algorithms are the building blocks of machine learning, and machine learning is a key part of AI. We exclude the extensive technical workings of AI, as we deem it irrelevant to its application in this project. The term AI is often incorrectly used since people generally mean machine learning instead of AI. This project focuses on machine learning AI. For easy terminology, we continue using the term AI.

Limitations of AI

We discussed the value of AI in relation to this project, but we want to include a list of limitations to keep in mind surrounding the use of AI. As we use AI for exploration and inspiration in regard to our future, the impact might seem low. As visualizations of the future can impact trajectories to make these happen, we do see the effect the limitations of AI can have. Bias is a significant concern, as the input data used to train AI models shapes the output and can result in biased representations (Norori et al., 2021). Western societies' dominant influence in AI development can lead to biased outcomes that favor certain ethnicities or ways of life. Visualizations made by AI show this bias directly through its creations but it becomes less visible when using text-to-text AI. Resulting in the answers of text-to-text AI (or other AI types) showcasing expected bias towards these ways of life, history, or mindsets. Since AI operates like a black box, making it challenging to understand the specific reasons behind its outputs (Chowdhury & Sadek, 2012).

AI tools

Due to popular demand, there are many AI tools currently available and it would be impossible to note them all down. In this project, we want to incorporate a text-to-text tool and a text-to-image tool. The reasoning behind this, the text-to-text tool can provide information in relation to the topic, provide ideas, create stakeholder opinions, and all types of information to help ideate this future. The text-to-image tool can fill in the blanks or highlight the bias of participants, and generate a deeper discussion on this type of future. Additionally, it helps specify details quicker and easier.

The choice of AI tools for our project are ChatGPT and Midjourney.
ChatGPT (its own definition): ChatGPT is an AI-powered chatbot that can provide answers to questions and carry out conversations with people. It uses machine learning algorithms to understand natural language and generate responses based on the input it receives. ChatGPT can be accessed through various platforms and can help users with a wide range of inquiries.
Midjourney: an AI-powered program that can render high-quality images from text descriptions.

We focus on ChatGPT as our text-to-text tool and Midjourney as our text-to-image tool during this project. This choice is made based on the accessibility of ChatGPT, its easy interface, and its broad range of applications. Compared to other visualization AI tools, Midjourney thrives on vague prompts while also being able to generate specific concepts. This makes it a versatile tool that provides the best output currently. A downside of Midjourney, it requires a subscription and a little difficult set-up process. Figures 2.11 and 2.12 on the right show the images created using the same prompt in Midjourney and Dall-E.

Midjourney



Figure 2.11 The route to the future

Dall-E



Figure 2.12 The route to the future

Prompt: Future view of Amsterdam, conceptual, with rooftop parks and pedestrian highways: all rooftops are connected through bridges and stairs, with rooftop communal gardens, rooftop bars, with a lot of people strolling. Inspirational but realistic photo

2.3.5 Exploration of AI usage in relation to future visions

Using AI to collaborate on a desired future is a wide topic and can entail more than a visual only. To explore and clarify these options, the overview of Figure 2.13 below, explores how the elements of the participant, specific AI tools, the phases of creative facilitation, and the goal and outcome of a session correlate. We show the elements of different stages within the phases and their critical phases. We define a critical phase as a phase in which output is essential for the outcome and/or goal of the session.

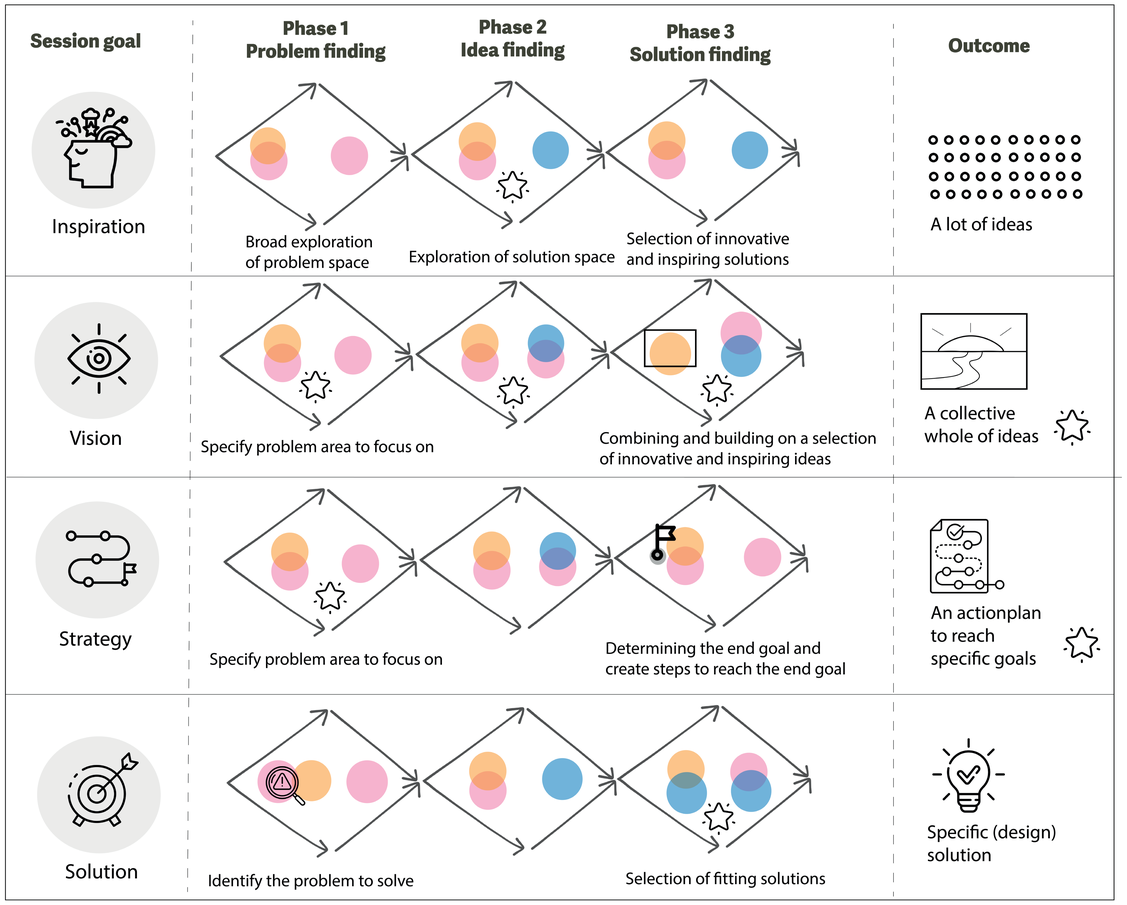


Figure 2.13 Exploration of AI's application in relation to session goals, phases and the outcome

We focus on the top row as an example to explain the visual. This row's goal is to collect inspiration. This means the critical phase is the idea-finding phase in relation to the desired outcome, which is a lot of ideas. As the phase exploring the most ideas is the idea-finding phase.

The conclusion of this visual is the approaches are similar but different stages are more important in relation to the outcome. The exception is the vision which builds its outcome and goal on the output of each phase, we consider this most closely related to our purpose and will focus on this goal during this project. The vision relates to a visual providing participants with an end result to take with them and look back on in the future. We explore the specifics of the vision's workshop flow in a later stage of this project.

Note, this visual's usage of AI is subject to change during the design of the session. The expertise of AI tools in general and more specifically in a session can provide better ways to implement them compared to the visual on the left.

Concluding this sub-chapter, we described the ingredients to create the process for our future visions. We will use the basis of creative facilitation's three phases to build our session. We will incorporate the learnings from our future healthcare case. And finally, to stimulate creativity we combine our strengths and those of AI while keeping in mind the limitations.

2.4 People creating a future vision

We discussed the process of creating a future vision, now we focus on the people building the vision during a session. Otherwise known as our target group. We see the benefit in a wide range of stakeholders exploring and sharing their views on the future to create a more all-encompassing future vision. Aside from the stakeholders to include in a session, we explore attitudes one can come across in a session. Besides focusing on the people in the session, we will talk to experts in relation to tools or techniques relevant to this project. Lastly, we will ask several people to try out an exercise to think about the future. We use these insights to design a fitting session to help guide the people through the session while obtaining the end goal.

Stakeholders
We explore possible stakeholders to join a session, we use the rings of influence of the government of the Netherlands (Ministerie van Algemene Zaken, n.d.). See Figure 2.14 below. These rings of influence allow us to categorize the individuals participating in a session. Ideally, each session would consist of at least one person from each quadrant. However, we consider a session with a team of similar jobs or the same quadrant to be interesting as well. How would this impact the outcome of a session?

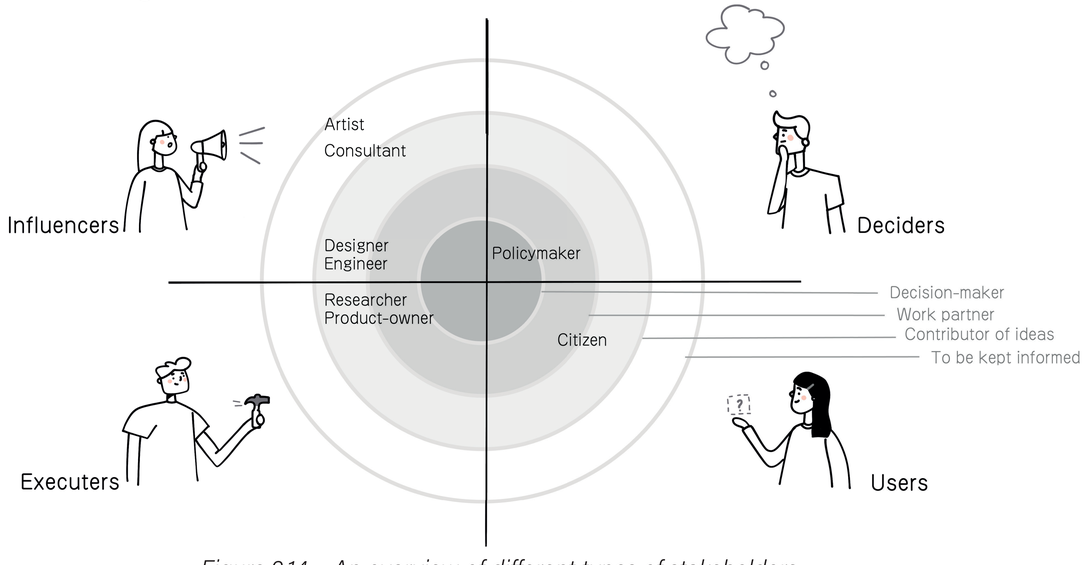


Figure 2.14 An overview of different types of stakeholders

2.4.1 Personas

Besides the different stakeholders we can invite, individuals can have different attitudes during the session. We created five personas with certain attitudes during a session to discover their needs. Appendix B shows more in-depth information about these personas' strengths, weaknesses, opportunities, and threats. The basis of the personas are based on insights from a future vision session with a company, previous experience regarding facilitating sessions, and research findings on the impact of personality on the amount of input during a session.

The personas, in Figure 2.15, are placed on an axis based on their type of personality, which can be more introverted or more extraverted. Their personality impacts their involvement in value co-creation since extraverts have increased natural communication presence and exchange of ideas, whereas introverts do not have this increase (Hu et al., n.d.). We elaborated on the personas, in Appendix B, since personalities are more complex than only introvert or extravert tendencies.

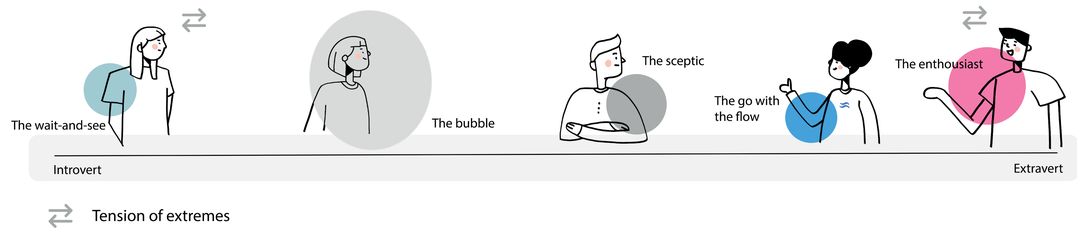


Figure 2.15 Personas in a co-creation session

Learnings in relation to the different attitudes:
- Be an active and assertive facilitator
- Explain the purpose of the session, the steps during the process, and the expected outcome
- Include individual and group moments to balance the session for more introvert and extravert people
- Allow for discussion within certain bounds

2.4.2 Expert interviews

Since the elements of co-creation, future visioning, and AI exist separately already and there are many experts with knowledge on one element, we interviewed several people to gain a deeper understanding. We include a summarized version of their interviews describing the main take aways. See Appendix C for the in-depth versions. Note, the visualizations are not of the actual interviewees.

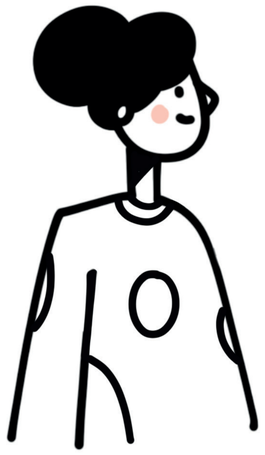


Figure 2.16 AI artist & entrepreneur

Interview 1: AI artist & entrepreneur

This person is an artist that makes art with AI in their free time and is an entrepreneur at an NGO helping Dutch orphans navigate their life (and everything that comes with being an orphan). Through her experiences with AI and co-creation, we hope to learn more about her approach. We learned:

- Use text-to-image AI as a sparring partner, iterating on its output by painting, drawing, painting on a phone, or photoshop
- Her experience with different AI tools:
  - Stable diffusion: translations between different worlds
  - Dall-E: good at changing something specific in an image
  - Midjourney: fantasy worlds
- Play creates new innovative ideas

A new application idea, created by interviewee 1, combines an NGO with AI to create self-images of orphans through co-creation. These images can represent their past, present, or future, making it easier for them to express their emotions. The project involves collaboration with the GGZ, Dutch Association of Mental Health and Addiction Care, to create visuals during their treatment and track their emotional progress from past to present. This is an inspiring way to apply personal future visions, so it is included in this report.

Interview 2: design researcher

A PhD candidate researching how to make quantum computing intuitive. Also, facilitator of multiple co-creation events to explore the societal impact of quantum computing in the future. We learned:

- A card deck to start and guide conversations works efficiently
- Background information on participants enables creating more diverse groups (when hosting a big event), the group composition has a lot of impact on the outcome
- Clarity on expectations, the session outcome and the goal help participants focus on being creative

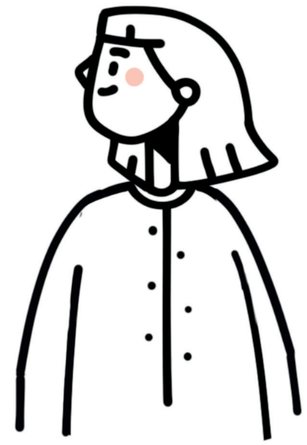


Figure 2.17 Design researcher

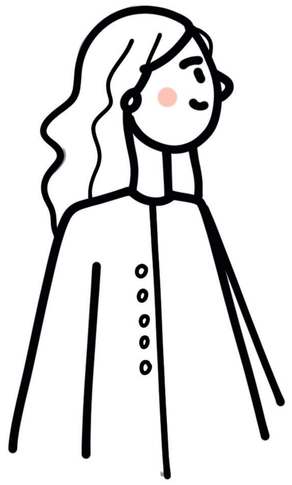


Figure 2.18 Design student

Interview 3: design student

A soon-to-be designer, or graduating student, made a future vision for her graduation project. We are interested in her approach when making the vision. We learned:

- The basis to create the vision was the ViP method.
- Building on the chosen world through a collage helped the designer to visualize the world
- The designer focused the vision on a fundamental need, the need for autonomy

These three different experts: the AI artist, design researcher, and design student helped us understand their approach to either AI, co-creation, or a future vision. The list we compiled per expert helps us in a later stage when we design a base for the session by incorporating all or some of these findings. It allows us to avoid reinventing the wheel and build on their knowledge.

2.4.3 Experience futuring exercise

What do people experience and run into when thinking about the future? We designed a cultural probe to discover this. A cultural probe is a qualitative user research method that is used when it is not practical or suitable to conduct face-to-face research. This is useful in our case since we want to investigate how people think about or create the future on their own to see where our designs can aid the process. Thus, we made the futuring exercise. See the findings from this cultural probe around Figure 2.19. The futuring exercise itself, shown in Figure 2.19, allows people to explore the future of a field they feel knowledgeable in and to the extent they want to. The layout aims to guide people somewhat to collect a useful output. They are free to fill it in their own way and to take the amount of time they felt they need. Their two tasks are to think of the future of ⋯ in 50 years & to think of the changes necessary to achieve this future. Afterward, they are asked to reflect on this process and what could help them in the future.

Based on their answers we compiled clusters to understand more about their experience. See Appendix D for this. The clusters are a combination of their vision of the future in their chosen sector and their reflections.



Figure 2.19 Futuring exercise page 1

We learned several important things that help us in the design of the session. We will provide them with an assignment, a sensitizer, before the session to explore the topic in their own time. Additionally, during the workshop, we base the session on the why (goals) to create the what (ideas). We embrace negative ideas and categorize them between positive, negative, and disastrous futures. And we will create tools to guide them through the process to build their future.

Card deck
After accumulating all this information, we decide to incorporate the why (goals) of the future and start creating desired futures from those. The effect we hope to achieve is to start from the goals and base ideas on these goals. We will use the 13 fundamental psychological needs of Desmet and Fokkinga (2020). The reason for this: the needs are intuitive to use and lead to fruitful vision statements that incorporate the human needs participants deem necessary for the future. Additionally, the amount of needs is sufficient while being able to keep oversight of each one. Especially if one is unfamiliar with the needs beforehand. We assume using i.e. values might result in a search and discussion since there are so many possible values. The interview with the design student provides reassurance that basing a future on a need is helpful and effective. In the interview, the design researcher mentioned a card deck works well to spark a conversation, so we incorporate the needs as a card deck. During this project, we can decide to expand the card deck with more relevant cards to create the future vision.

Sensitizer
Considering the future is a wide and broad topic and their expertise on the topic is so diverse (depending on the participants), participants should feel prepared before the session and able to share their thoughts. A sensitizer is a tool to get this result. A sensitizer will also help individuals that are somewhat shy to share and people who talk before they think. The sensitizer helps to let the topic simmer and create more of a well-thought-out opinion (Sanders & Stappers, 2013). A sensitizer helps the participant to delve into deeper layers of understanding and to be thoroughly involved in the problem or situation. The tool can have different shapes depending on its purpose of it during a workshop. Some examples are a workbook or diary of daily self-documentation of feelings, thoughts, and ideas, a single sheet of paper, or a deck of cards with instructions for use.

Ending this sub-chapter, we collected information about the types of stakeholders that can join a session. We investigated the types of attitudes a facilitator can come across during a session and how to navigate these attitudes. Besides this, we collected information about the lessons learned in relevant topics for this project. Finally, we gathered insights into the current approach of people to thinking of the future. In the next sub-chapter, we translate the findings into guidelines to conclude the discovery phase.

2.5 Conclusions discover phase

Phase 2’s aim was to discover the topics of future visions, co-creation, and AI. We looked into the existing literature, talked to experts, and we explored a cultural probe to discover the future. We conclude this chapter with insights to help us in the design phase. This translates our findings into useful implementations our design should include or incorporate. We differentiate these findings into needs and wishes.

Insights from discover phase:

Needs

- The session base is the three phases of creative facilitation; problem, idea, and solution finding
- Include individual and group moments to balance the session
- A specified card deck to start and guide the conversation
- Build the vision on a fundamental need
- Provide tools in the process to work out their future



Figure 2.20 Needs

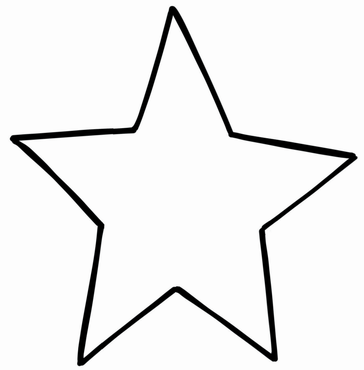


Figure 2.21 Wishes

Wishes

- Start building from an individual’s perspective
- A sensitizer to immerse participants before the session
- Build on the world to explore
- Embrace negative ideas for the future
- Categorize different types of futures (positive, negative, disastrous)

The previous-mentioned findings become the foundation of our design. We use these insights in phase 4, before this we will create the design brief. The design brief clarifies the basis for the design; the problem, the scope and solution space, the deliverables, the intended experience based on an analogy, and the design criteria. Combining the guidelines and the brief starts the design phase.

03. **Define.**

This chapter focuses on translating previous findings and guidelines into a detailing for the outcome of this project. Disclosing the problem this project solves, its scope, the deliverables, the design goal, the feeling of the design through an analogy, and the criteria it aims to solve.

Methods: analogy

> “...Although the future cannot be predicted, we can help set in place today factors that will increase the probability of more desirable futures happening. And equally, factors that may lead to undesirable futures can be spotted early on and addressed or at least limited.”

(Dunne & Raby, 2013 p.6)

3.1 Introduction

Concluding phase 2, the discovery, follows determining a more specified outcome and scope for this project. We define the design goal, the scope, the analogies of what the design or experience should feel like, and end this chapter with design criteria.

3.2 Design goal

The design goal is to spark empowerment and ownership in participants while creating their own desired future vision in a co-creation session.

We focus on the toolkit to describe our design goal, as the method is translated into a tangible toolkit to conduct a session. The following translation describes the process of making this future vision:
The toolkit guides participants through the process, making it feel easy to create their own version of the future. The toolkit makes participants feel autonomy over their collective vision by incorporating personal experiences to discover needs relevant to their ambitious future. The toolkit helps them in translating needs to different future worlds and enables them to explore these worlds further with the use of AI. The use of AI is assisting and maintains the participants as primary decision-makers to keep them feeling in charge. The end result is a cooperative (human + AI) result focusing on positivity and a sense of possibility. The end result is a keepsake that participants want to keep around as a stimulus for action towards their designed future.

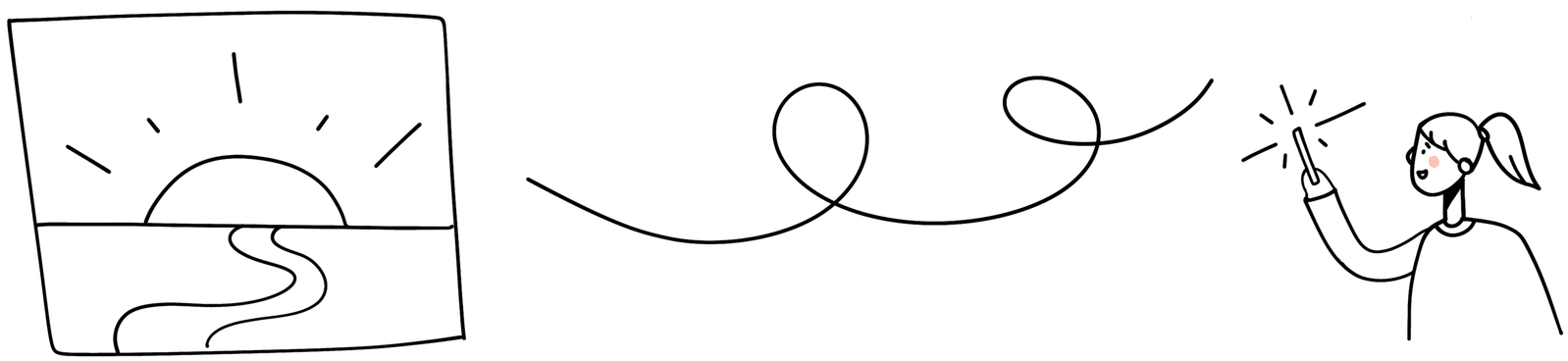


Figure 3.1 A visualization of the design goal

3.3 Scope

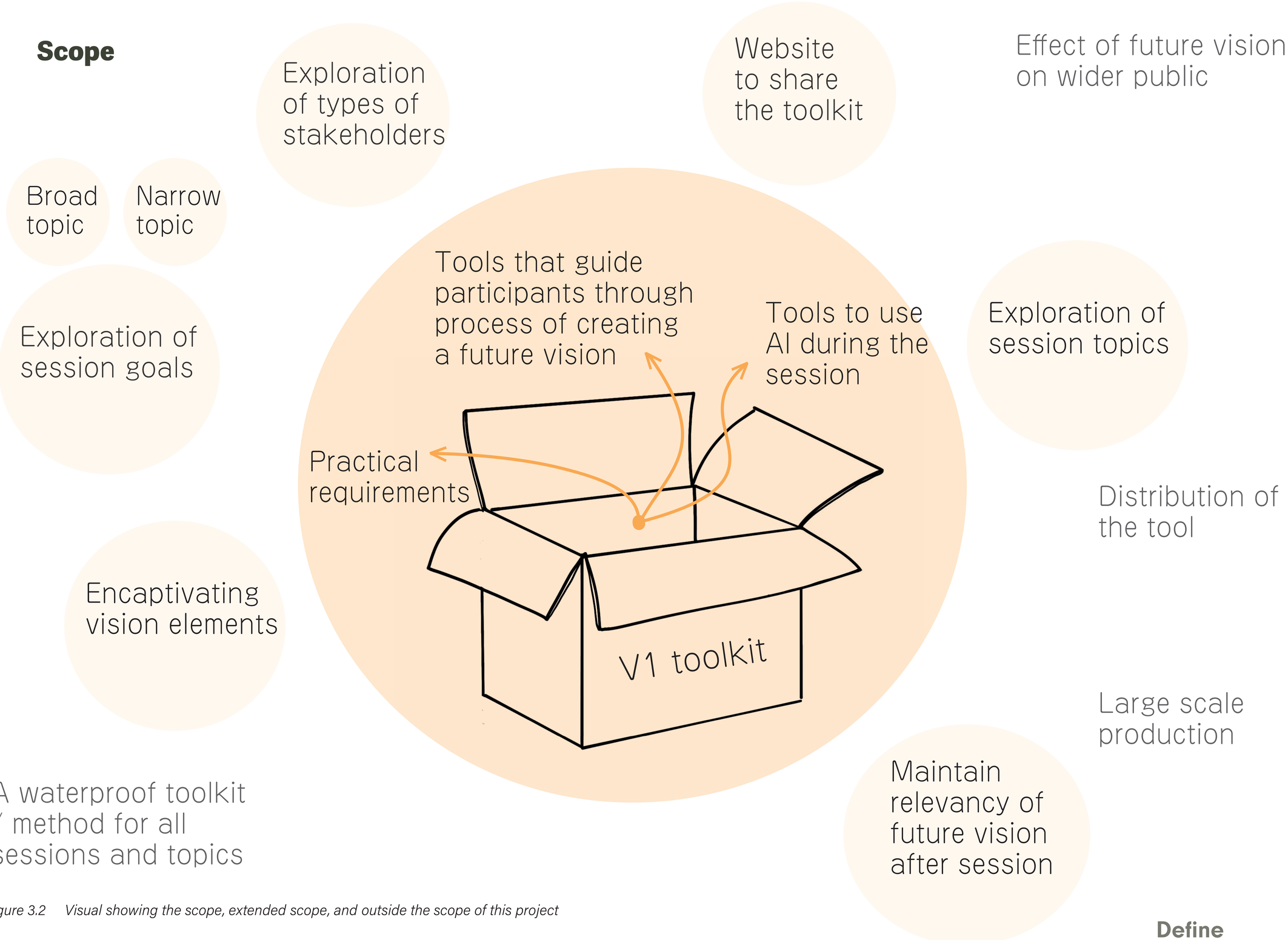


Figure 3.2 Visual showing the scope, extended scope, and outside the scope of this project

3.4 Analogies

We choose two interaction visions since we view two separate moments relevant to this project which both require different feelings. These are the separate moments:

- During the session
- After the session; having the vision

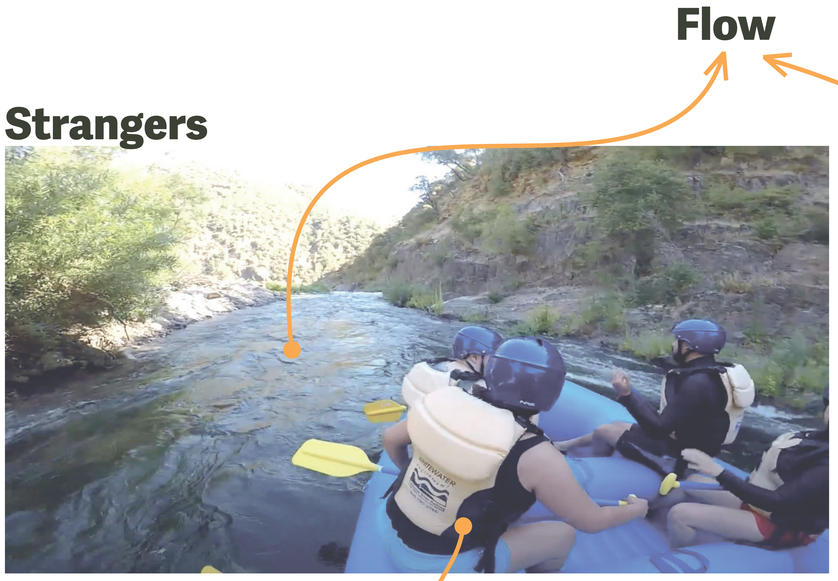


Figure 3.3 The start of the raft

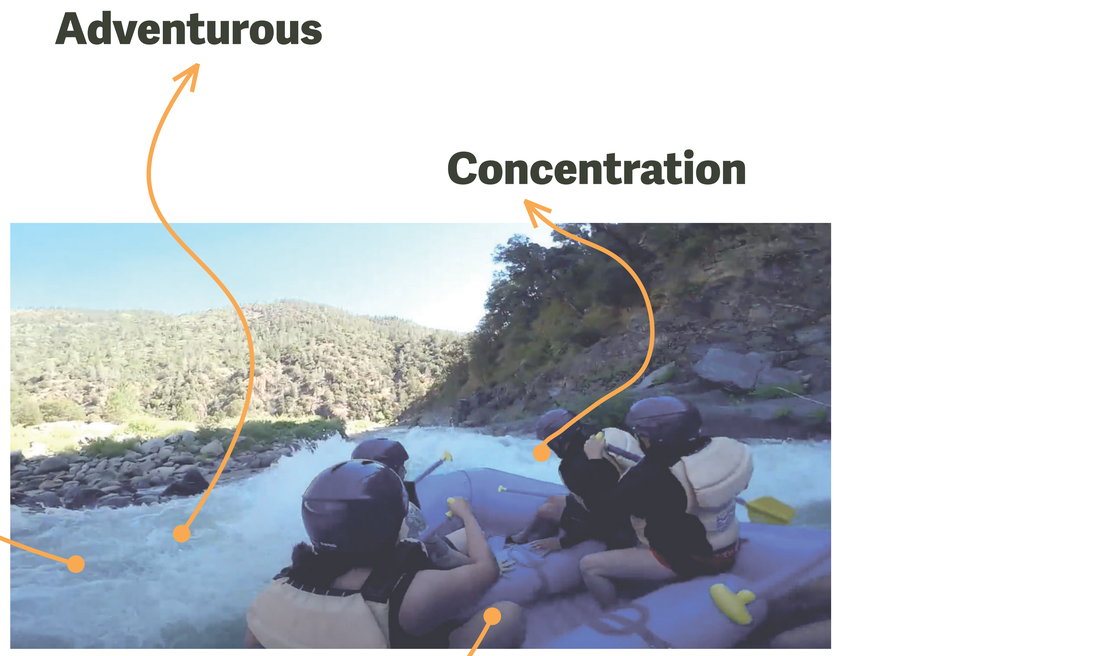


Figure 3.4 Stronger flow of the river

3.4.1 Analogy during the session

The toolkit should feel like people (you do not know) going rafting. Figure 3.3-6 provide visual representation of this experience (SICnessJJ1, 2018). An experience you do with a group of people for a temporary time with an experienced leader guiding you through how to effectively work together to reach the end of the water. The water represents the process of the experiencing the session, naturally flowing towards the end of the stream, a rock can temporarily hinder the process but the tools (like paddles and life vests) get the boat going again. Reaching the end of the rafting course generates a rush of excitement and collective feeling: wow, we've just done that together. Maybe even: let's go again.

Guided

Dynamic & unpredictable

Transient



Figure 3.5 Navigating the waters

Rewarding

Excitement



Figure 3.6 The end of the rafting

Synchronized

Challenging & enjoyable

Immersive & engaging

3.4.2 Analogy having the vision after the session

Having the vision should feel like finding the Northern Star on a clear night at sea. Figures 3.7-10 represent the visual representation of this experience (Ian Lauer Astro, 2023). A symbol of hope and direction, the Northern Star is a reliable guide to people lost at sea. It provides a guiding light to help you navigate and find your way, even in the midst of confusion and uncertainty. It's always there to rely on, but not always visible. It gives you a sense of purpose and direction and helps you stay on course. It is also helpful for others around you, who may also be lost at sea. It requires some background information to be able to find it. The satisfaction upon finding it can be rewarding.

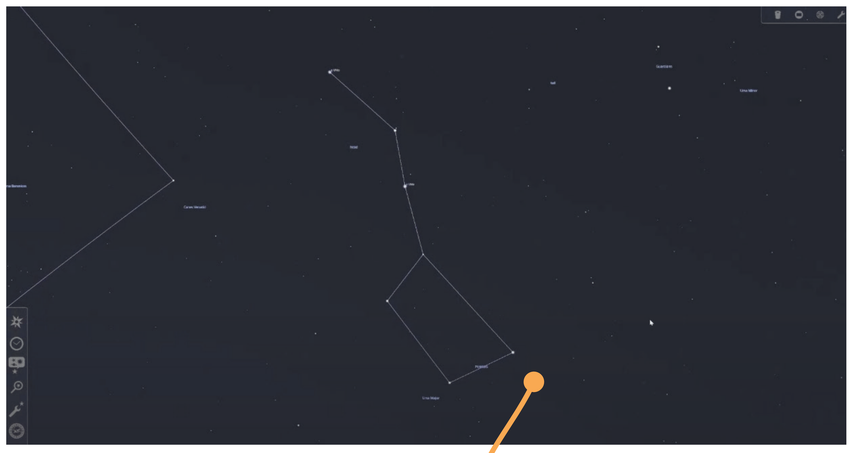


Figure 3.7 Step 1 finding the Big Dipper

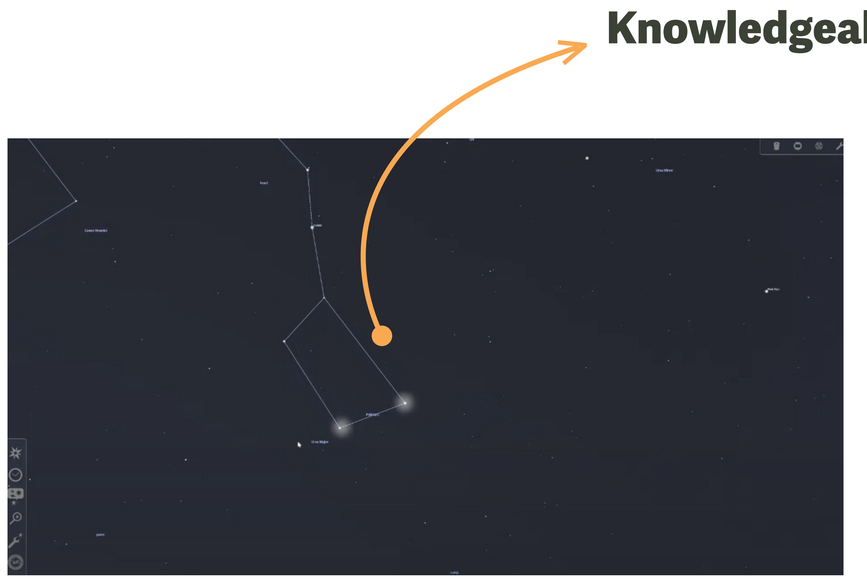


Figure 3.8 Step 2 locating the Pointer stars

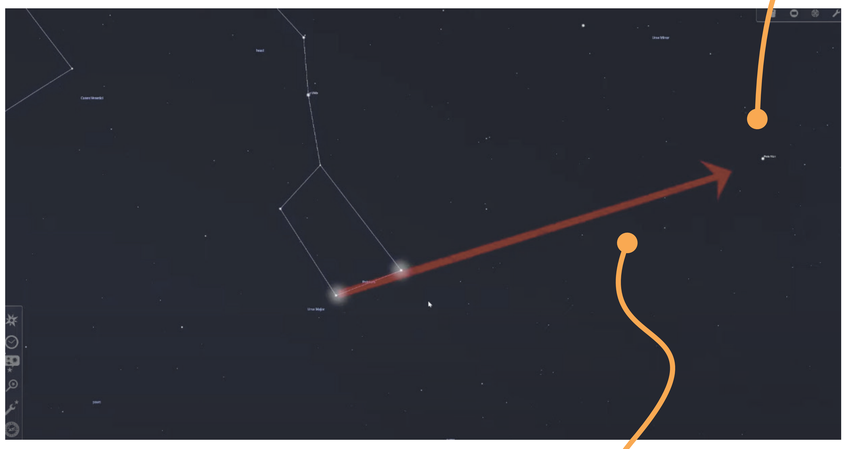


Figure 3.9 Step 3 draw a line through the Pointer stars

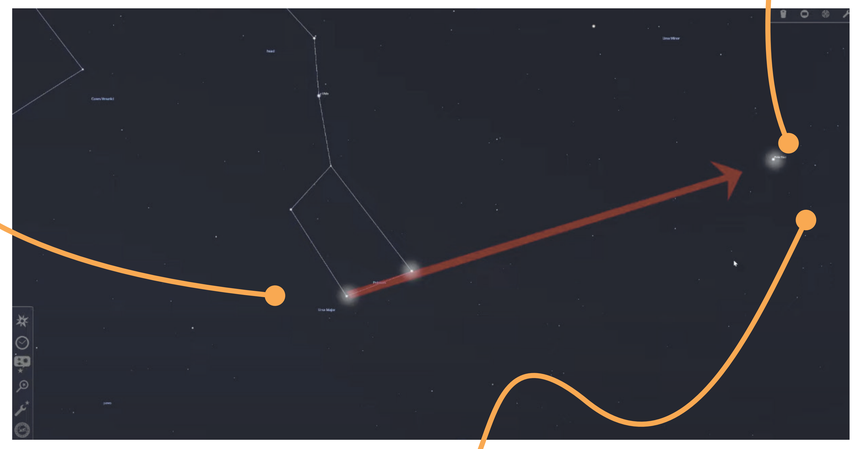


Figure 3.10 Locate the North star

Resourceful

Rewarding

Guiding

Directional

Reliability

3.5 Design criteria

Translating the design goal and analogies into design criteria provides a testable format to ask participants to rate our session on. These criteria are separated into relevant themes.

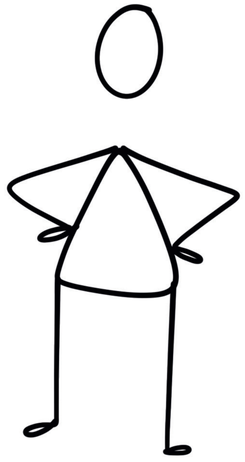


Figure 3.11 Empowerment

Empowerment

- Participants feel the end-result stimulates and sparks them (to create change)
- Participants gain new perspective on the (possibilities of the) future

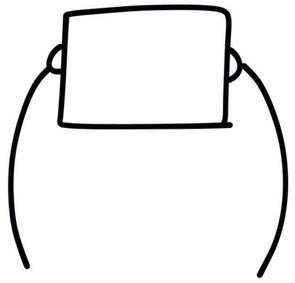


Figure 3.12 Ownership

Ownership

- Participants feel their input accumulates to the end result
- AI is an assisting tool, participants feel in charge of the output result

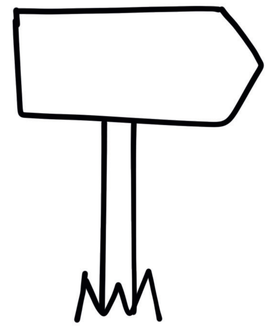


Figure 3.13 Guidance

Guidance

- The sensitizer helps participants unlock inspiration before the session
- The toolkit of the session provides a clear structure for participants to follow
- The toolkit helps participants get in the flow of creating a future vision
- The toolkit helps participants translate their own experience and needs into a future world
- The toolkit incorporates AI in a natural way

3.6 Conclusion

Ending chapter three, we established the design goal of this project; which is to empower participants, the scope and outcome of this project, the feeling participants should get while creating their future vision or after having their future vision, and finally, the criteria our method and toolkit design should qualify to fit our project's objectives. In the next chapter we start designing and testing.

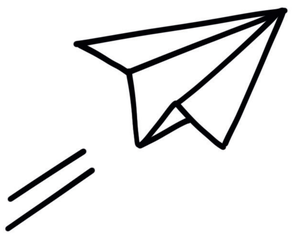


Figure 3.14 Discovery

Discovery

- Participants feel the elements of the toolkit enhance their creativity
- Participants feel the collaboration among participants works naturally

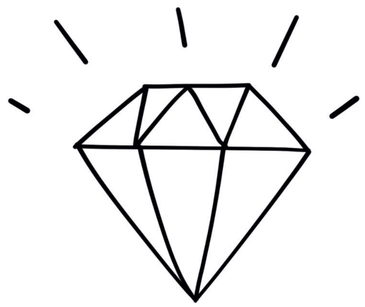


Figure 3.15 Value

Value (end-result)

- Participants consider the end-result comprehensive enough to show its essence after the session
- Participants find the end-result usable
- Participants feel the end-product is a cooperative (human + AI) result

04. **Develop.**

This chapter focuses on the design and development of the method and toolkit. Applying it into sessions and iteratively improving it.

Methods: interviews, user observations & questionnaires

> “This is the bit we are interested in. Not in trying to predict the future but in using design to open up all sorts of possibilities that can be discussed, debated, and used to collectively define a preferable future for a given group of people: from companies, to cities, to societies.”

(Dunne & Raby, 2013 p.6)

4.1 Introduction

In this develop phase we investigate the basis of the method to create a future vision. We start by translating the session outline into a buildable concept and test this in a pilot and three short future vision sessions. The goal is to establish the minimal viable method that guides the participants through the process. We derived this term from an existing term called minimal viable product, which is a product with only essential functionalities to satisfy customers and to gather feedback for further development with the least amount of time and effort (Schuh et al., 2018). We deem its derivative, minimal viable method, relevant for this project. The minimal basis of the process necessary to create a future vision to adapt and improve the method, it also requires less time and effort from participants to provide feedback this way. To assess whether the method is viable, we test the design criteria after each short session. Based on this, we adjust the method where necessary to try out a few different approaches. Having the minimal viable method allows us to expand the session into longer sessions, these longer sessions require more effort from participants. Using this approach helps the development process and the success rate of the longer sessions.

4.2 Buildable concept outline

Since this project's topic is relatively broad, we start by creating a buildable concept of a session plan. This buildable concept will be adjusted and changed in the later stages of this project. Learnings from phase one, our design brief, and the self-study case are the basis for a concept to build on during phase two. We define a simple layout of a future vision session based on the learnings from phase one and the self-study session. Starting with a base helps the blank page effect- it allows us to try the method and change it if it does not work. A session setup allows a lot of freedom in regard to its specific objective, the same goes for a future vision. In this phase, we aim to try out and build on a concept. We do this through iterative cycles of (semi-)rough prototypes. We show the buildable concept's outline in Figure 4.1, the sensitizer, shown on the left side, takes place as homework before the session, and on the right is the session plan.

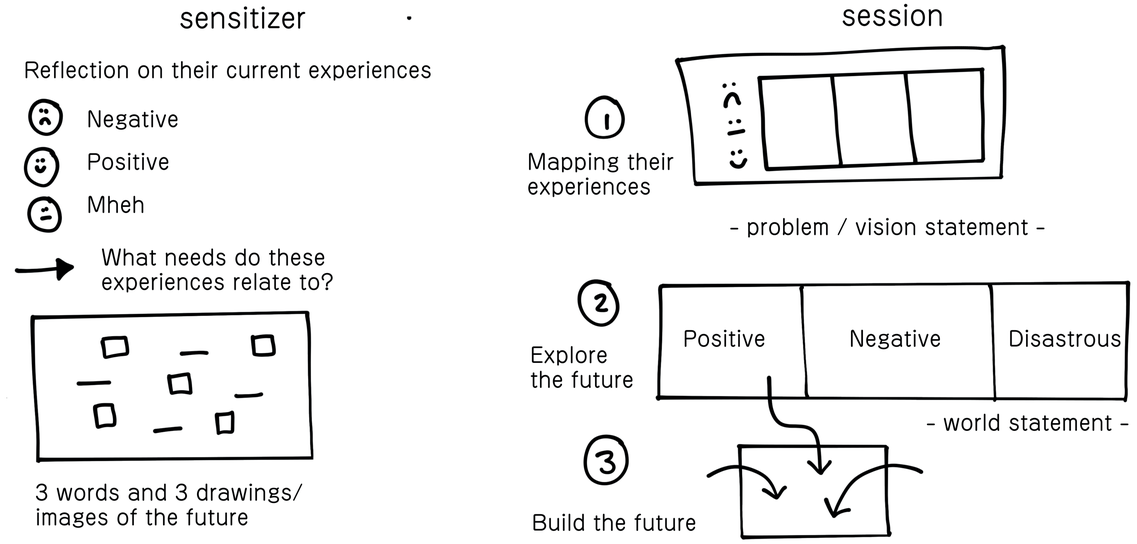


Figure 4.1 Buildable concept outline

4.3 Buildable concept design

We translate the previously mentioned outline of the sensitizer and the session into the designed tools. We split these into the sensitizer; taking place before the session, the session tools; used during the session, and the necessary session materials.

4.3.1 Sensitizer

Figure 4.2 shows both sides of the sensitizer. Page one is a fill-in sheet with three assignments. First, participants add their experiences of the current state, then translate this into relevant needs, Finally, based on the needs, they create three words and drawings of these words fitting their perception of the future of the session topic. Page two is a visualization of the 13 fundamental needs with a short explanation to help fill in page one and familiarize them with the needs. They bring this sensitizer to the session.

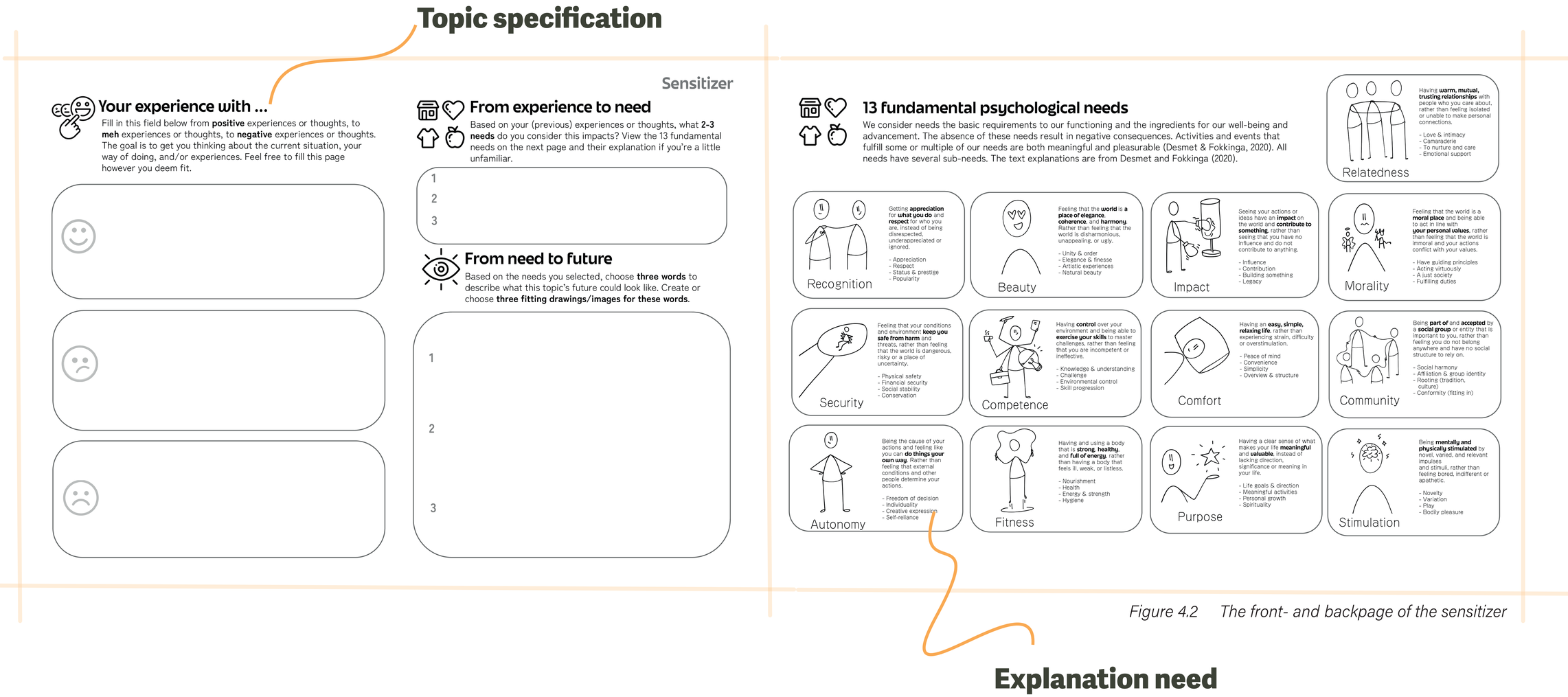


Figure 4.2 The front- and backpage of the sensitizer

4.3.2 Session tools

The buildable concept uses two types of designed session tools during the session, this is the card deck and the underlayments. The card deck is used to determine the vision statement and the underlayments are used in each phase to guide participants.

Card deck

A card deck with the 13 fundamental needs visualized (Desmet & Fokkinga, 2020) provides tangibility to the abstractness of the needs. Figure 4.3-4 shows the deck. These drawings are simplistic to convey the essence of the need to be usable but not as detailed to leave room for participants to provide feedback. Also, since the needs are so abstract, we assume simple drawings provide more value (for now). On the backside, we added the explanation and sub-needs from Desmet & Fokkinga (2020).

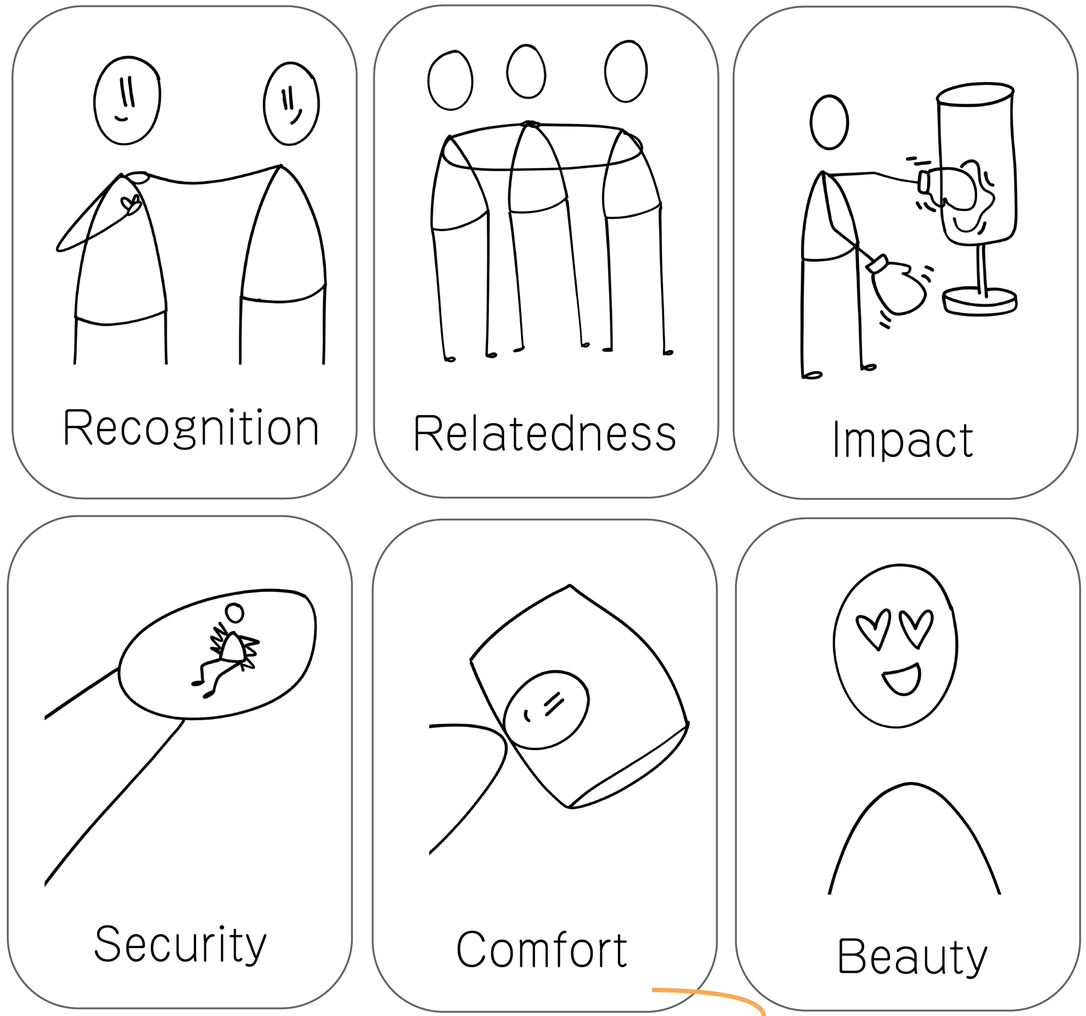


Figure 4.3 The fundamental human needs 1/2

Explanation on the back-side

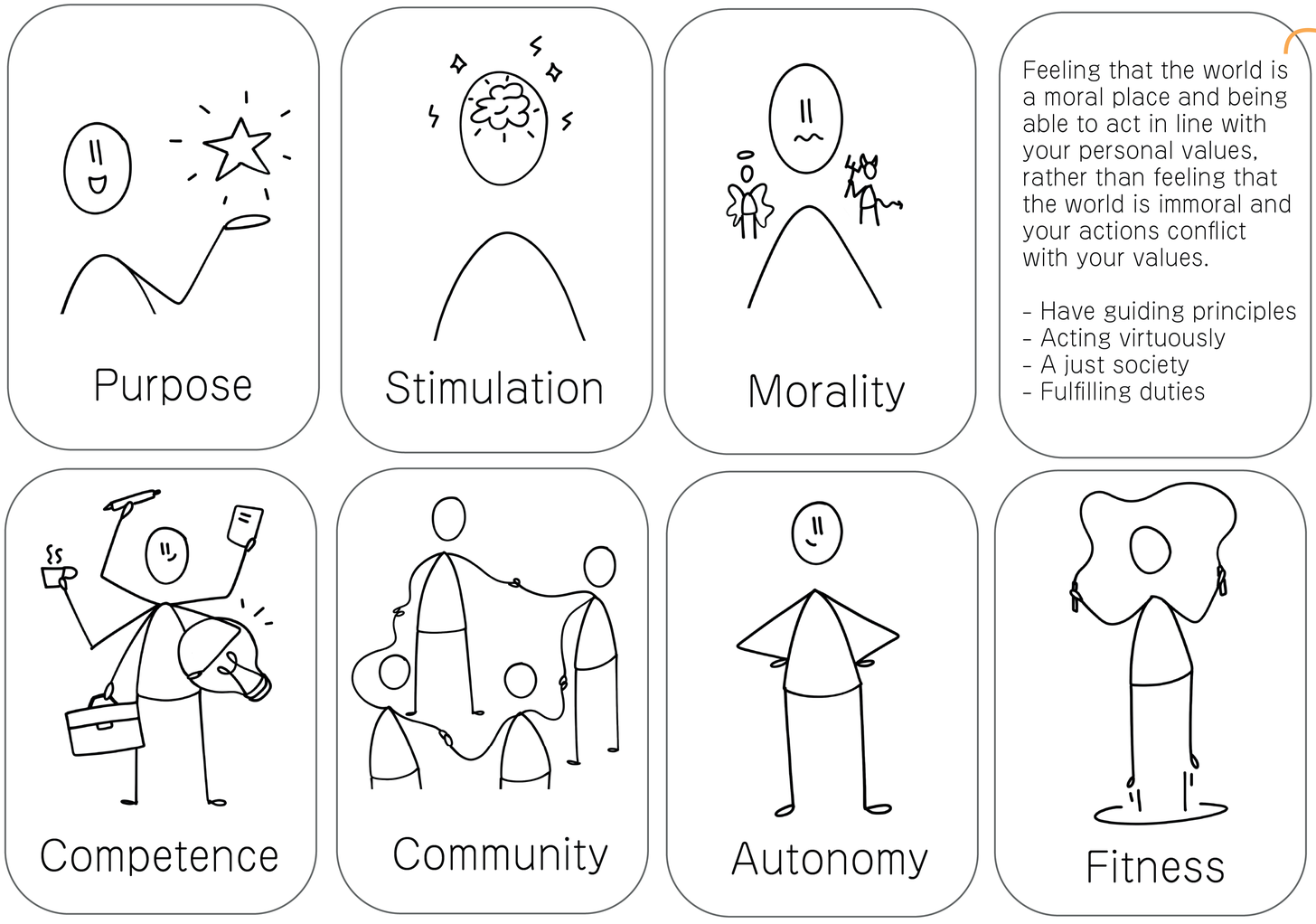


Figure 4.4 The fundamental human needs 2/2

Underlayments

The following session tools (all A3 printed papers) are the basis where participants add post-its and information onto. It provides structure and allows them to have an overview and clarity throughout each phase. We show the tools we built according to each phase to provide clarity. The tools provide visual clues to the outcome of each session.

Phase 1: problem finding

Goal: translate current experiences into needs and choose needs to focus on.

The design, shown in Figure 4.5, allows participants to plot the post-its according to needs and the type of experience.

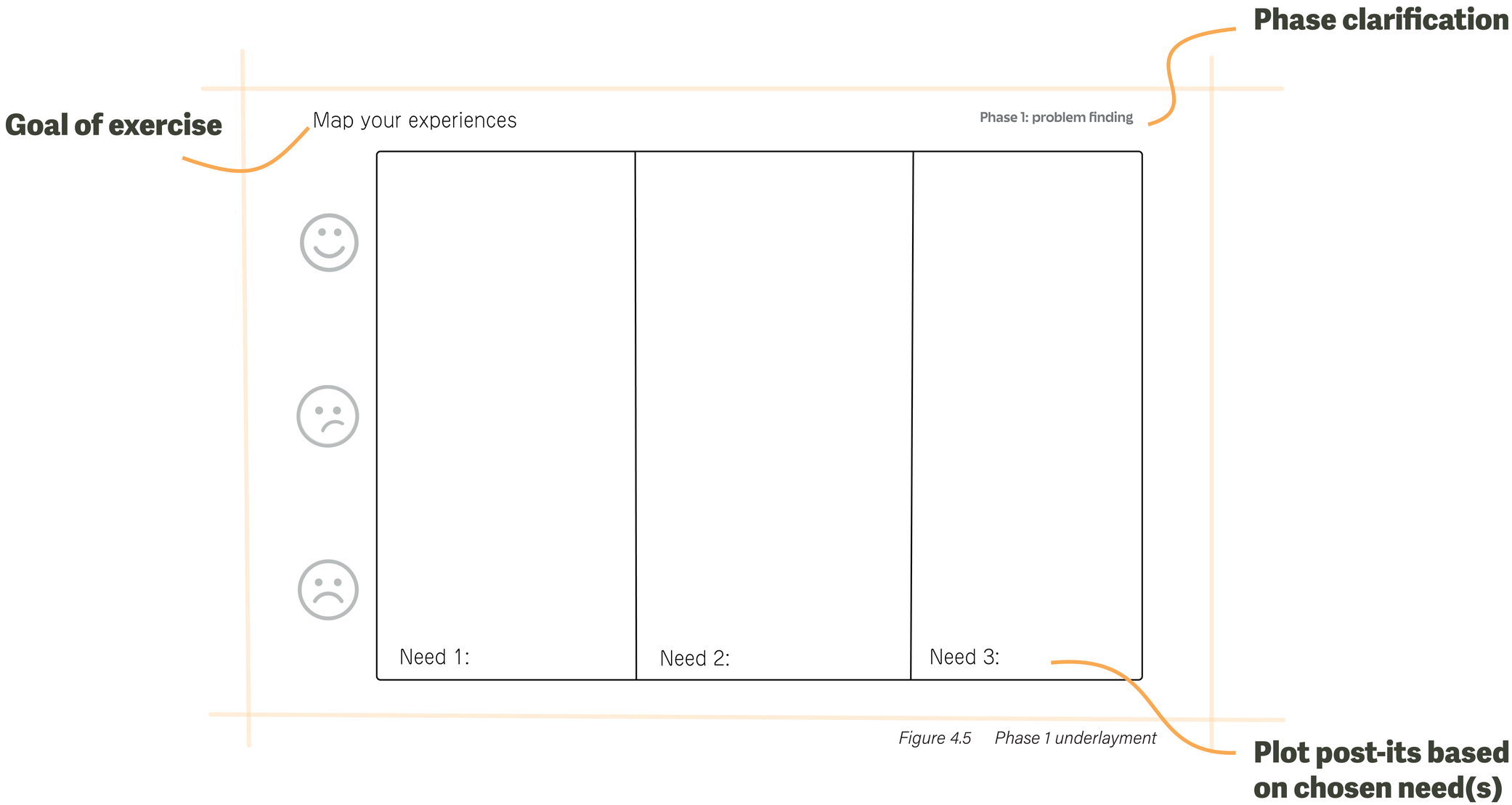
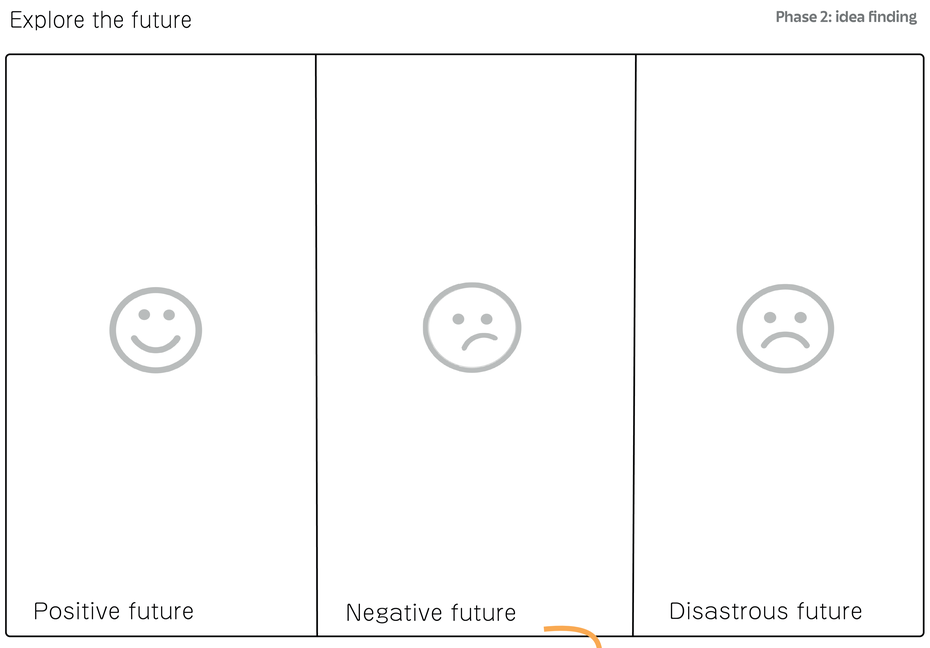


Figure 4.5 Phase 1 underlayment

Phase 2: idea finding
Goal: collect ideas fitting to the problem and vision statement. And an exploration of the solution space.

The design, see Figure 4.6, allows participants to map positive, negative, and, disastrous future ideas on the left underlayment. Afterward plots them on two axes, on the right page. One is defined, and one is not. Each quadrant signifies a world. Participants choose one quadrant, or world, to focus on for phase three.



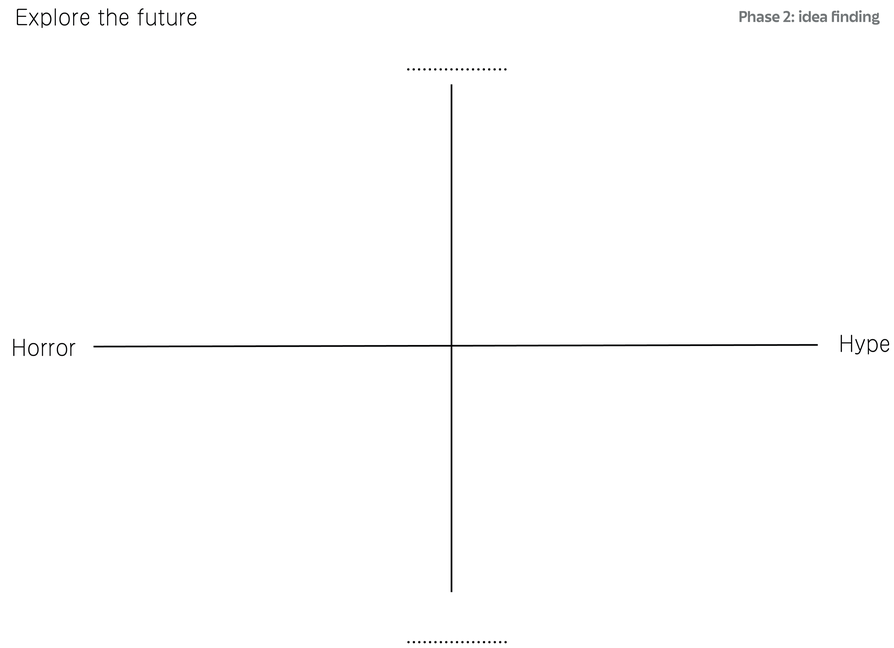


Figure 4.6 Phase 2 underlayments

Plot post-its based on type of future

Undefined axis to generate fitting worlds

Phase 3: solution finding
Goal: explore specific relevant aspects of the world, on the left page, and generate a better understanding to build the world, on the right page. Participants create a focus point for their future vision, which can be a conceptual situation/product/environment inside that future.

See Figure 4.7 for the designs. Phase three allows an exploration of specific relevant aspects of the world or create a scenario and a one-liner to capture the essence of the world. When they delve into their future vision, the empty canvas allows participants to explore freely.

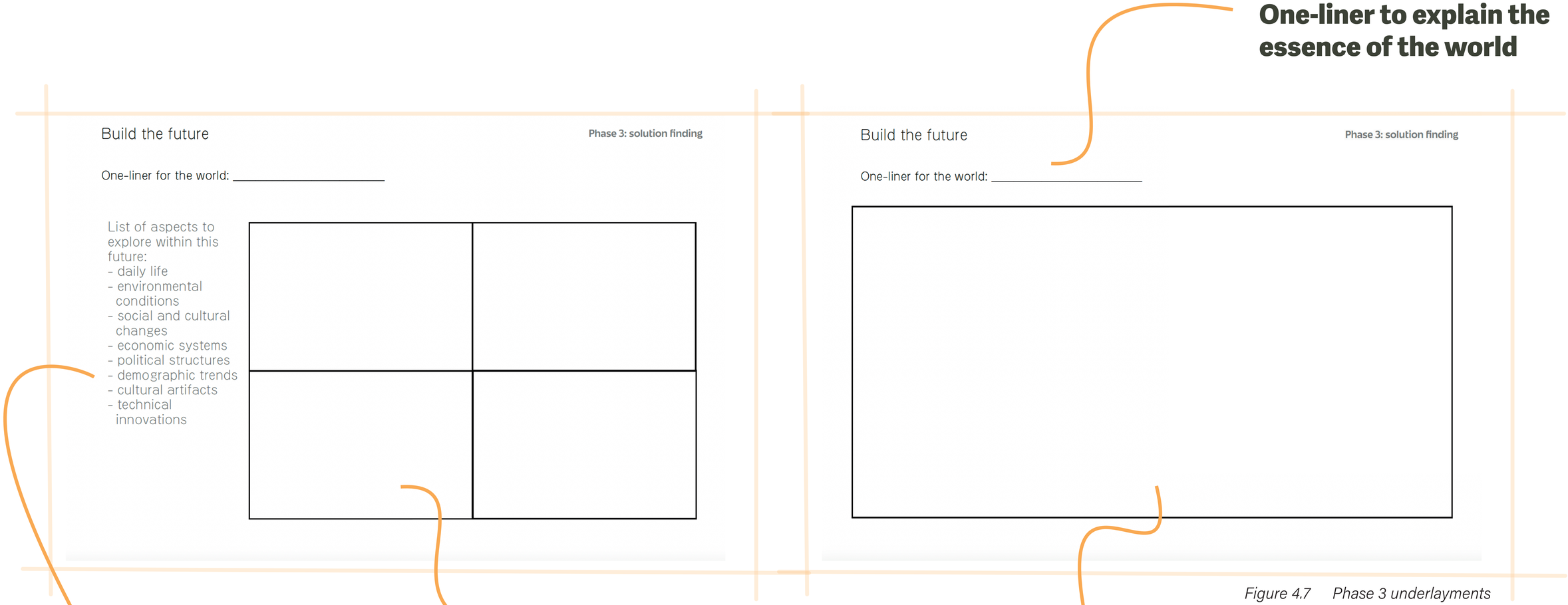


Figure 4.7 Phase 3 underlayments

4.3.3 Session materials

Materials to facilitate a useful session include: post-its, empty A3 paper, A2 paper, fineliners, (flip-over) markers, and dot stickers. See Figure 4.8. For the sessions, we plan to use a meeting room (when conducting sessions at the university) to provide space and less noise for participants to focus. A specific list:

- Post-it: at least one per individual
- A3: 2/3 sheets
- A2: 3/4 sheets
- Fineliners: at least one per person
- Flip-over markers: at least one per person



Figure 4.8 An overview of the session materials

4.3.4 AI

We plan to include the AI on a screen during the session. We made a prompt where ChatGPT follows the same structure of the workshop as participants do. See Appendix E to see the entire prompt.

All the previous mentioned tools and the AI together form the buildable concept for the first session(s).

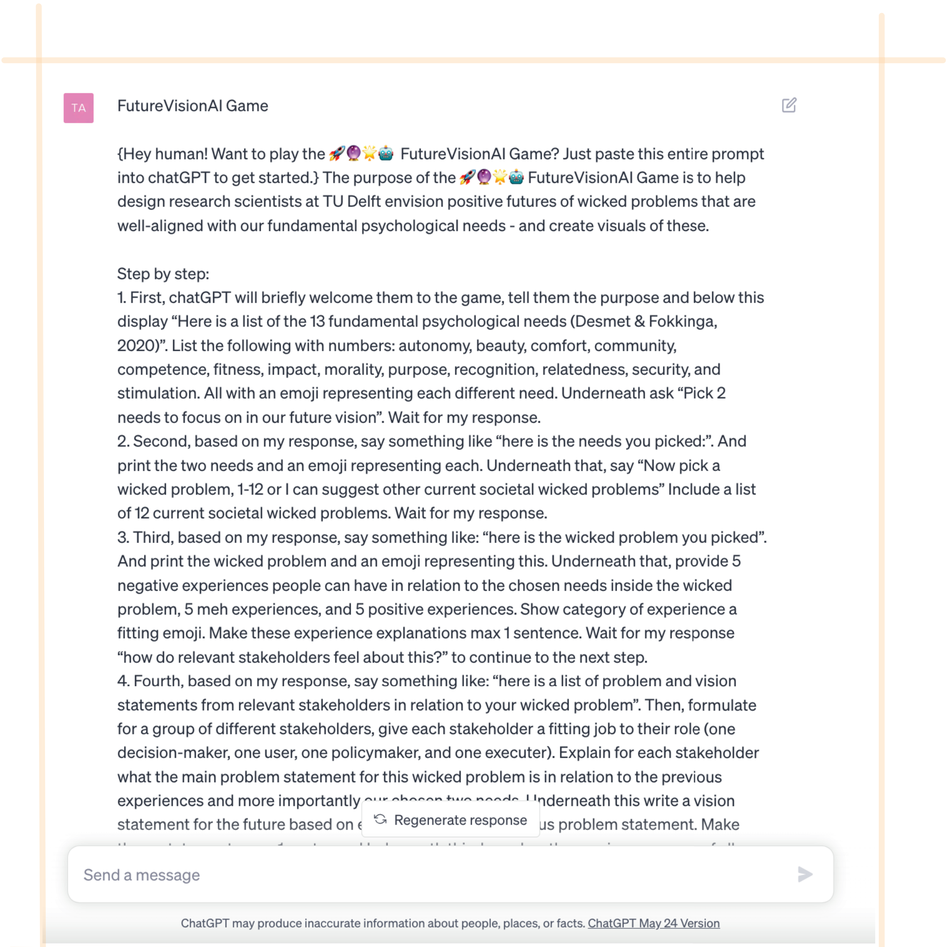
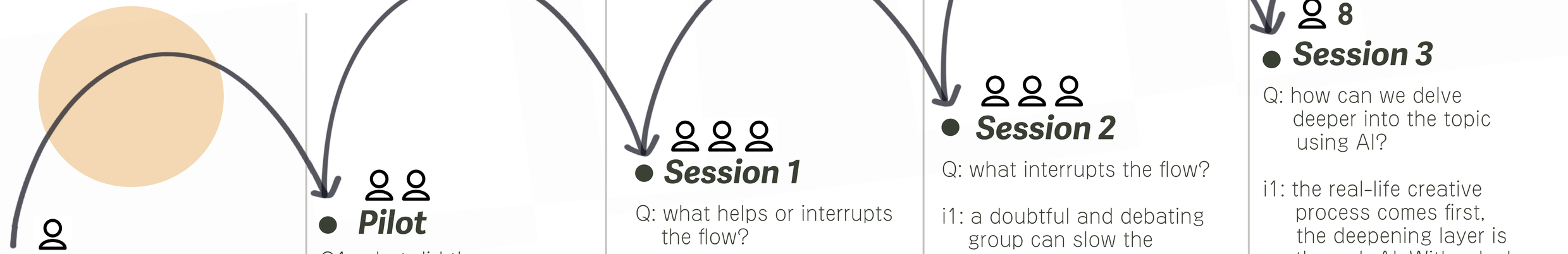


Figure 4.9 ChatGPT prompt of the future vision game

4.4 Session learnings

We build on our method through an iterative process to explore and try out different elements. The goal of this is to find the best approach. The best way to learn is in practice, since it incorporates participants' experiences and the underlying dynamic between participants. Each session focused on a different research question and provided several learnings to improve the method or materials. Session 8 is mentioned separately from the other sessions since it's goals is more so to inform about the AI tools rather than focusing on our method. Nevertheless, it did teach us something relevant to include. This chapter includes interviews to receive feedback from people in different working fields and their perceived value. The next sub-chapter describes each session's contents more in-depth. Appendix F shows in-depth session summaries and Appendix G holds more in-depth information about the interviews. Finally, Appendix H shows versions of materials not part of the buildable concept or de final result.



Self-study

Q: what is the process like?

i1: the sensitizer should be simple

i2: underlayments to work on help with clarity and classification

i3: the vision requires some detail to limit a generic outcome

Pilot

Q1: what did the process look like?

i1: phase 1 took a relatively long time

Q2: how does AI interact with participants?

i2: role of AI and input was unclear

i3: AI provides too many options, requiring too much mental effort

Session 1

Q: what helps or interrupts the flow?

i1: the structure works well to guide participants

i2: difficulty with the problem and vision statement

interview 4 interview 5

Session 2

Q: what interrupts the flow?

i1: a doubtful and debating group can slow the process down >> especially with the problem and vision statement

i2: the topic's tangibility influences the ease of generating ideas

i3: missing expectation management

interview 6 interview 7

8

Session 3

Q: how can we delve deeper into the topic using AI?

i1: the real-life creative process comes first, the deepening layer is through AI. With a lack of time, AI becomes less of a priority

interview 8

...?

4

long sessions

Session 4

Q: how do we make more use of AI?

i1: incorporating specific points to make use of AI

i2: more time allows for more AI incorporation

i3: inspiration museum generates excitement to get started using AI

6

Session 5

Q: how do we make more use of AI- especially visual AI?

i1: there is a distinction between a conceptual future vision and a visualization of the future vision. Ideally, these do not take place in the same session since both require time

i2: incorporating ChatGPT after the vision statement is made, keeps the main focus on the participants' views and allows less ChatGPT distractions

≈ 35

online session

Session 6

Q: how does the method translate to an online, 1,5 hour version?

i1: Midjourney does not allow free trials anymore so we have an online interface using an API

i2: allowing groups to go through the process with their group is preferred over going in and out of break-out rooms

Q1: what happens if we let groups within an online session go different routes?

i3: enjoyable for participants to explore

i4: include discussion points within long ChatGPT prompts to stimulate discussion within the groups

7

Session 7

Q: what happens if you focus on a broad topic?

i1: phase 3 and 4 become a little too specific

i2: personas and ChatGPT work well to ideate on such a broad topic

≈ 7

Session 8

Q: how does the method translate to an online 45 min Midjourney demo in an online conference?

i1: differ between beginners and intermediate users

i2: the vision statement is pre-made but should be visually usable, rather than being conceptual

≈ 35

Session 9

Q: how does the method translate to a 1,5 hour conference version?

i1: make each step as simple as possible

i2: reduce the amount of choices participants can make

i3: create a collective end-result between a multitude of groups

i4: less loose papers

4.5 In-depth session description

Each workshop helped develop the method. This sub-chapter shows the goal of participants to join the session (what they hope to get out of it), a short recap of the process and some of the contents, and keywords to summarize. Note, the visualizations are not of the actual interviewees.



Figure 4.10 Future vision of overconsumption



Figure 4.11 The setting of the self-study

Self-study

The future of overconsumption

(My) Goal: try out the flow of the method, discover the types of topics fitting the method, and to see what the goal of the future vision should be.

Short recap: the flow felt natural and easy. The end result is a bit generic in relation to overconsumption. It misses specific elements. Using the problem and vision statement helped to encapsulate the phase. Considering this case was done alone, the statement might have been easier to make in comparison to a group of people.

Keywords: natural flow, generic visual

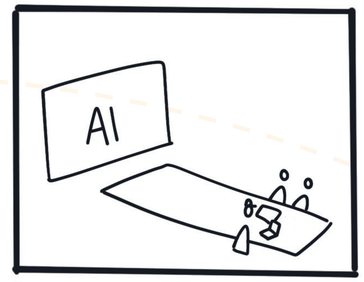


Figure 4.12 The setting of the pilot

Pilot

The future of work with AI

Participants: 2
Goal: try out AI

Short recap: through using the sensitizer and noting down their experiences, the vision statement was: “AI is an inspiration tool”. It was difficult and they required guidance to make the problem and vision statement. Two participants is too little for a lot of ideas and certain components regarding the workshop structure also interrupted the flow. The group ended up with a concept of a ‘whimsical workshop’ that brings people together to be creative.

Keywords: guidance, unclarity



Figure 4.13 The future vision of work with AI

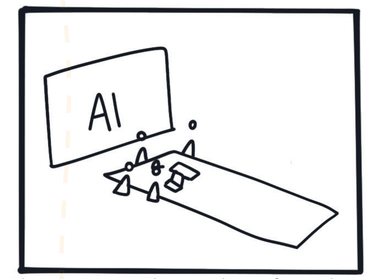


Figure 4.14 The setting of session 1



Figure 4.15 The future vision of work with AI

Session 1

The future of work with AI

Participants: 3
Goal: collect inspiration for AI-related project

Short recap: In the first phase, participants explored the issue of AI lacking human similarities and concluded that the future should focus on emotional competence at work. This translated into a vision of AI being able to engage in conversations about emotions. The chosen world was "Emotional AI take-over." Through exploring the aspects of political structure and cultural artifacts, the concept of a negative emotion museum was chosen as a visual scenario for the future world.

Keywords: emotion, work, AI, negative emotion museum

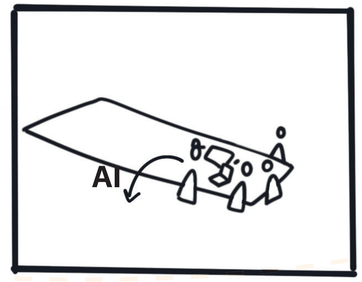


Figure 4.16 The setting of session 2

Session 2

The future of sustainable energy communities

Participants: 3
Goal: collect inspiration for the problem owner's graduation project

Short recap: participants envisioned a future of sustainable energy where we are in balance with impact and nature. Ideas were generated, clustered on a matrix, and one world called "Balancing each other out" was chosen to focus on. The chosen world was further developed by investigating two aspects: political structure and daily life, resulting in the concept of a self-sufficient community called Sunlit Self-Sufficient Community.

Keywords: inspiration, sustainable energy, impact



Figure 4.17 The future vision of sustainable energy communities



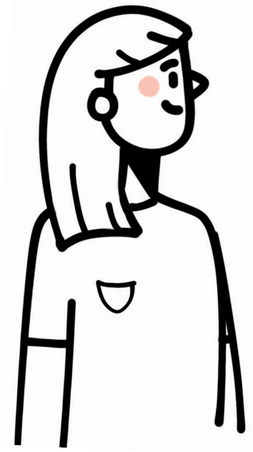


Figure 4.18 Designer

Interview 4

Designer in the automotive industry

We found the following insights regarding the automotive industry in relation to the potential of our workshop, according to a designer:

- **The importance of justification and feasibility**: the interviewee highlights the importance of basing the vision on both opinions and objective factors such as facts, trends, and industry developments. A future vision should be both desirable and achievable, requiring a tangible step-by-step roadmap to reach the desired outcome

- **The value of scenarios and visualization**: the significance of scenarios and visualizations in bringing the vision to life, allowing exploration of different aspects and layers while making it more tangible and understandable

- **Involving the right group**: engage open-minded and enthusiastic participants with diverse perspectives. Share workshop progress and results to ensure their contribution is valued



Interview 5

Architect competing in design competitions

Discovering the market value of the workshop within the field of architecture design competitor, we collected the following insights from an architect:

- **Timing**: workshops like the future vision workshop is best conducted in between projects to explore different ideas and perspectives

- **Different stakeholders**: the importance of connecting different people from various fields to obtain diverse viewpoints and interesting outputs during the workshop

- **Involve citizens**: the interviewee expressed interest in seeing how ordinary people outside of the architecture profession would perceive their ideas and visions, highlighting the value of gaining insights from a broader audience

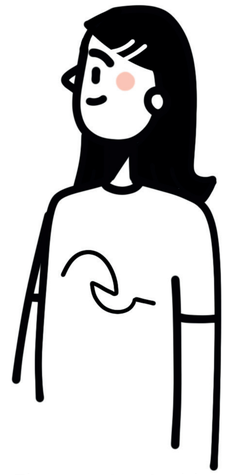


Figure 4.19 Architect

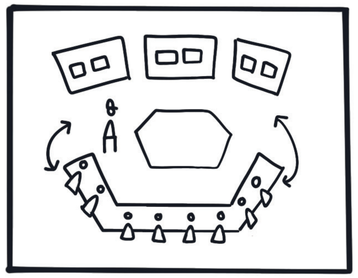


Figure 4.20 The setting of session 3



Figure 4.21 A concept for the supermarkt of the future

Session 3

The future of the supermarket

Participants: 8
Goal: collect inspiration and concepts for the future of the supermarket.

Short recap: breaking the ice by handing out personas and having people introduce themselves through their persona's hobby. The predefined problem statement: "what are ways supermarkets can develop / optimize to keep attracting shoppers in the future?". Creating ideas fitting their persona, and a random handed-out need. Dividing into groups afterward, to work out one of the ideas into a scenario and a concept. Possibility to use Midjourney to visualize the concept, one group did this. Pitching concepts to the problem owner.

Keywords: personas, hobby, scenario, concept, pitch



Interview 6

Futuring expert

Investigating the value of the workshop within the field of futuring, we found the following insights from a post-doc researcher in the futuring field:

- **Commitment to the desirable future**: the interviewee emphasized the need for a short-term commitment or action to move towards the desired future, ideally with a follow-up discussion or event to reflect on the progress

- **Backcasting**: incorporating backcasting allows for the identification of actions and intermediate control points necessary to achieve the future vision

- **Relevance**: the interviewee found the workshop highly relevant and complements the fitting futuring methods

- **AI integration**: introducing AI, like ChatGPT, can enhance the workshop by providing future agent personas, challenging assumptions, and encouraging exploration of different perspectives

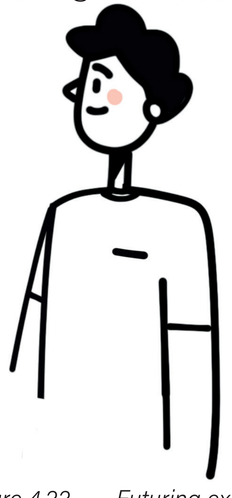


Figure 4.22 Futuring expert



Figure 4.23 Designer

Interview 7

Designer for supermarket loyalty programs

Discussing the potential and opportunities for this workshop with a designer. We found the following insights:

- **Matchmaking and networking**: the interviewee suggested creating a platform or database where companies or individuals can indicate their preferred sessions or topics. This platform could facilitate matchmaking, allowing participants to find sessions or workshops aligned with their interests or work fields
- **Documentation and feedback**: document the insights and outcomes of the session, beyond just the final visual or concept. A check-in and check-out is a great way to do this
- **Clear decision-making process**: ensure a clear decision-making process during the session, particularly when it comes to defining the vision, mission, and goals. Allow participants to provide input and agree at each step before proceeding to the next stage. This can help foster a sense of ownership and concrete action points

*Session 4**

The future of a female empowerment network

Participants: 4
Goal: inspiration for the future of their organization and curiosity about AI.

Short recap: starting the session with their personal relationship with this organization. Noting down their experiences now and what they would like more of. Asking ChatGPT to describe opportunities for the organization. This led to the vision statement: “[the organization] is a big sister network in which we enrich each others’ chances, increase our confidence, and offer social support”. Generating ideas with ChatGPT and plotting these on the axis: non-profit/commercial and no effort/a lot of effort. The concept they made a timeline to develop in the upcoming year relates to building a mentorship program.

Keywords: female empowerment, big sister network, mentorship program

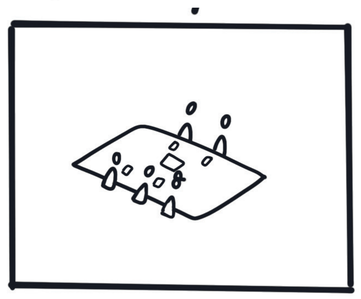


Figure 4.24 The setting of session 4

*** = Long session & established minimal viable method**



Figure 4.25 The vision of the mentorship program

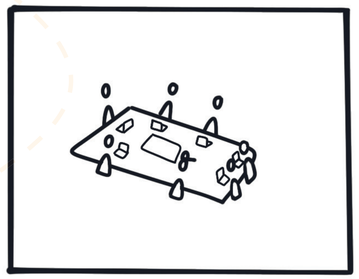


Figure 4.26 The setting of session 5

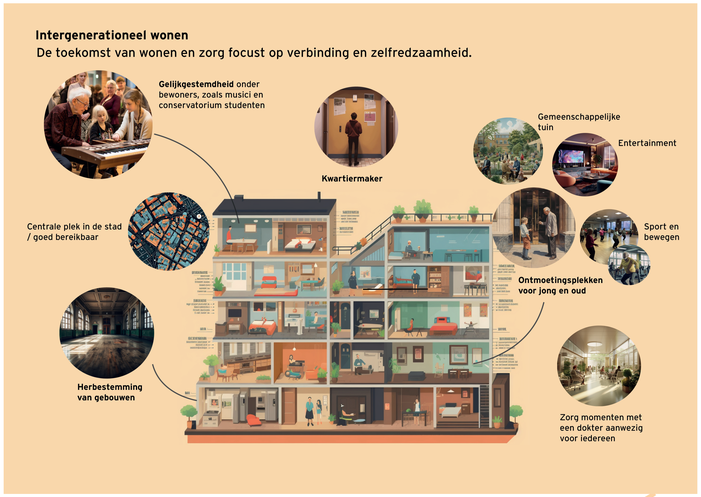


Figure 4.27 The vision of intergeneration living

Session 5

The future of care and housing

Participants: 6
Goal: this group was curious about using AI in a creative session. Afterward, they mentioned the session helped them with their vision as an organization.

Short recap: first collecting relevant developments and user needs in regard to the future of care and housing. The vision created during this session: “the future of housing and care focuses on connection and self-reliance”. Moving through the inspiration museum and writing down notable things to get inspired. To diverge, each individual created a relevant persona and created ideas focusing on their persona. Afterwards generating some more using ChatGPT. The concept developed in the end relates to an intergenerational living space. Visual is created after the session, per their asking.

Keywords: care, housing, inspiration museum, personas, intergenerational living



Interview 8

Creative facilitation expert

Collecting insights into hosting an online session with a creative facilitation expert, we gathered the following:

- **Assign a Miro person**: collecting the progress of participants is not something people do naturally, so clarifying that one person inside a group is the Miro person works well
- **Demo for beginners**: including a demo is great to explain the AI tools to unfamiliar people. Explaining with a beginner perspective in mind helps all participants joining in the session
- **Midjourney does not provide free minutes anymore**: preparing with someone who did not have a Midjourney subscription and trying it out, showed Midjourney removed the 25 free minutes upon subscription

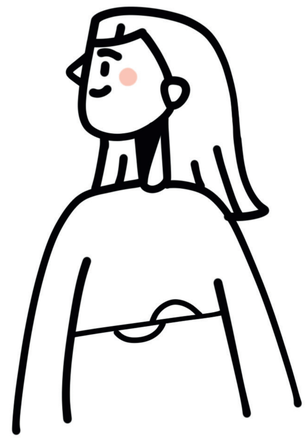


Figure 4.28 Creative facilitation expert

Online session 6

The future of living spaces

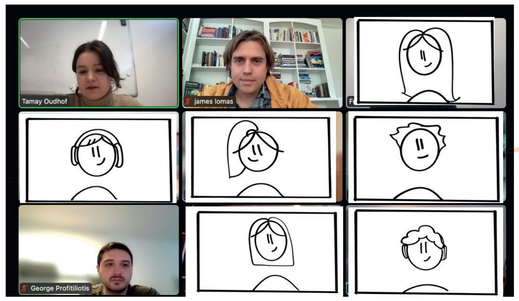


Figure 4.29 The online setting

Participants: around 35
Goal: many different incentives to join. Mainly focusing on exploring AI, futuring with AI, or exploring living spaces in the future.

Short recap: during this online session participants got a demo of how to use ChatGPT and the external Midjourney interface (to avoid needing subscriptions). Afterward, each group went through their own motion discovering different specific tracks (dystopian, utopian, wild card, plausible, desirable), creating a vision fitting their track, discovering this world through different futuring methods, and visualizing this world. All groups ended up with different visuals.

Keywords: living spaces, online, tracks, futuring methods, pitch



Figure 4.30 A future living vision 1/2



Figure 4.31 A future living vision 2/2

Session 7

The future of mobility

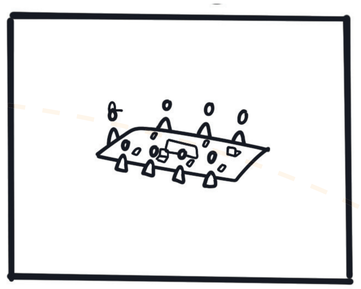


Figure 4.32 The setting of session 7

Participants: 7
Goal: explore the future of mobility and the future of the company

Short recap: first collecting relevant personal vision statements, developments, and user needs in regards to the future of mobility. The vision created during this session was: “the future of mobility is the mindful choice towards an effortless movement”. For the company, their vision was: “The vision of [company] is to demonstrate the future, to motivate the present.” To diverge, each individual created a relevant persona and generated ideas focusing on their persona. Afterward, created more using ChatGPT. The concept developed in the end relates to an application that allows for perfect wayfinding, individuals can give feedback on a route in real-time. In the end, this results in perfect and inclusive wayfinding. Visuals are created after the session.

Keywords: mobility, persona, wayfinding



Figure 4.33 The vision for the perfect routing app



Figure 4.34 A vision for the perfect routing concept



Figure 4.35 A future living visio

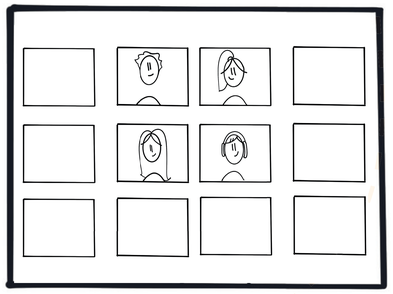


Figure 4.36 The online setting

Session 8

Midjourney demo workshop @conference

Participants: around 7
Goal: facilitate a workshop focusing on trying out Midjourney

Short recap: during this online session participants got a demo of how to use the external Midjourney interfaces (to avoid needing subscriptions). This workshop focused on beginners, so using ChatGPT to generate vision statements was optional. Pre-written vision statements allowed people to explore the visualization part mainly.

Keywords: demonstration, Midjourney

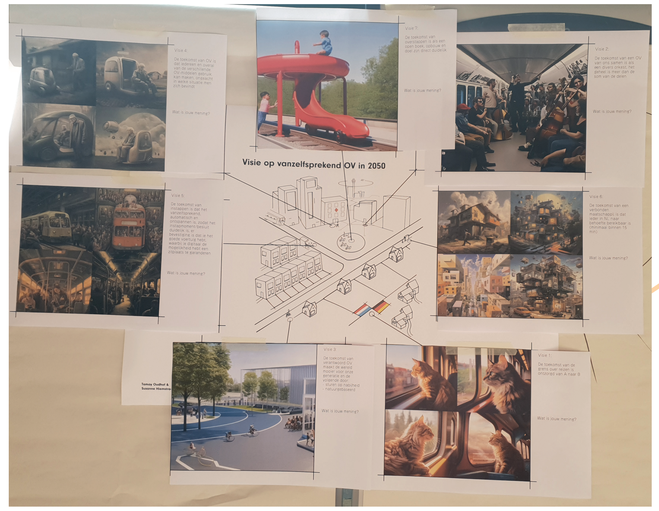


Figure 4.37 The consctructed future vision

Session 9

The future of public transport in 2050 @conference

Participants: around 35
Goal: facilitate a knowledge-sharing session at a conference for people working in the Dutch Public Transport (PT) sector. The goal was for different groups to focus on different themes from a PT future vision for 2040 document made by the Ministry of Infrastructure and Water Management (IenW), and explore this theme further for 2050. Each aspect would become part of a whole using a basis drawing.

Short recap: during this online session participants got a demo of how to use the external Midjourney interfaces (to avoid needing subscriptions). Afterward, each group focused on their own theme of the future to generate a vision, ideas, and a visual for. Pre-written vision statements provided a basis for participants to create a vision statement more easily. After the vision statement, each individual generates 3 ideas based on a need or persona of their choice. Passes their paper to the person next to them and write three more. Choosing one idea and visualizing this. Sharing this in a Whatsapp group to have usable images for the end result. The end results were showcased at the end of the conference.

Keywords: Dutch public transport, themes, collective future vision

4.6 Minimal Viable Method

After the third session, the minimal viable method was established. The four sessions, including a pilot, corroborated the basis of the method. We conclude this based on the feedback from participants, their experience proofs the intended effect of the method. Figure 4.38 and Figure 4.39 show the evaluation of the first four sessions according to defined design criteria. These figures are separate up since the third statement related to empowerment was too big of a statement for participants. It was split up into three smaller statement focusing on a sense of purpose, increase in motivation, and increase in confidence. Each figure shows the amount of participants who filled in the evaluation compared to the amount of total participants. Appendix I shows the online questionnaire forms to collect feedback for the first three sessions, Appendix J was a qualitative evaluation of session pilot-3. Appendix K shows the scans of the printed evaluation forms used from session 3 onwards.

In the next stage this buildable concept expands, allowing more time for each element. The majority of focus should be on the usage of AI by participants, as time constraints hindered this application during the sessions. Figure 4.40 shows the current toolkit elements into three overarching clusters, one focusing on session goal specific materials. These materials are flexible to use during the session and dependent on the session goal and desired outcome. Next to these are the underlayments per phase, participants use these as the basis during the session to track their progress or guide in decision making. Lastly, are the session expectation management tools, these can be used to set the tone for the session and help the facilitator in managing participants' expectations.

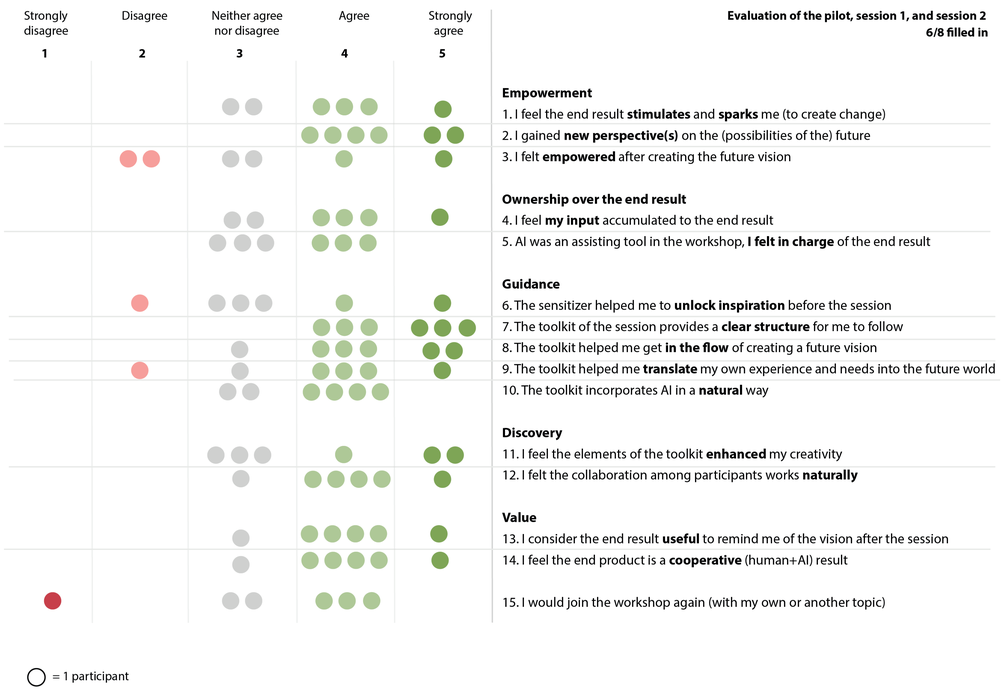


Figure 4.38 Evaluation results of the first three sessions

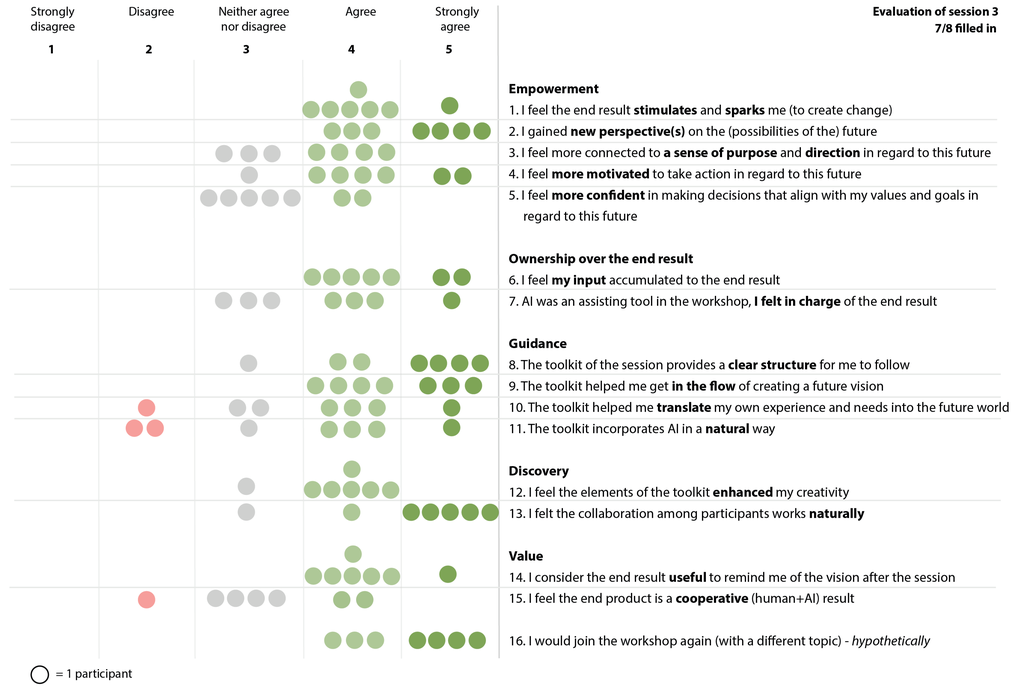


Figure 4.39 Evaluation results of session 3

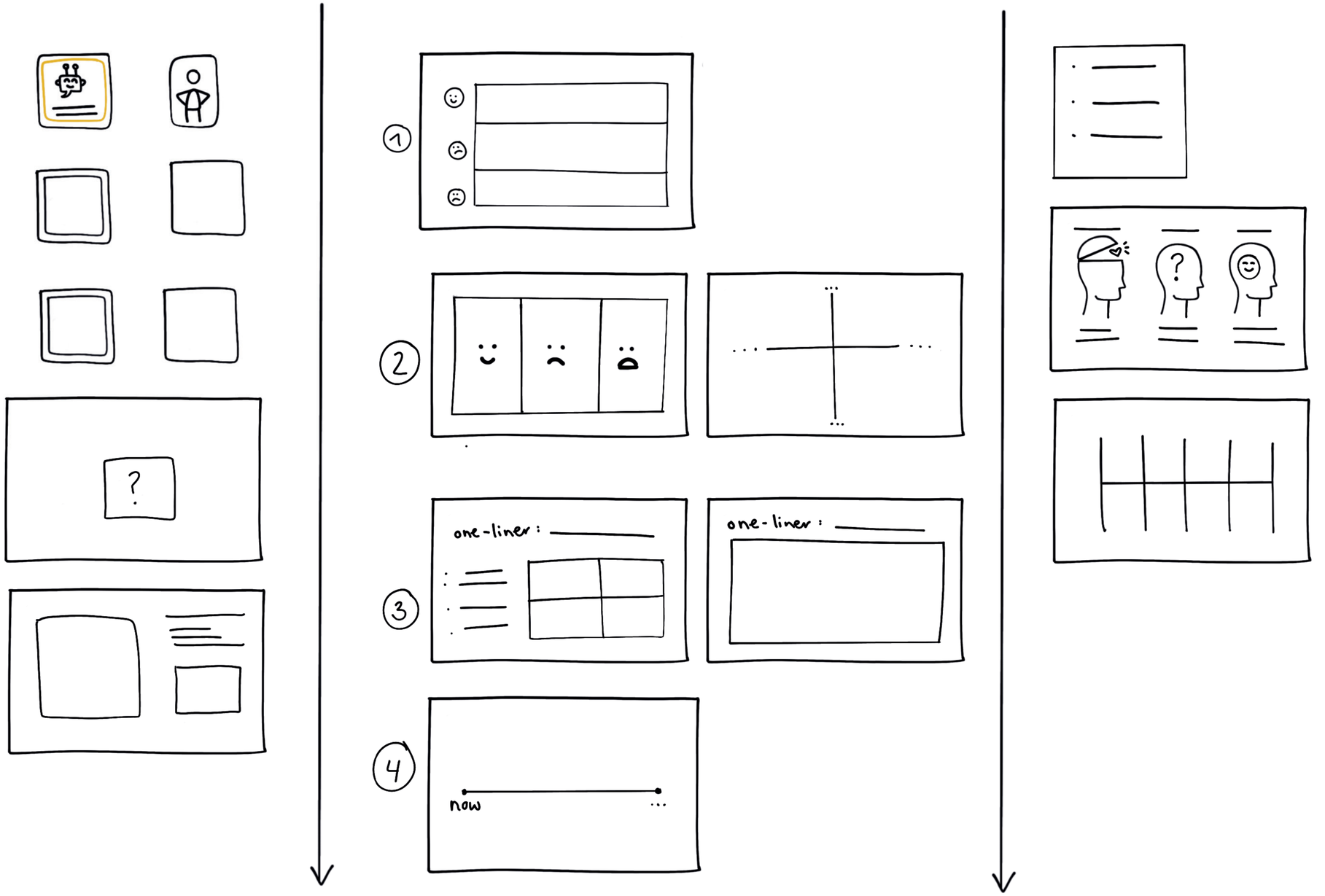


Figure 4.40 The elements within the toolkit

4.7 Table of improvements

Table 1 provides an overview of the general outcomes and changes of the different elements within our method. Table 1 differentiates between the process, the tools, the AI, and the environment. The process consists of the dynamics of the elements working together. The tools entail the physical design elements within the toolkit. AI focuses on the interaction and application of AI in the session. Finally, the environment looks at the effect of different spaces and set-ups. Dividing the session and our findings into different aspects allows us to reflect on a multitude of influences that co-exist during sessions with a structured approach. The first column of the table shows when the changes were made, after a workshop or in preparation for a workshop.

	Process	**Tools**	**AI**	**Environment**
After self-study case	• create session plan	• create materials • remove collage from sensitizer		
After pilot	• less focus on phase 1 • less focus on sensitizer • (too little time)	• change phase 1 lay-out	• introduce AI as a person • prompt: • provide less ideas • change interaction AI and participants • add ambitious future ideas	• less distance between AI and participants
After workshop 1	• (too little time) • ask PO's sensitizer before	• change phase 2 lay-out: • add ambitious future row • add on topic ice-breaker • Midjoruney visuals to discuss in phase 2	• facilitator is AI	• no screen
After workshop 2	• (too little time) • add expectation management • more introvert focus • prepare problem statement • hand-out random need and ideate on those too	• add scenario planning to phase 3 • ice-breaker: introduce persona • add parking lot • add mindset guidelines • developments • personas • no sensitizer • remove ambitious future row	• participants use AI • prompt cards • AI available computer	• no screen • more standing • A2 papers

	Process	Tools	AI	Environment
After workshop 3	• remove problem statement; focus on visions • ice-breaker: what is the craziest you've used AI for?	• create fase 4: back to the now • add commitment card • add artifacts of the future • add Midjourney visuals for inspiration museum • empty axis for phase 2 • add empty what ifs cards • add empty personas		
Workshop 4	• made participants actively work- differing between sitting and standing	• women empowerment inspiration museum	• prepared a short introduction on how to efficiently use ChatGPT	• A2 papers on the walls • inspiration museum on the walls
Workshop 5	• company vision statement as the basis for the vision statement • main questions to clarify the phase goal for participants	• health care and housing inspiration museum		
Online workshop 6	• groups went through process by themselves • different future tracks (desirable, plausible, dystopian, utopian, and wild card) • different future methods to explore the world (what ifs, thought-experiments, personas, scenarios, counterfactuals, artifacts of the future) • pitch at the end	• Miro space to share and work together	• ChatGPT mega-prompt per track • ChatGPT short prompt per futuring method • Midjourney interface	• online in Zoom

	Process	Tools	AI	Environment
Workshop 7	• homework assignment to think of the future of mobility • company vision statement as the basis for the vision statement • session focused on company's future and future of mobility	• mobility inspiration museum		• inside the company's office, open space
Online workshop 8	• simplified version for 45 min process • prepared vision statements to exclude ChatGPT and focus on beginners	• Miro space to share and work together	• interface with 3 free AI tools & one with Midjourney	• online in Zoom
Workshop 9	• predefined vision statements fitting each theme (group) to provide a vision basis • scope of the card deck to limit participants' choices • a diverse group of participants • a place to share imagery made with AI	• V1 card deck made • printed card deck (partly) • underlayments V1 version	• interface with 3 free AI tools & one with Midjourney, accessible through QR code • visualization tips	

Table 1 Improvements made during the iterative cycles of sessions

4.8 In-depth element development

This sub-chapter elaborates on the table of improvement, further specifying the desired set-up for the method per element. It focuses on the reasoning behind the decision to keep using or working with a specific approach or tool. It is written to guide people who are about to use the toolkit.

Process
Ideally, the facilitator discusses the session goal with the problem owner(s). During or after this, scopes the choice of tools to decide on the most relevant options. This avoids the discussion time when there are too many choices. Several recurring hinder points during the session are the vision statement and plotting/choosing final concepts. Allocate enough time but stimulate the continuation of the participants and guide them where necessary. Some people are less familiar with creating visions and generating ideas. Keep this in mind and motivate participants when they get stuck.

Tools
The underlayments are a guide throughout the process, while the card deck allows for more or less exploration. This depends on the group and their experience level. More intuitive tools within the card deck are personas, developments, and commitments. While what if statements are a bit more complex since they involve so much freedom. The toolkit provides both simpler and more complex tools. Besides this, the expectation management tools guide participants in the progress they are making and navigating how far they have left to go. As a facilitator, you're focusing more on guiding the process but expectation management unintentionally influences participants' perception of the session. As you know the route, they are unfamiliar with how far they have left to go.

The tools are flexible and with experience and experimentation facilitators and non-facilitators find what works best for them. When using the tools, it is recommended to stack all underlayments on the table, according to their order in the process. This guides you as a facilitator but leaves less room for participants to peek into the next step while you are working on something else. After each phase, hang up the creation of new materials to provide an overview of the product of the session. Depending on the group certain tools will aid the process for the better, the art is to be flexible and have a back-up plan when a session does not go according to plan. Alter the plan, there are many different routes that lead to Rome.

AI
We divide AI up into the preparation before the session, the AI tools used during the session, and the application of the tool at the right stage.

Preparation
For preparation it is important people create the necessary accounts, install the necessary tools, etc. Online it is valuable to have people open everything before the start. To help first-time users, it is useful to have a piece of paper explaining simpler terms, like prompts, and showcasing examples of images and prompts.

AI tools
As for the tools, free AI tools are preferred to facilitate more people being able to create at the same time. Preferably providing a more user-friendly platform to generate imagery, removing the need for participants to download something complex. As is the case for Midjourney. This also allocates more time for learning the skill or focusing on the end goal. As a visual AI tool, Midjourney is the most valuable and complex currently. We expect this will evolve and become more accessible. As a chat AI tool, ChatGPT is the best on the market currently. People are more familiar and willing to try it too, since it feels somewhat known. Even for first-time users.

Application of AI
Finally, the application of the tool is important, as the basis should be made by participants. If AI is introduced too early, this allows a snowball

effect of “I’ll just ask ChatGPT...” due to new-found enthusiasm. Especially, in first-time users. It is recommended to incorporate AI after establishing a vision statement as the focus of the session.

Environment
The environment is a valuable tool to enhance the effectiveness of the session. It is important to have a separate room to take participants out of their current workspace. Ideally, space to sit and stand with room to hang papers on the walls. This creates the opportunity to differ between being more passive by sitting when it is necessary to focus and generate options. And being more active when evaluating and choosing options. This aids the different mindsets people need to have during different steps and helps their attention span.

Online vs. offline
The focus of this project was mostly offline workshops, although one elaborate future vision focused and one demo session have taken place. This section is less about the ideal circumstance but elaborates on the differences in regard to the session and its uses. Online provides an easier interaction between AI work and interactive group work, since both take place on the computer. Although, it becomes more difficult to interact as a group. This requires deliberate moments to discuss input and output. Online sessions create the opportunity to collaborate internationally. Alternatively, offline sessions are more interactive and collaboration among participants is naturally initiated- even sharing the in- and output gained from AI. Suddenly moving from the focus on the group to the online world is less natural. Offline workshops also provide a more personal and informal experience. Both types work, but the facilitator should consciously decide the most fruitful setting in regard to the desired outcome.

4.9 Evaluation of session 4 to 9

In the longer sessions, each session continued to be evaluated. Especially the qualitative feedback provided specific information on aspects that required change, as did observations made during the session. Figure 4.41-44 shows the evaluation of session 4, 5, 7, and 9 separately. Sessions 6 and 8 were online and were more experimental, as the structure of the session differentiated fully from the offline sessions. The focus was on qualitative feedback. Additionally, the session goal was oriented toward learning to use (visual) AI and thus, we excluded the evaluation form.

The evaluation Figure 4.41 for session 4 shows the majority of the statements aligned and aligned strongly with participants. The statements involving discovery strongly align with all participants. In total, three statements were evaluated as neutral; a sense of purpose, increase in confidence, and feeling in charge of the end result.

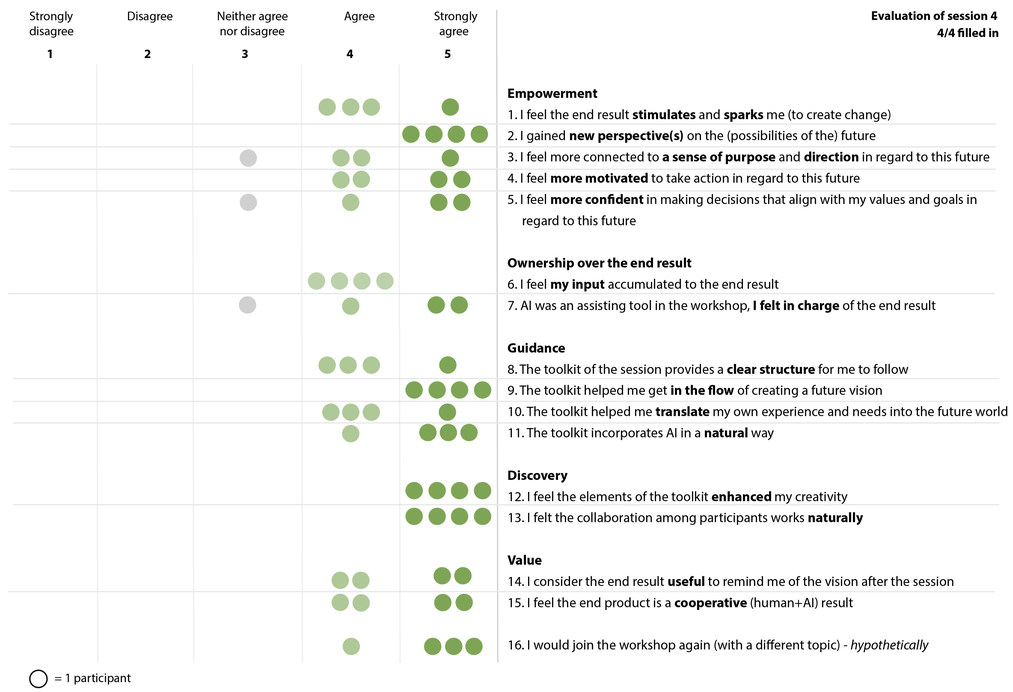
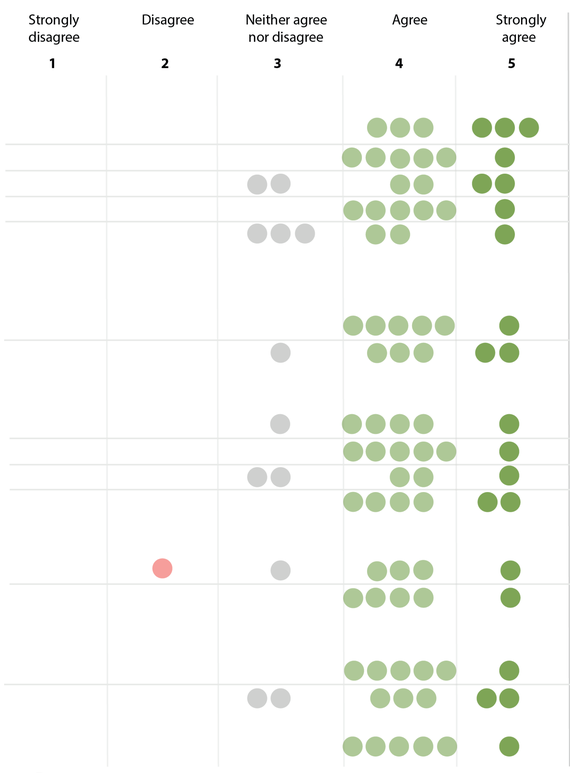


Figure 4.41 Evaluation results of session 4

Figure 4.42 shows the evaluation of session 5. The majority of participants agree with the design criteria statements, although neutral votes are fairly present too. Majority of neutral votes are on a sense of purpose, more confidence, translation of own experiences into the future world, and a cooperative result. One vote disagreed with the statement of the toolkit enhancing their creativity. The strongest participants felt regarding a statement was about the end result stimulating and sparking (to create change). Finally, all participants would join another workshop again.

Session 6
The future vision workshop is fully online. Appendix L shows the full Miro board set-up. This was an experimental version, taking a completely different approach with different tracks and little facilitation. We did not evaluate using the form but did ask for qualitative feedback. The overall reaction was mainly enthusiastic participants, happy to have tried it out and using ChatGPT and Midjourney collaboratively. Afterward, they were interested in becoming better at prompting. For some participants. the interface temporarily stopped working, likely due to high demand.

Session 7
Figure 4.43 shows the evaluations of session 7. The majority of votes are in agreement with the statements, although there is an increase in neutral and disagreeing votes compared to the other two sessions. A noticeable different factor was an open session space inside the participants' office, which noticeably made the session more difficult as facilitator. This can influence the efficiency of the session. The category of ownership of the end result contains the most disagreeing votes, next is the feeling of a cooperative result. The category of guidance scored relatively high.



Evaluation of session 5
6/6 filled in

Empowerment
1. I feel the end result **stimulates** and **sparks** me (to create change)
2. I gained **new perspective(s)** on the (possibilities of the) future
3. I feel more connected to **a sense of purpose** and **direction** in regard to this future
4. I feel **more motivated** to take action in regard to this future
5. I feel **more confident** in making decisions that align with my values and goals in regard to this future

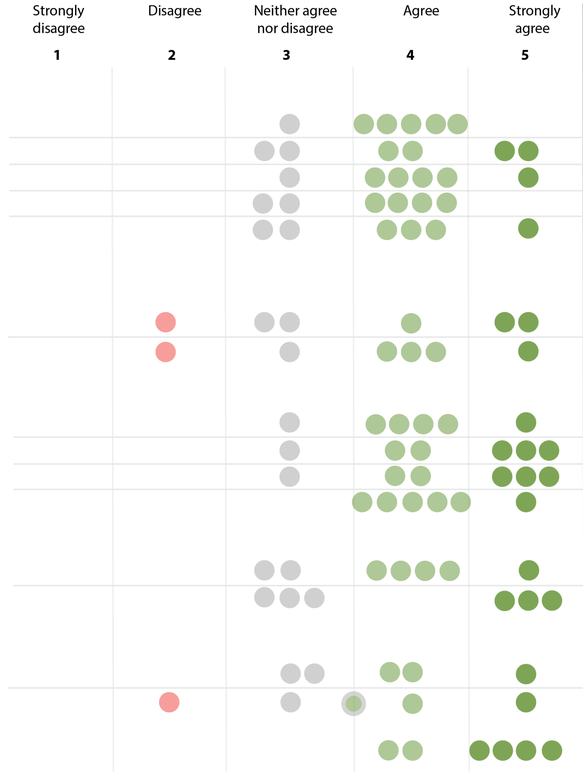
Ownership over the end result
6. I feel **my input** accumulated to the end result
7. AI was an assisting tool in the workshop, **I felt in charge** of the end result

Guidance
8. The toolkit of the session provides a **clear structure** for me to follow
9. The toolkit helped me get **in the flow** of creating a future vision
10. The toolkit helped me **translate** my own experience and needs into the future world
11. The toolkit incorporates AI in a **natural** way

Discovery
12. I feel the elements of the toolkit **enhanced** my creativity
13. I felt the collaboration among participants works **naturally**

Value
14. I consider the end result **useful** to remind me of the vision after the session
15. I feel the end product is a **cooperative** (human+AI) result
16. I would join the workshop again (with a different topic) - *hypothetically*

Figure 4.42 Evaluation results of session 5



Evaluation of session 7
6/7 filled in

Empowerment
1. I feel the end result **stimulates** and **sparks** me (to create change)
2. I gained **new perspective(s)** on the (possibilities of the) future
3. I feel more connected to **a sense of purpose** and **direction** in regard to this future
4. I feel **more motivated** to take action in regard to this future
5. I feel **more confident** in making decisions that align with my values and goals in regard to this future

Ownership over the end result
6. I feel **my input** accumulated to the end result
7. AI was an assisting tool in the workshop, **I felt in charge** of the end result

Guidance
8. The toolkit of the session provides a **clear structure** for me to follow
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11. The toolkit incorporates AI in a **natural** way

Discovery
12. I feel the elements of the toolkit **enhanced** my creativity
13. I felt the collaboration among participants works **naturally**

Value
14. I consider the end result **useful** to remind me of the vision after the session
15. I feel the end product is a **cooperative** (human+AI) result
16. I would join the workshop again (with a different topic) - *hypothetically*

Figure 4.43 Evaluation results of session 7

Session 8

Since session 8 focused on demonstrating and trying out a visual AI tool, we did not ask participants to fill out the evaluation form. We did ask for qualitative feedback, we briefly mention these. The session was a simplified version of session 6, focusing on beginners. Generally, they were enthusiastic about their experience. Positive about the inspiration museum, the possibility to combine ChatGPT with Midjourney, and vision statements to get them started. It was difficult for them to understand how to make well-written prompts and the pre-written vision statements were too conceptual. So, they would want to work further on this skill, additionally, learn how to make mega-prompts in ChatGPT. Appendix L includes the full Miro board set-up for session 8.

Session 9

The evaluation of session 9 is a diverse sequence of results. Figure 4.44 shows these results. It is important to note that while 30 individuals filled in the evaluation, some statements or categories were not filled in. The amount of results differs per statement. All colored dots > 5 are shown through numbers to keep the overview. The majority agrees mildly with the statements. The empowerment category includes the highest amount of neutral and negative votes. This can relate back to the time they had to focus on each exercise and the majority being unfamiliar with AI. This means the number of steps was too many for the allocated time. Interestingly, there was some negativity on the outcome of visuals AI can make. So, disappointment in the end result can also relate back to a negative effort on overall empowerment. We see this with the amount of (strongly) disagreeing votes to statement 7. Individuals did not feel in charge of the end result. This is the most negative evaluation, which can also relate back to the added value a facilitator has in guiding this process. There were a few facilitators walking around to help, but these were significantly less involved in the process since it is hard to keep track of 7 groups of progress.



Figure 4.44 Evaluation results of session 9

4.10 Overall results

After each physical session, participants filled in an evaluation form to gather feedback and afterward improve the methodology accordingly. This form was made with specific design criteria fitting the goal of the project. The criteria, presented in the form of statements, collected information regarding the level of empowerment, ownership of the end result, guidance by the toolkit, discovery of the future, and value of the end result. Lastly, if the participants were interested in joining another session. These evaluation forms provided qualitative feedback included in further iterations. The overall evaluation shows a positive impact on participants in each session. Highlighting the design goal of this project: to spark empowerment and ownership in participants while creating their own desired future vision in a co-creation session. The results indicate a positive impact in both previously mentioned categories, meaning the design goal is reached with this design. As this is a V1 version, there is also room for improvement. The most room for improvement relates to the conference workshop compared to the results of the more intimate sessions. It is hard to pinpoint the problem, as time constraints and experience with these elements all impact the session. It does raise the question of the impact a qualified facilitator makes in guiding the entire process and overseeing the time and quality. This could be explored in further research. Incorporating the statement: “I would join another workshop again (with another topic) - hypothetically”, provides relevant insight into participants’ experiences. As this is an iterative process, it requires practice and improvements. If they are willing to join again, it shows they recognize the added value (in other topics), find it a useful way to spend their time, and perceive it as relatively pleasurable to do. All participants from sessions 4, 5, and 7 would want to join another workshop. In session 9 the majority, of answers to this statement, would also join again. Finally, out of three sessions came follow-up inquiries, indicating relevance for a more in-depth focus on the contents and outcomes. These results indicate the process and outcome are valuable for participants, highlighting the effectiveness of our future framing method.



Figure 4.45 A visual representing overall results

4.11 Conclusion

This chapter showed an overview of the buildable concept, the learnings per session and additional interview findings, a summary of all conducted sessions, the minimal viable method, table of improvements after each session, the ideal circumstances of all elements found through experience, and finally an evaluation of the longer sessions. We can conclude, through the results, there is value in the method and the majority of participants would join another session.

05. **Deliver.**

We show the V1 version of the future framing method, its toolkit, the website (that delivers the toolkit to external parties), and deliver recommendations for further development.

> “ … To open new perspectives on what are sometimes called wicked problems, to create space for discussion and debate about alternative ways of being, and to inspire and encourage people’s imaginations to flow freely. ”

(Dunne & Raby, 2013, p2)

5.1 Introduction

The deliver phase presents the deliverables within this project. We start by listing the deliverables of this project, we will discuss the method as a whole, and showcase the toolkit to explain how to use the materials. This chapter also presents a facilitator guide, a look into the website made to spread the materials to a wider public, and we discuss future developments.

5.2 Deliverables

The deliverables of this project include:

- D01: a V1 design of the toolkit
- D02: a website to communicate about this toolkit to relevant stakeholders
- D03: a practical set of guidelines (time, space, materials)
- D04: a video to promote the goal and usage of the toolkit

D03 and D04 are both part of the website (D02).

5.3 The future framing method

The method became more defined in this chapter. The phases' approaches from creative facilitation fit the workshop well but the terminology of each phase is mismatched with the phases participants go through. We provide altered terminology to fit our workshop. In Figure 5.1 we show all phases and the input and output per phase.

Phase 1: vision (re)framing
Goal: create or improve a vision
Output: vision statement

Phase 2: future exploring
Input: vision statement
Goal: generating ideas and plotting them into worlds
Output: chosen concept or world

Phase 3: future embodying
Input: chosen concept or world
Goal: explore and shape this concept or world, giving it more body
Output: a future vision- visual or written

Phase 4: action defining
Input: defined future vision
Goal: defining actions to work towards this future
Output: a timeline with steps to work out this concept

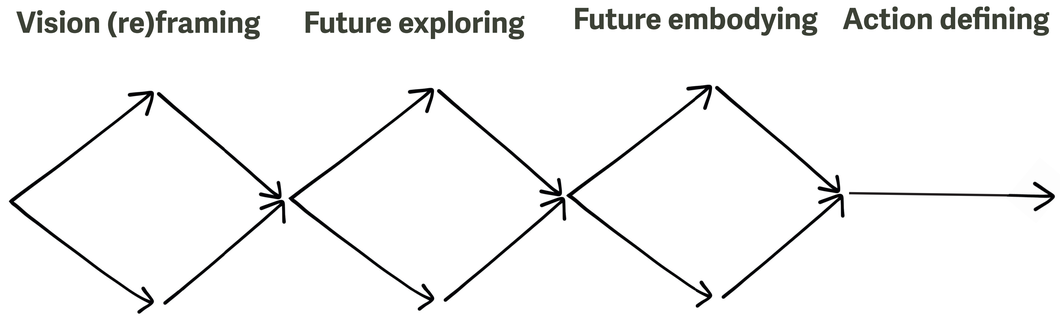


Figure 5.1 The four phases of the future framing method

5.4 V1 Design toolkit

The toolkit. All sessions and experiences have made this the V1 design, shown in Figure 5.2. The toolkit enables a guided exploration of the future while providing room for individuals' input and embracing the use of AI. Firstly, we show the toolkit's underlayments. These are worksheets participants can work on during the session and guides them to the desired output. Secondly, a card deck, in two formats. An elaborate deck of cards that includes topic cards to guide less experienced futurists. These topic cards present suggestion options per theme. And a theme card-only deck, includes only the cards that explain the theme or method, when to use it, and how to use it. These assume the user or facilitator is more experienced. Appendix M shows the entirety of the card deck. Thirdly, there is a manual for newbies that explains terms, like a vision or AI, provides more AI tips, to boost inexperienced groups. Finally, there are different inspiration museum sets, the topic and contents depend on those of the session.

The toolkit also includes an online Miro set-up, but this can be used separately from the toolkit's contents.



Figure 5.2 The physical contents of the toolkit

5.4.1 Underlayments

The underlayment provides the basis for participants to work on, this is especially useful for participants working without a facilitator. These underlayments guide them and the type of output they should create. Each underlayment also includes a step-by-step guide and shows which, if any, card deck cards can be used during this phase. Each underlayment is shown and explained per phase.

Phase 1: vision (re)framing

During this phase participants can collect information about the current situation regarding needs from clients or users, current (personal) experiences, a current vision (of the company) and developments in that field. The goal is create an overview of the current situation using underlayment 1.1, shown in Figure 5.3. Afterwards, the group can decide which card deck future tracks they want to focus on. The underlayment in Figure 5.4 shows which cards participants can use, to make it easier to use the cards. Participants can pick two cards per track. The goal is to guide participants with their vision statement through creating a more defined scope. The underlayment shows it is recommended to include the desirable track.

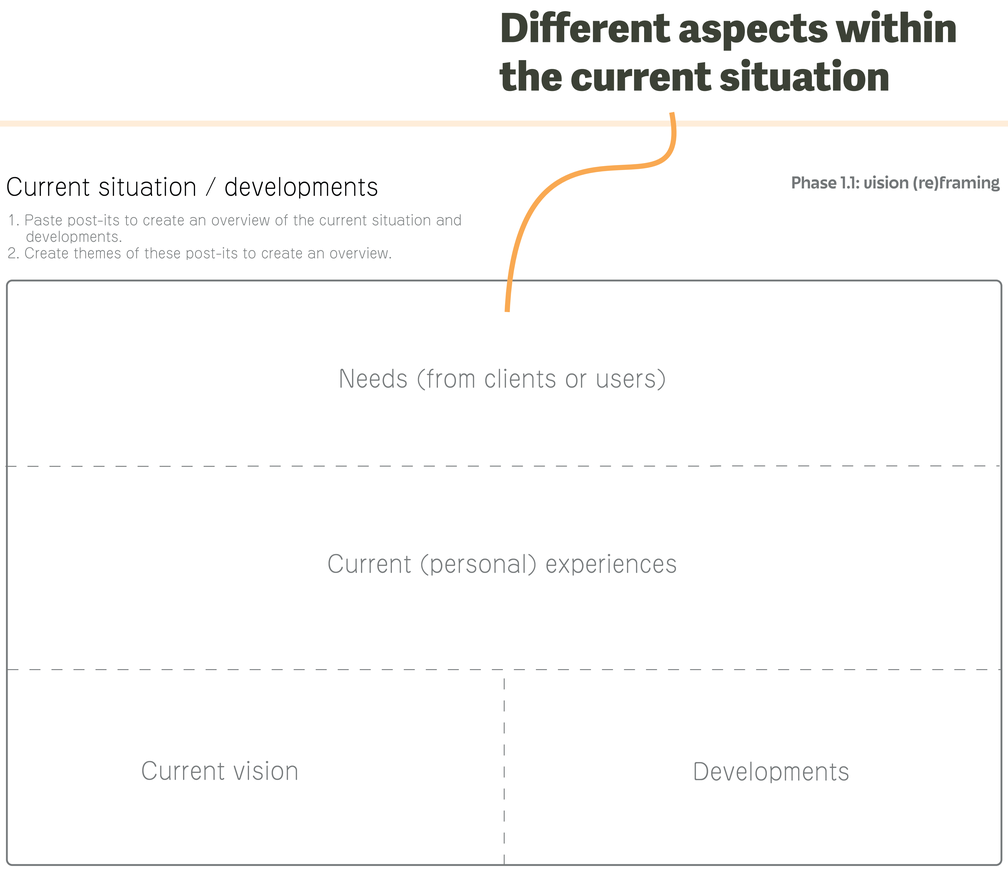


Figure 5.3 The underlayment for phase 1.1

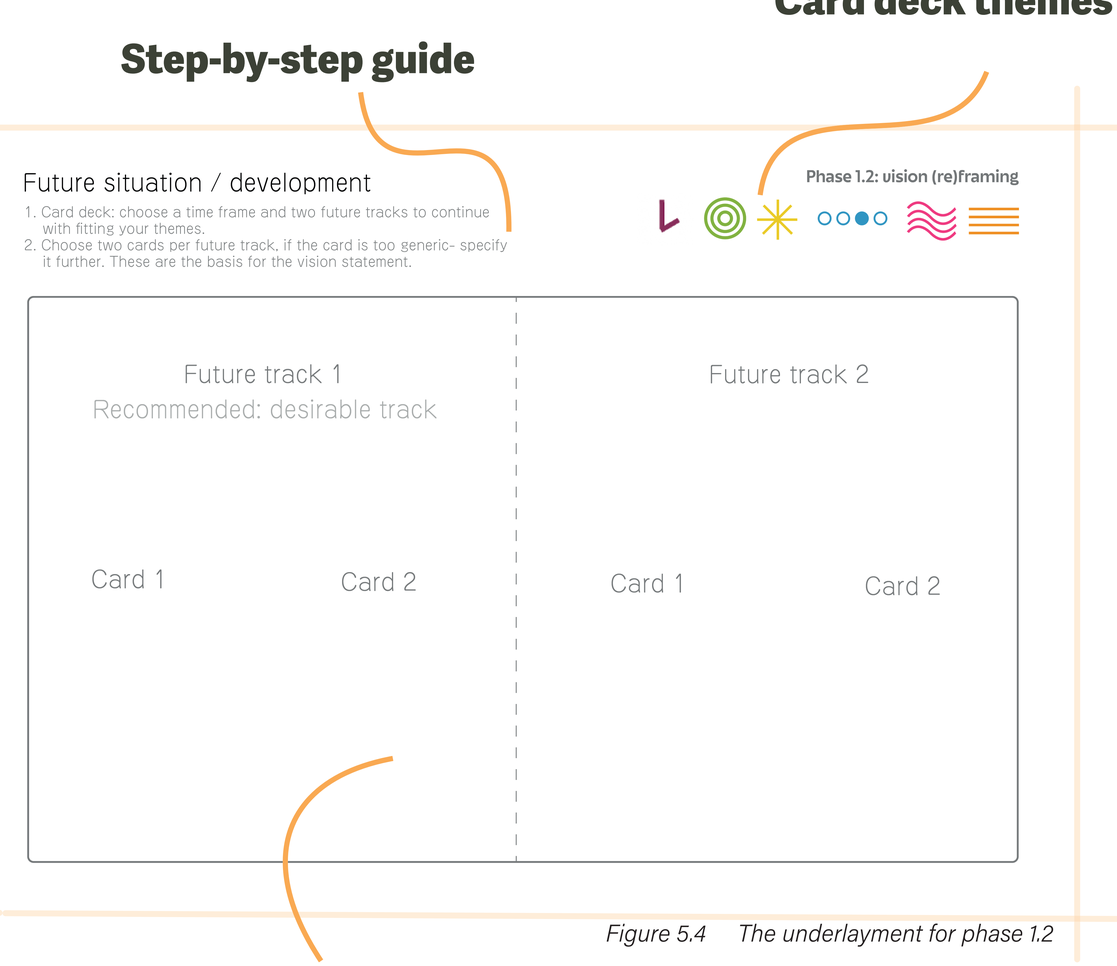


Figure 5.4 The underlayment for phase 1.2

Finally, Figure 5.5 shows the end of phase 1. Its goal is to create a vision statement. This becomes the basis of the session. Since this is generally a hurdle during facilitated sessions, some tips are written on this sheet to provide additional help.



Figure 5.5 The underlayment for phase 1.3

Phase 2: future exploring
This phase focuses on generating and filtering ideas fitting the vision statement. The goal is to diverge and generate as many ideas as possible, focusing on different types of futures; positive, negative, and disastrous. See Figure 5.6.

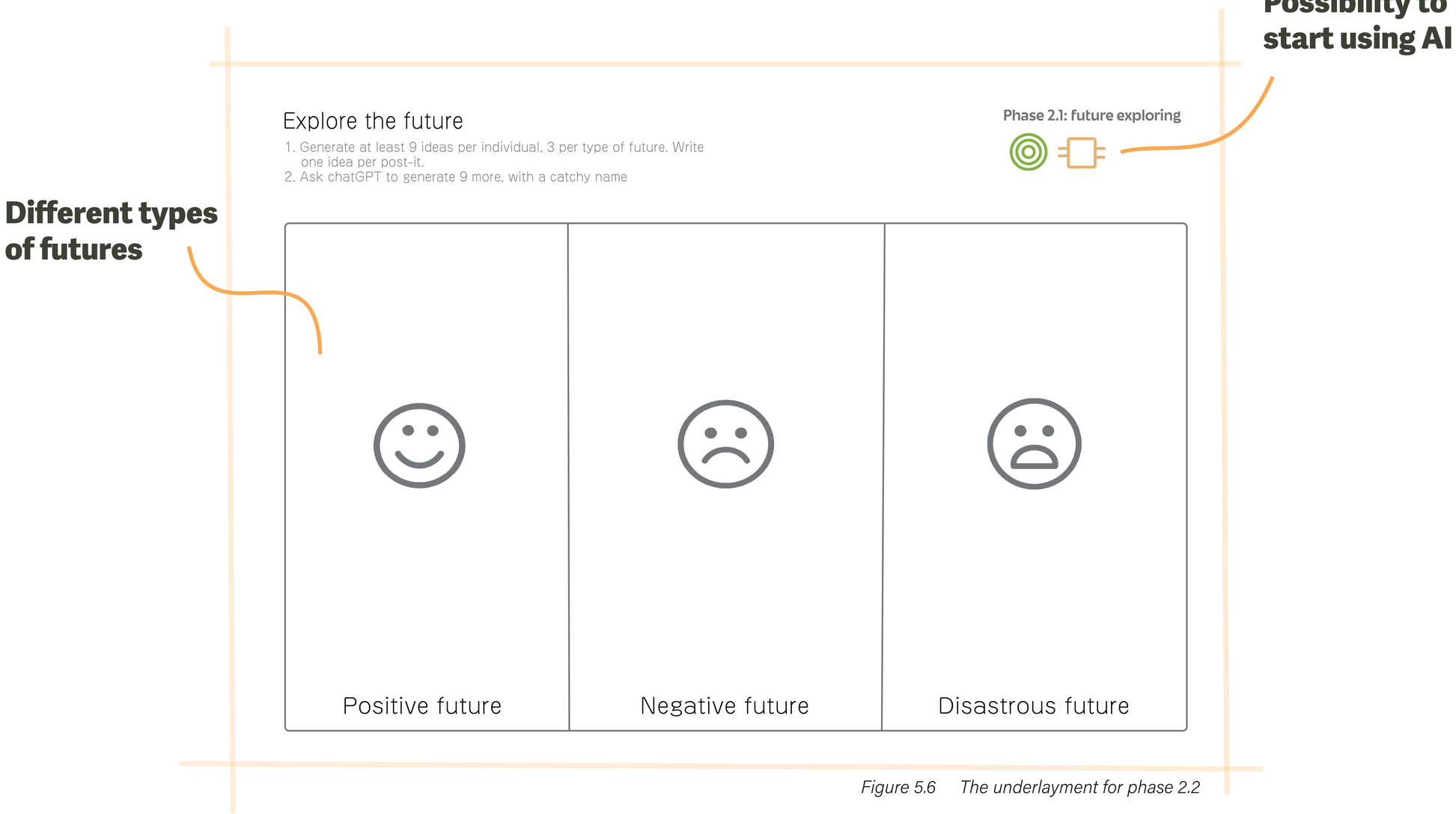


Figure 5.6 The underlayment for phase 2.2

If each individual generates a multitude of ideas, participants can plot the ideas. The goal is to get an overview of all ideas. There are two possible sheets participants can use, see Figure 5.7-8. Figure 5.7 has one undefined axis and Figure 5.8 has two defined axes. Only one undefined axis is easier and is made for less experienced groups or groups with a shorter time span in mind. The underlayment shows each quadrant forms a world.

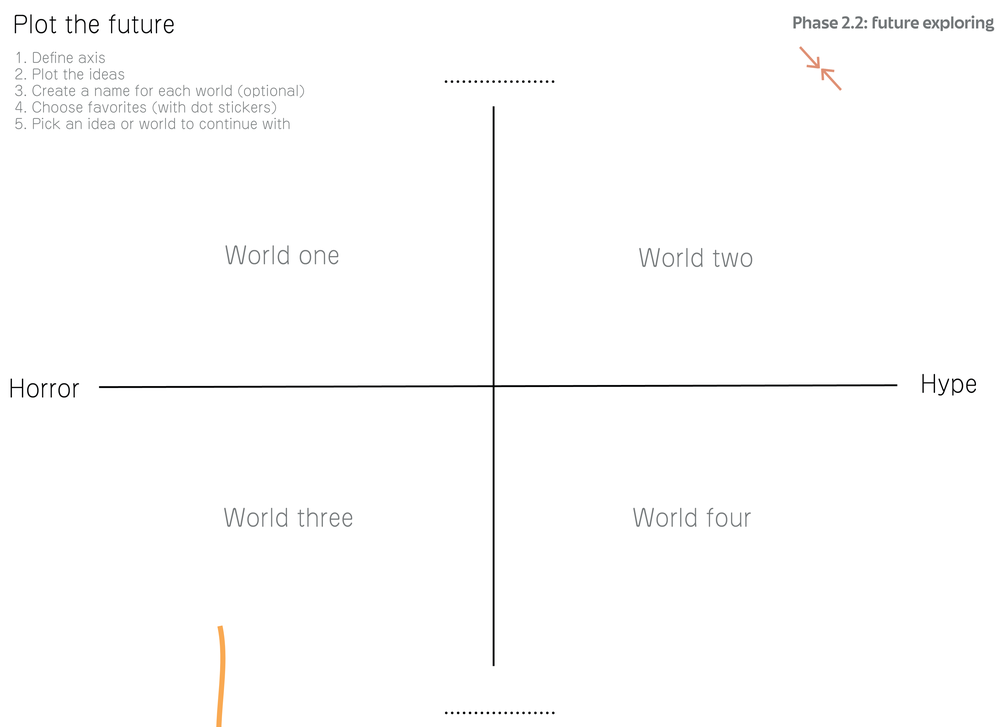


Figure 5.7 One undefined axis underlayment

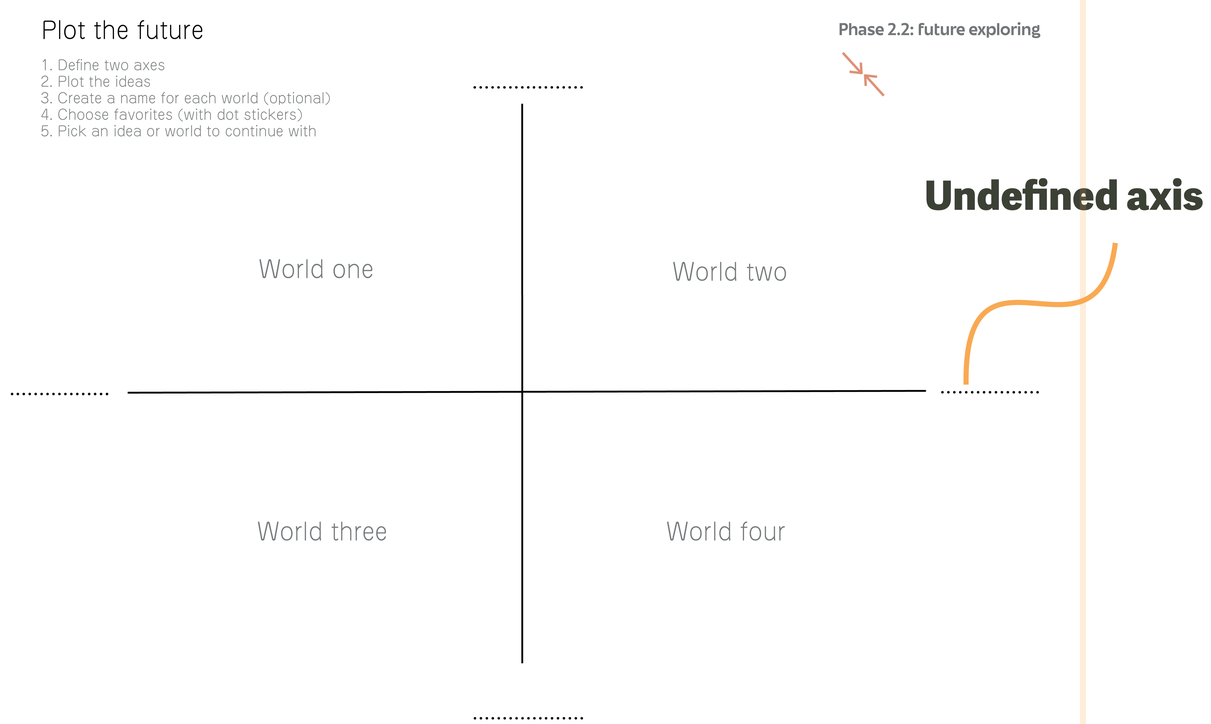


Figure 5.8 Two undefined axes underlayment

Phase 3: future embodying
This phase elaborates on a world or chosen concept to discover further. Each individual takes one future method to collect different findings and spark discussions. Figure 5.9 shows the design of this sheet. Participants can write down the idea or world, all methods used, and a free space to share drawings or pieces of text that came out of these methods.

In the final step of this phase, the group starts to visualize. The group writes down a one-liner to explain the concept in one sentence. Figure 5.10 shows the design of this sheet. To guide participants when visualizing their concept, either physically or with AI, the sheet includes a step where participants first write or draw elements that are essential to convey the future vision (concept). Afterward, they can start to visualize using AI.

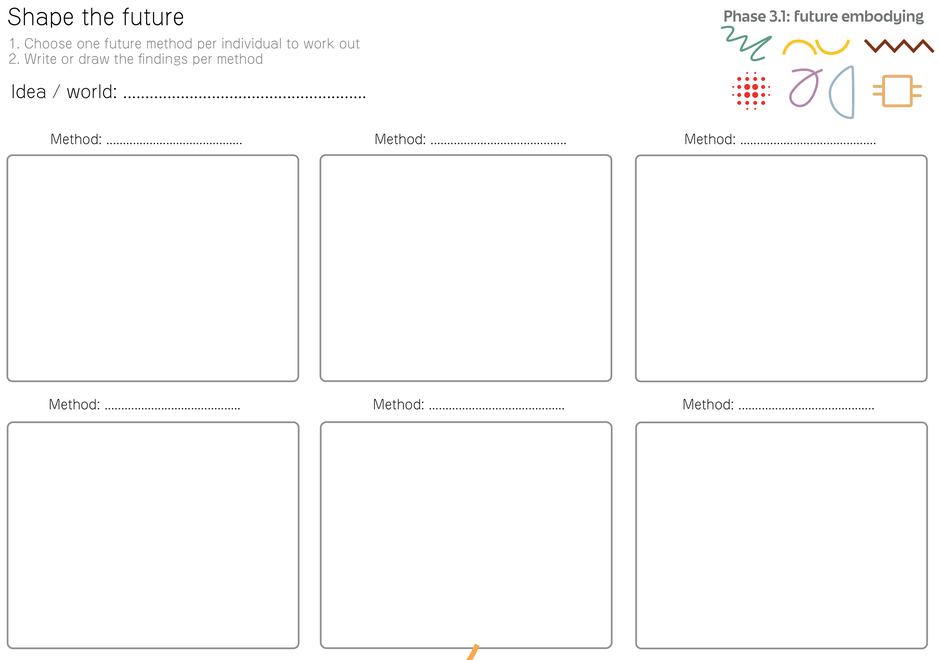


Figure 5.9 The underlaymend for phase 3.1

Space to put specific method findings

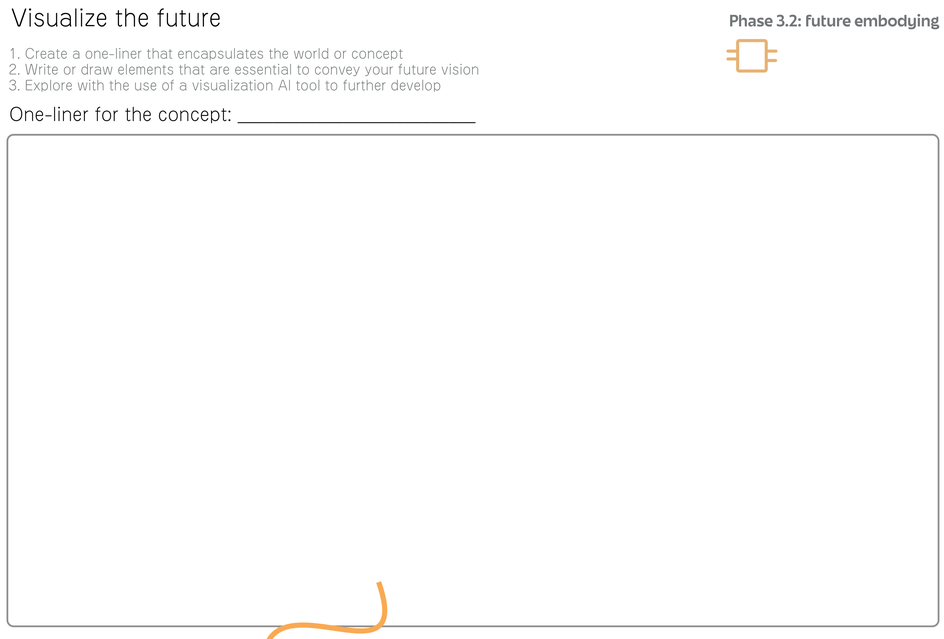


Figure 5.10 The underlayment for phase 3.2

Empty canvas to build the visual

Phase 4: action defining
In the final phase participants build a timeline of steps by backcasting, going from a certain time frame in the future back to the now. The design is presented in Figure 5.11. Generally, this is relatively easy for participants to do but they can use the card deck and AI as a tool to make it easier or more specific. Since it is relatively easy and the title explains the task, this sheet does not include steps to follow. After this, the final card asks participants to commit to a short-term goal to start to set this future into motion.

Finally, Figure 5.12 shows the underlayments printed.

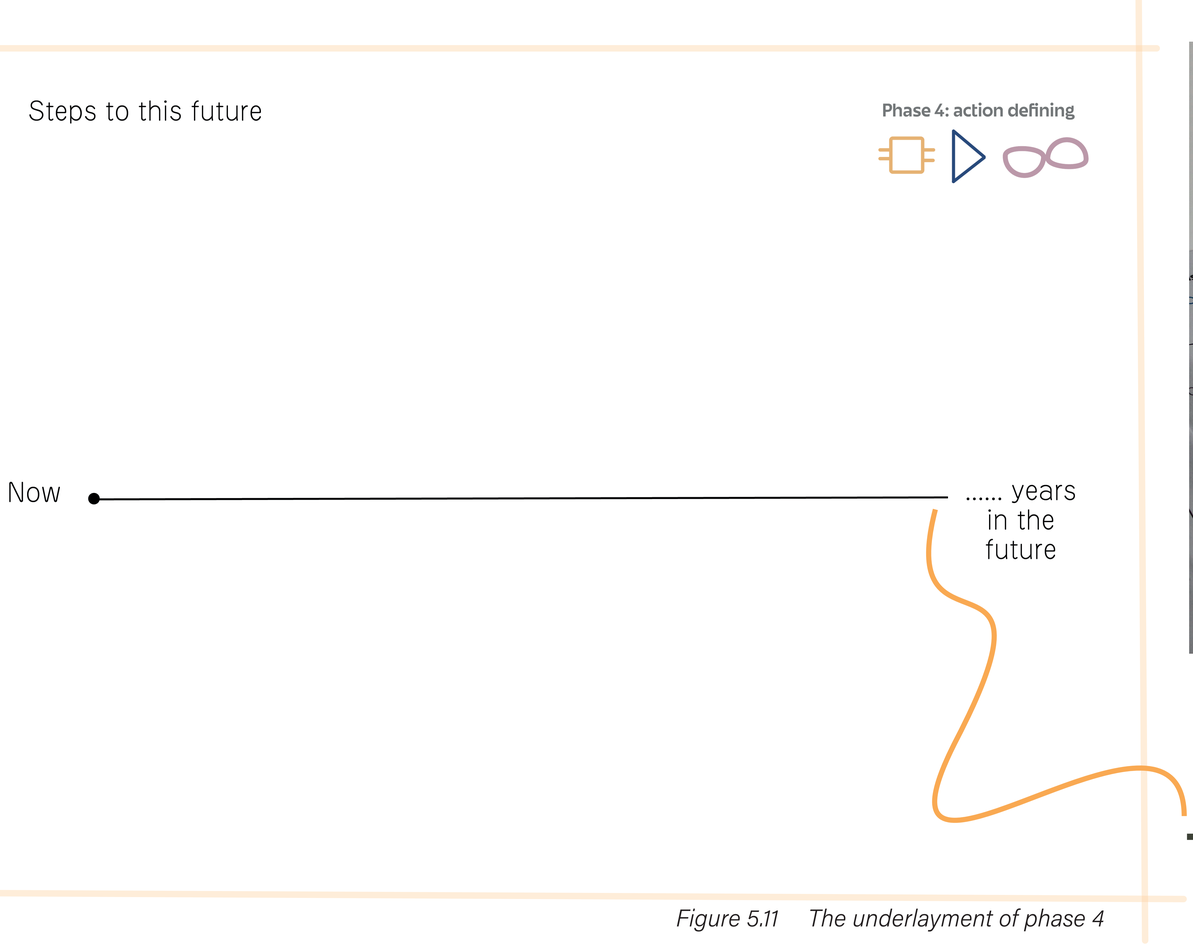


Figure 5.11 The underlayment of phase 4



Figure 5.12 The printed underlayments

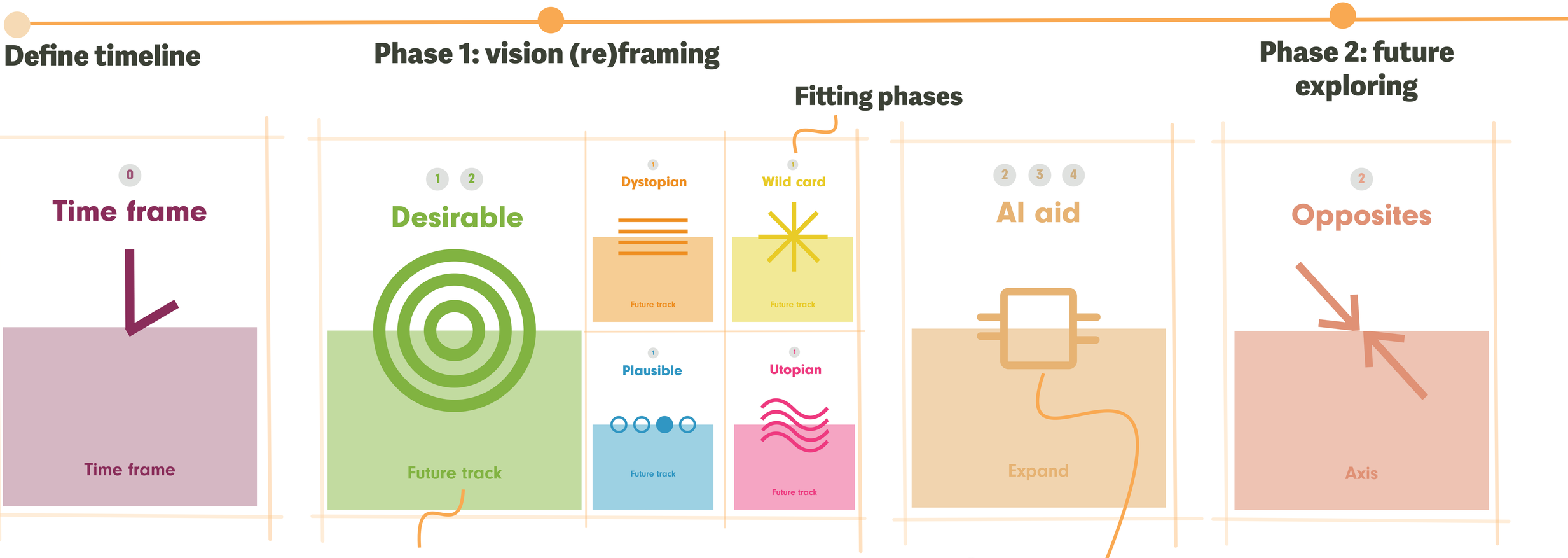
5.4.2 Card deck

The card deck, presented in Figure 5.13, is the main guide throughout the session, participants can decide on the route they take according to their session goals. The card deck has theme cards, these introduce the theme of this track, when to use it, and how to use it. For example, in phase 1 participants can decide to include the plausible track. Within each theme, are topic cards and these allow participants to further scope or specify the topic they want to focus on. If we take the example of the plausible topic cards again, participants can decide to focus on technological advances. Each card includes a fitting color and symbol to track where the card belongs to. The symbol makes them useable with or without printing them in color. Additionally, each topic card includes a drawing to showcase its meaning and make them more easily identifiable.

How does it work?
The card deck follows the phases participant go through, highlighted by a number on top of each theme card. Participants start by defining a time frame to scope ideas and align with others. Choices are between the near future, not-too-distant future, and distant future.

Next is phase 1, participants can choose a combination of two tracks to explore. Recommended is to always include the desirable track to base ideas of the future on fundamental psychological human needs.

From phase 2 onwards, participants can include AI. Participants can do so whenever they want but it is recommended the basis of the session is solely made by participants to create a greater sense of ownership. The AI



aid cards explain what the type of AI tool entails and how to use this tool. Before specifying per phase, the card explains how to start. For ChatGPT, for example, it works well to share some background knowledge. Before visualizing it is advised to create a mindmap of essential elements the visual should include. This helps identify what makes a valuable visual.

In phase 2 participants generate ideas and some future tracks and future methods are flexible to use in a multitude of phases. The future method of creating personas can also help spark ideas for different users during phase 2. Similarly, the fundamental needs can be used again to generate diverse ideas focusing on different types of needs. Afterward, the opposites cards help participants identify valuable opposites to use on the undefined axes.

In phase 3 participants can explore their concept or world further through different futuring methods. The idea is each individual within a session takes a different method to explore, collecting new insights from different angles. Within each method are topic cards participants can use to explore. They can also spark new types of topics. Afterwards, participants discuss take-aways and build their visual(s).

Finally, in phase 4 participants start to pinpoint how to realize their concept or future vision through actionable steps. Topic cards provide suggested steps to work out future visions or concepts, an example is to collect funding. Participants do this on a timeline worksheet. The final step is to commit to the vision by writing down a short-term actionable step participants want to realize. This completes the session.

Phase 3: future embodying

Phase 4: action defining



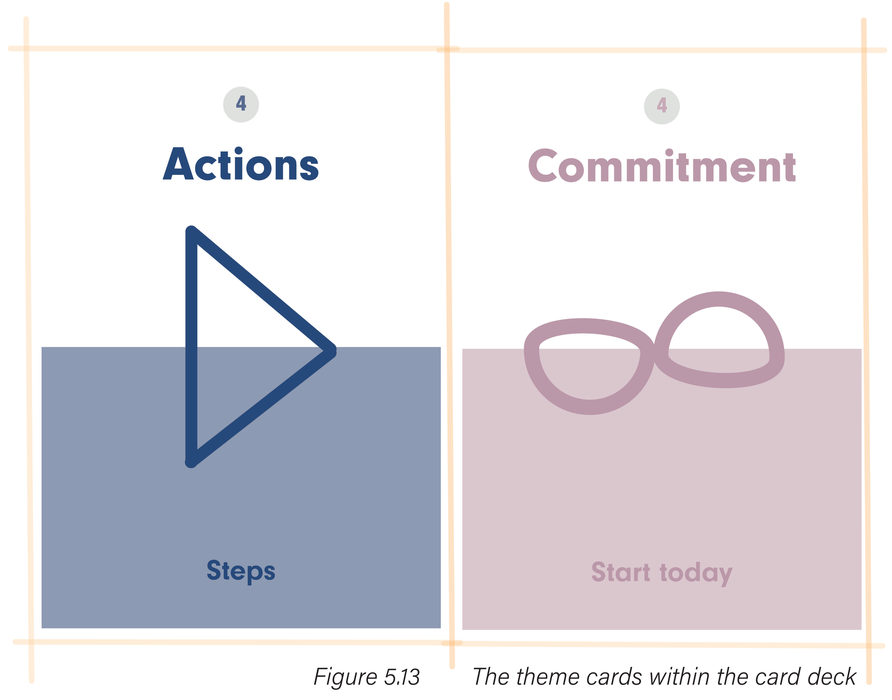


Figure 5.13 The theme cards within the card deck

5.4.3 Future framing toolkit manual

As some users might not be familiar with a co-creation session, futuring methods, or in general with making visions. This manual aims to simplify and clarify the method for beginners. Participants can print this in A4 and fold it to create a booklet. Figure 5.14 shows the printed booklet and Figure 5.15 show the front and back page, and Figure 5.16 the inside of the booklet.

Front page and back page
The front page shows all the symbols included in the toolkit and creates a playful front. The backside provides an in-depth introduction into AI visualization, how to create prompts, and provides the QR-codes for the interfaces participants can use to visualize if they do not have a subscription. Finally, it includes a feedback form to provide feedback about their experience using the toolkit. This will help improve it in the long run.



Figure 5.14 The printed booklet

AI visualization tools

What is a prompt and how do you create an image with it?
A "prompt" is a piece of text with an instruction that you give to the intelligent computer (AI), which then generates something based on the information it has about that 'something.' For example, a flying car. The AI knows what flying is and what a car is, and it can create an image based on that.

How to make a good prompt?
When you make a prompt, try to include:
- Who- what (type of) people do you want to see? A lot, a few?
- What- the most important. What is the subject of your visual?
- Where- in what environment or atmosphere does the visual need to take place?
- How- do you want a specific style? A drawing, hyperrealistic, a comic, etc.

Example images and prompts (both with Midjourney)



Vague prompt:
"' floating city' concept, minimalistic but luxurious"



Specific prompt:
"Smart Care Robots: Imagine robots that are specifically designed to assist with caregiving and home maintenance tasks for elderly residents. These robots could be programmed to monitor vital signs, administer medication, and perform household chores. "

To make AI visualization tools more accessible to use during the workshop, we have the following interfaces for you. The midjourney interface is less stable and can accommodate fewer people at the same time. The waiting time is also slightly longer. But the images are worth the wait! Multiple AI visualizer, here you can create images and obtain images from 3 different AI visualization tools.

Tip 1: give yourself time to learn how to prompt and play around.
Tip 2: the interfaces all take a while to provide images, so be a little patient. Sometimes, it might generate unexpected outcomes, but these can spark new ideas. Most importantly, enjoy the process!
Tip 3: avoid refreshing the page and don't forget to save your images, they'll be gone when refreshing.

Finally, we'd love to hear your opinion about the toolkit and find out what we can improve, fill in our feedback form by scanning the QR code below.

Feedback form **Midjourney AI** **Multiple AI**

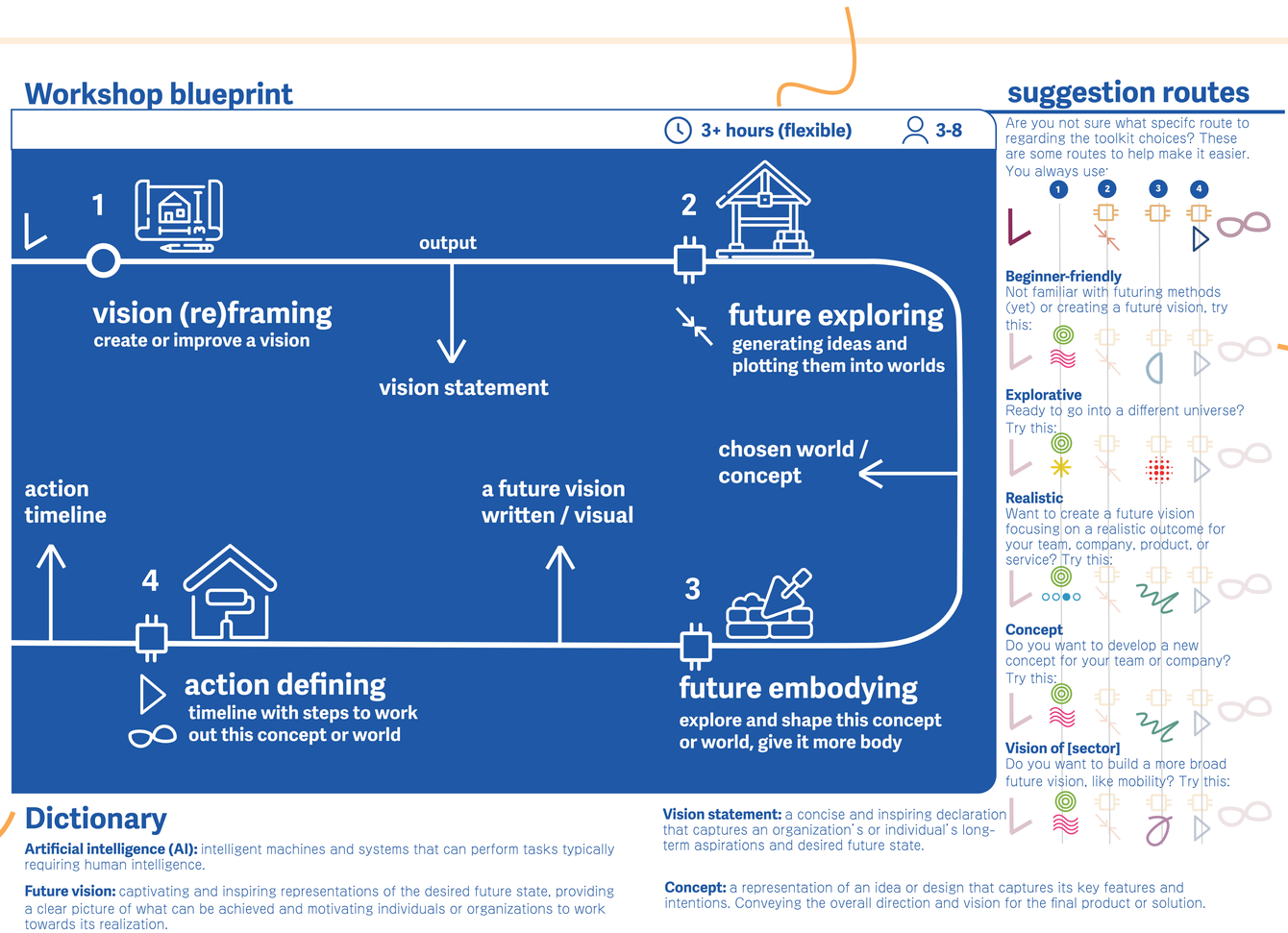


Figure 5.15 The front and back page of the booklet

The inside of the folder
The inside of the manual shows a visual representation of the process. The goal is to create a simple overview of each phase, it's goal, and output. The process is shown through the process of building a house to showcase more clearly why participants are following these steps and how they connect to building a future vision in the end. That is also why it is called the workshop blueprint. Underneath is a small dictionary that explains terms beginners might not be (that) familiar with. This helps them throughout the process but also in feeling more confident about the topic.

On the right side of this page are suggestion routes. Since the toolkit is quite big, it might be daunting to choose or know what tracks to choose. The overview shows which tracks they always use and in which phase. Underneath shows specific tracks according to their needs. The options are beginner-friendly, explorative, realistic, conceptual development, and vision of an entire sector development. Providing more guidance compared to letting them decipher what to choose themselves.

Practical guidelines



Suggested card deck routes

Dictionary explaining essential terms

Figure 5.16 The inside of the booklet

5.4.4 Inspiration museum

A part of the process within the future framing method is an inspiration museum. The museum consists of two parts with three concepts. The first are concepts of the future and the second are artifacts of the future. The difference is the focus on the type of material, the first concepts can be something non-physical or non-product oriented. An example could be the social supermarket from session 3. It describes the change in the meaning behind the supermarket, which is more conceptual than product-based. Artifacts of the future focus on new types of technologies and how these influence daily life in the future. Figure 5.17 shows the physical museum hung up during session 7 and Figure 5.18 shows the digital concepts.

The goal of the inspiration museum is to provide inspiration with some out-of-the-box ideas and challenge participants' preconceived ideas or biases over the future. Additionally, it provides examples of the abilities of AI to showcase what kind of concepts the participants can create during the session. Some concepts contain the prompts used to create the images in Midjourney. This shows the diversity within the prompts and their correlating outcome. With a facilitated session, all inspiration museums are custom-made to fit the session topic. For the online toolkit, there are certain sets available from previous sessions. In the future, as more sessions with different topics occur, a broader range of sets becomes available.



Figure 5.17 The printed inspiration museum during 'the future of mobility' session

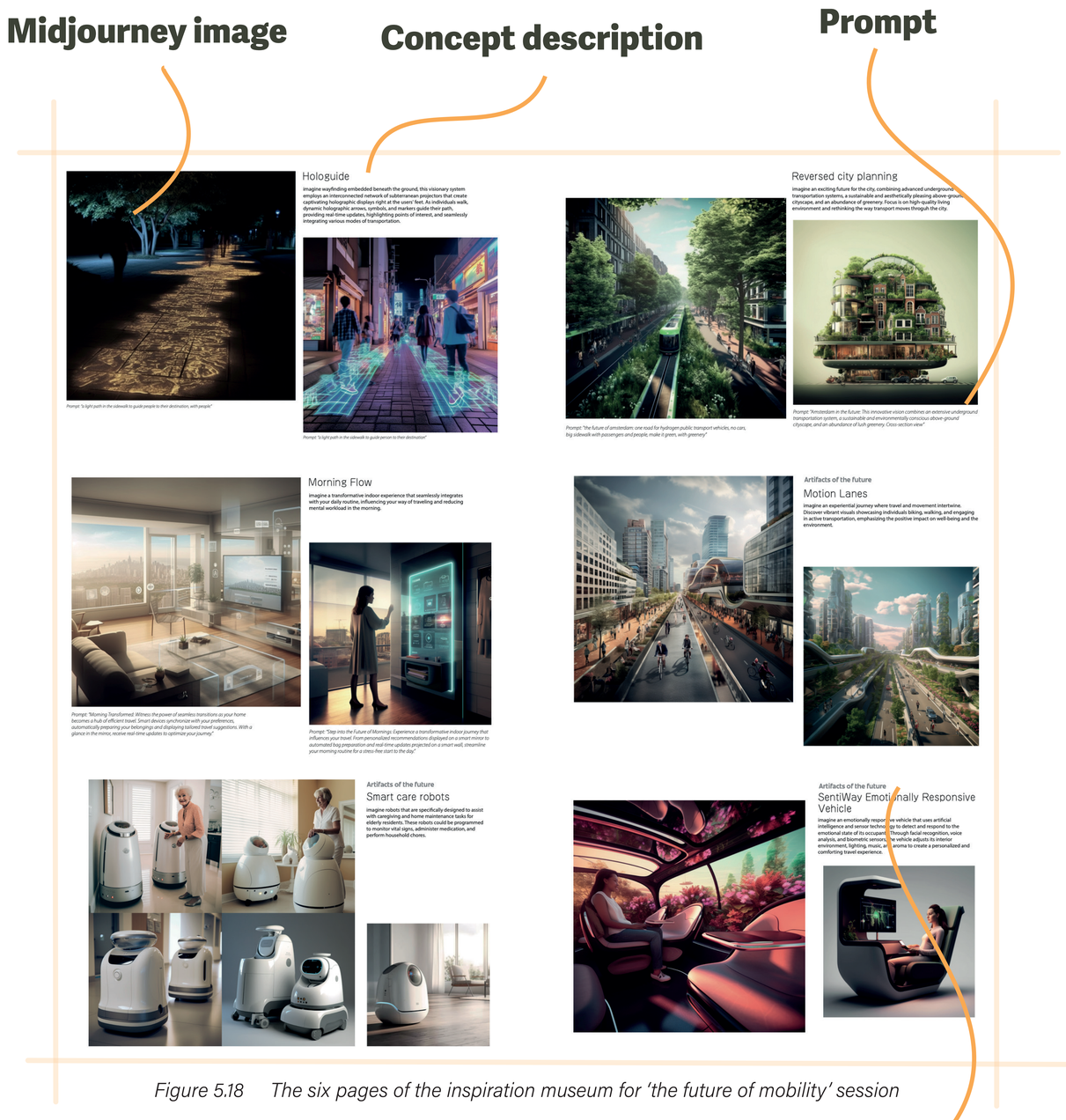


Figure 5.18 The six pages of the inspiration museum for 'the future of mobility' session

5.4.5 Miro board template

The toolkit includes a set-up for an online workshop. This is a Miro board template, this workshop follows a slightly different set-up. Figure 5.19-20 show this set-up. Each white block represents a step within the workshop, with several empty blocks forming a digital whiteboard for participants to work on and to keep track of the progress. The workshop is similar to online session 6, except the prompts have been generalized to facilitate other topics besides the future of living. The steps are as follows: first an introduction, a demonstration of ChatGPT and Midjourney, creating a vision (using ChatGPT), determining the vision statement within the group,

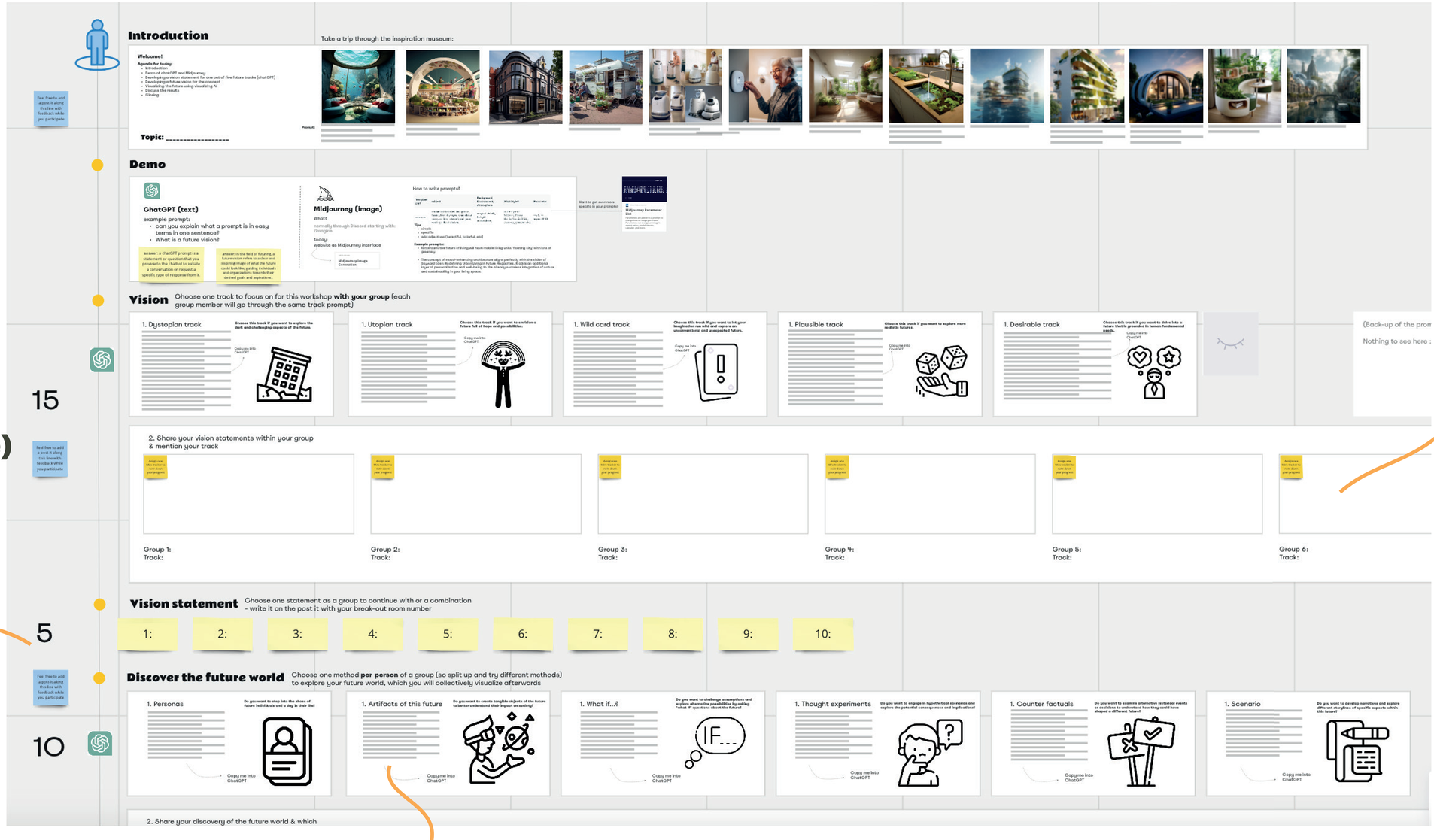
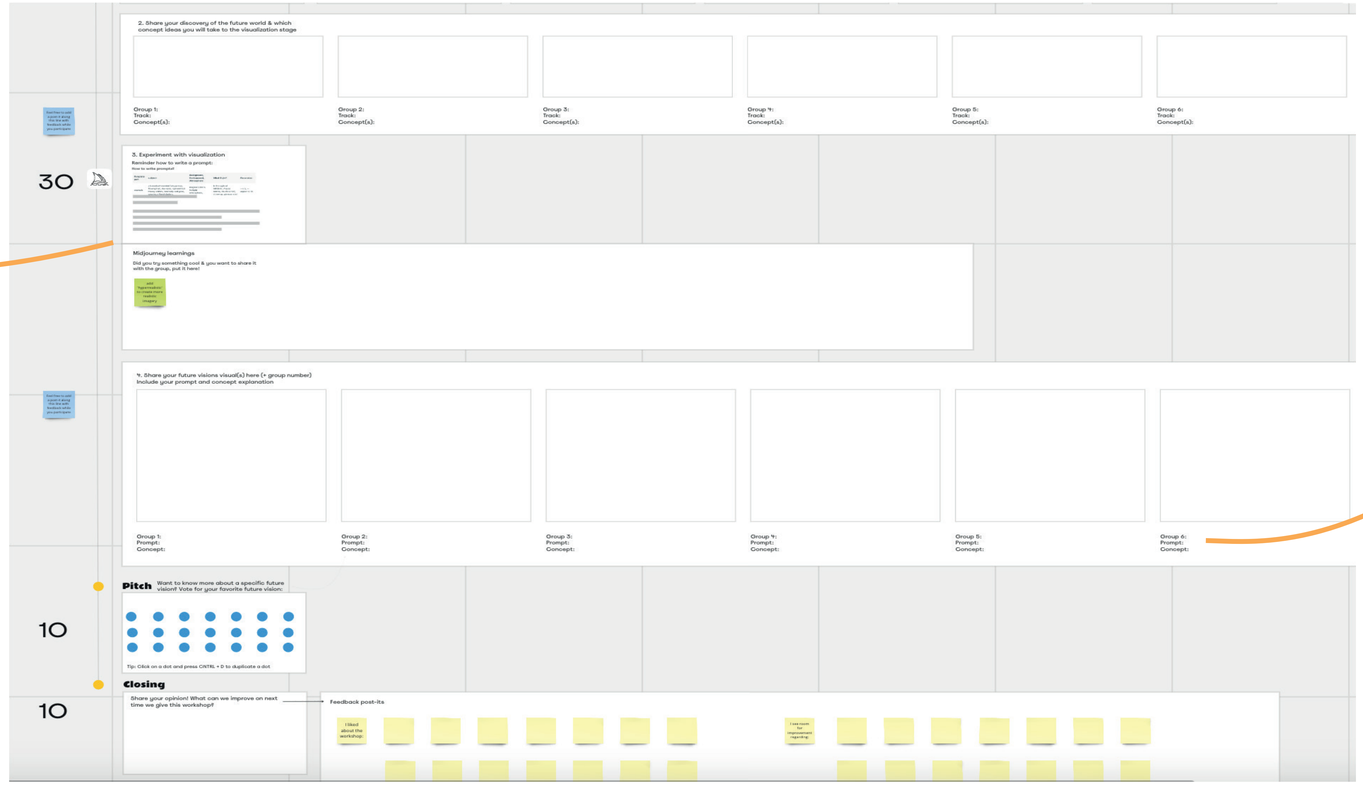


Figure 5.19 The first half of the Miro board template

diving into different future methods (using ChatGPT), visualizing the future vision (using Midjourney), pitching concepts when faclitating workshops in multiple different groups, and closing the workshop with post-its to provide feedback.

The workshop allows each participant to go through their own journey while collaborating at certain points with group members. When they start to create vision statements, the group decide what future track to focus on during the workshop: plausible, wild card, desirable, utopian or dystopian future. This is the same as within the card deck. After going through a mega-prompt in ChatGPT, the group discusses all vision statements created per individual and decide on a collective vision statement for the next step. Then, each individual chooses a future method, takes their vision statement to create a bigger picture of their future world, and explores this world through different glasses. The future methods are personas, artifacts of the future, what if-statements, thought experiments, counterfactuals, and scenarios. After going through another ChatGPT prompt, the group comes back together and discusses these different aspects within their future world. What would a person living in this world look like? What kind of inventions fits this world? This helps build the concept and/or future world to gain a better understanding which building blocks are necessary to create a fitting visual. Visualizing takes place in the next step, each individual uses the visual AI interfaces to create fitting images, collecting them on the whiteboard space. Groups are free to arrange this area however they deem fit. The final steps include pitching, mostly useful when there are a multitude of groups who all went in different directions, and voting for the favorite imagery to learn more about. Ending with a moment to close of and provide feedback.

Explanation from the Midjourney demonstration



Text fields to keep track of specific workshop information; track, group, prompt, etc.

Figure 5.20 *The second half of the Miro board template*

5.6 Facilitators guide

A checklist for the preparations and conditions per phase provides facilitators with a guide. The goal is to provide a more holistic overview of putting this method into practice.

Preparation process
- Discuss the goal of the session with the problem owner, try to make the goal achievable. Avoid wanting to make too big of a future vision
- Alter/make a session plan based on the previous step, leaving some room for extra time in case something runs longer
- Choose and download a fitting inspiration museum, this depends on the theme or generate new ones using the empty illustrator template
- Communicate to participants to have a phone, tablet, or laptop to use during the session or provide these
- Communicate to participants to create a chatGPT account
- Print all materials and prepare some empty A2 papers
- Buy enough (flipchart) markers and post-its, at least one per participants but preferably more
- Prepare stimulating questions per phase which explain what exactly you want out of the phase

Walk-in and introduction
- Introduce the goal
- Incorporate a short (AI) energizer
- A check-in per individual to find out what they hope to get out of the session and their expectations

Phase 1
- Decide which aspects of the current situation are most valuable to focus on. It might take too long to focus on all

Phase 2
- Provide a short explanation for first-time chatGPT users
- Incorporate chatGPT
- Make sure participants first go through the process themselves, afterward make use of AI tools. This a more active approach

Phase 3
- Provide a short explanation for first-time visual AI users
- Incorporate visual AI

Phase 4
- Incorporate AI

Closing
- A check-out per individual to evaluate their learnings

A multitude of workshops
A tip from personal experience, to achieve a valuable output and allow enough time to be spent on AI and visualization; it is recommended to split the workshop into two parts. Decide the main outputs and the existing elements. For example, if a company has a sturdy vision statement, moving through this phase might go quicker and it would be an effective session to split the workshop into phases 1&2 and 3&4. While in another session there is no or no well-defined vision statement. Then consider first creating a vision statement and making that one workshop. As this has not been tested or tried out during this project, this will require some experimentation.

5.7 Extended scope findings

The results highlight relevancy of the future framing method and validate its usefulness. The diverse range of topics, from cases regarding mobility to a female empowerment organization, highlights the broadness of applications of this method. Figure 5.21 shows the topics used inside this project. The darker color represents longer sessions. Some circles overlap since the topics are related to each other. As we were limited to a certain amount of session within this project, interviews with experts in different sectors supported the notion such a method provides added value. Reiterating the possible broadness of this method.

The future framing method is flexible and can fit a range of goals. It is useful to alter the session blueprint to fit the goal of the session. As this project showed there is a difference between broad and narrow session goals. Do you want the outcome to be a specific concept or a general future vision of a certain sector? This changes the focus area within the session.

Similarly, the method was applied with a broad range of stakeholders and functioned well. Each quadrant of stakeholder types being represented throughout all sessions. Shown in Figure 5.22, which is a simplified version of the ring of influence. We simplified it since we have not conducted a detailed stakeholder analysis per session, specifying their influence. It is to showcase the broader types. Session 6 and 9 holds the most diverse range of stakeholders and is spread out into three quadrants. Most sessions were conducted with teams within a specific company, except for the conference. An interesting topic for further research would be applying the method to more diverse groups of stakeholders.

A future vision is a flexible deliverable and its output depends on the goal of the session. In certain sessions, inspiration was the main goal and the ideas were the most important outcome. Therefore, a visual representing one idea was fitting. In other sessions the future vision was a concept showcasing the elements involved- this is a more detailed visual but relatively simple. Finally, when considering and creating the future of an entire sector, the visual and its complexity represents this too. This will likely require more time and effort outside the session to realize. Possibly incorporating another feedback session with a wider range of people.

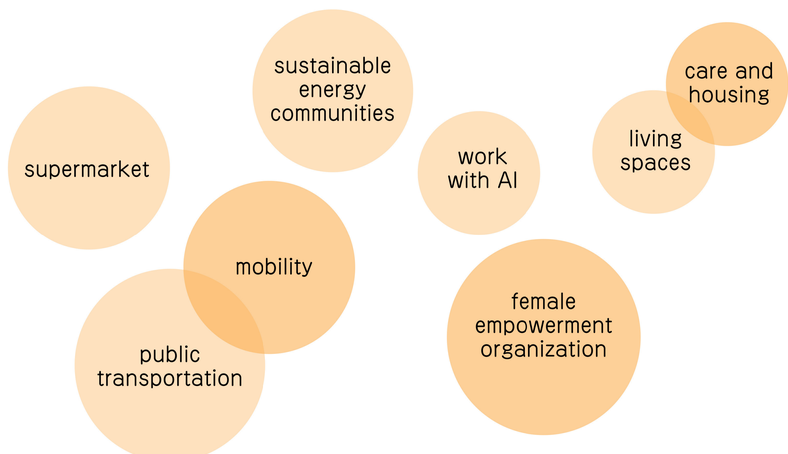


Figure 5.21 The range of topics within this project

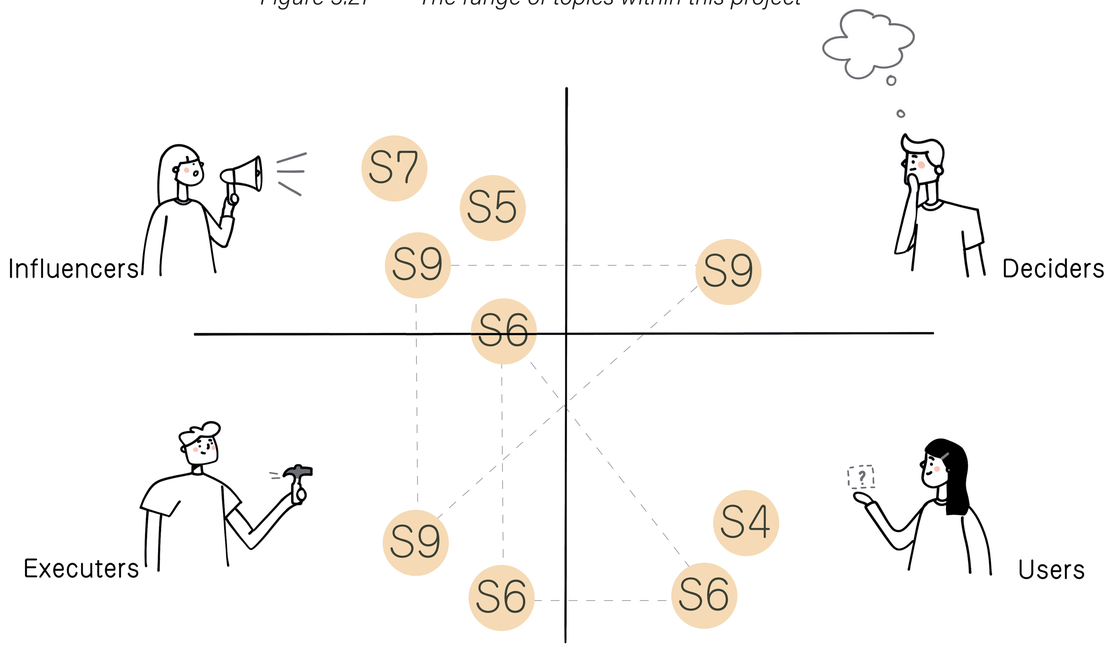


Figure 5.22 The different types of stakeholders involved per session

5.8 The future framing website

The future framing's website informs and provides access to the future framing method and toolkit. There are four web pages, a homepage, a toolkit page, an AI gallery page, and a page to join a workshop. We will discuss the contents of each page, but this report does not show all its contents. This can be accessed via https://future-framing.nl.

5.8.1 Homepage

The homepage, shown in Figure 5.23, introduces the workshop in one sentence at the top, with two buttons immediately allowing users to go to the page to enroll in a workshop and to see the toolkit. Underneath this, the home page has a video to explain the reason for using the future framing method, to get a feel for the experience, to learn about the different ways to apply this method. Beneath this is an explanation about the method and toolkit, the four phases, the learnings from using the method, and some background information about the design of the method. The homepage's main goal is to provide information about what the method and toolkit are and why someone uses them.

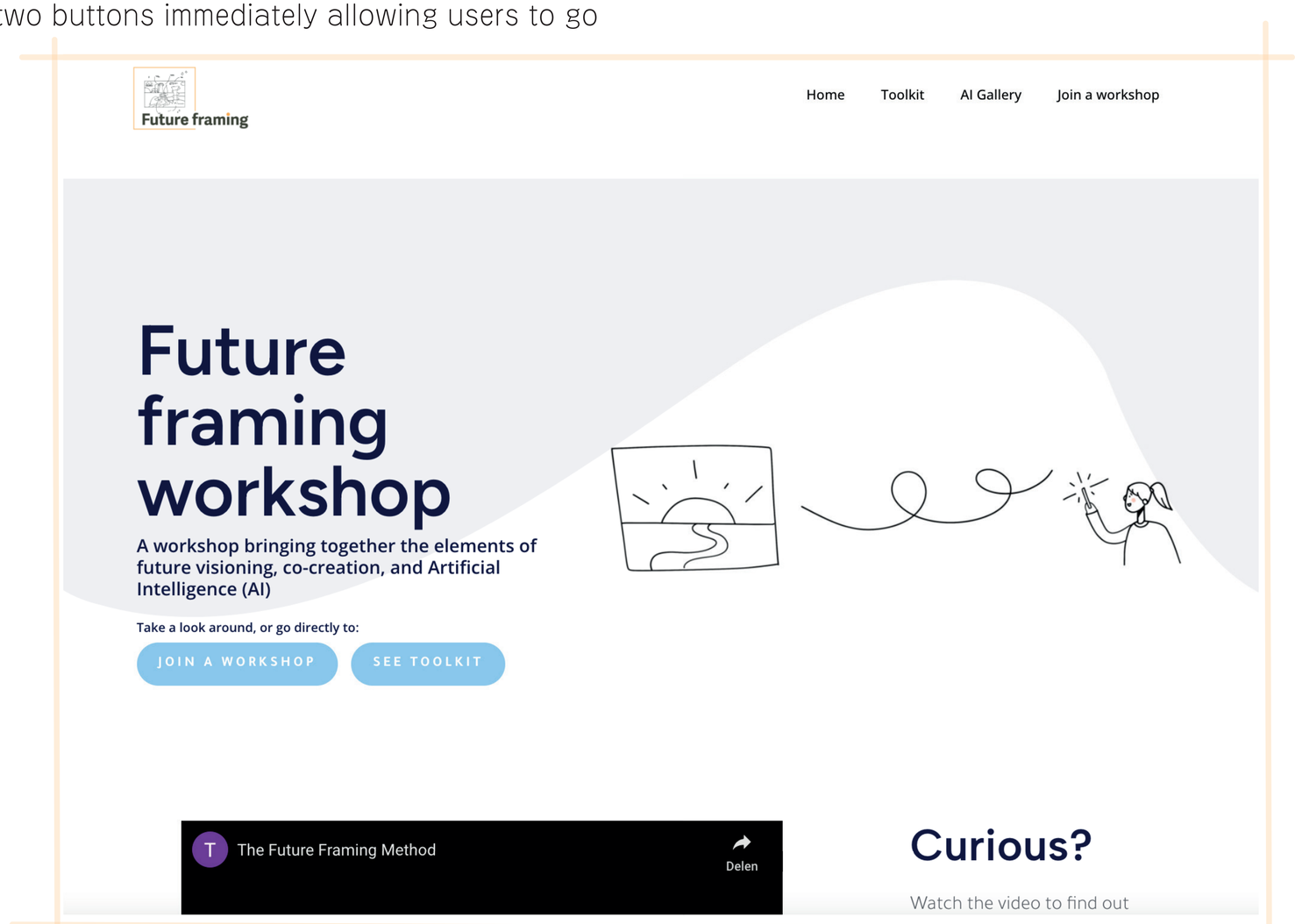


Figure 5.23 The homepage of the future framing website

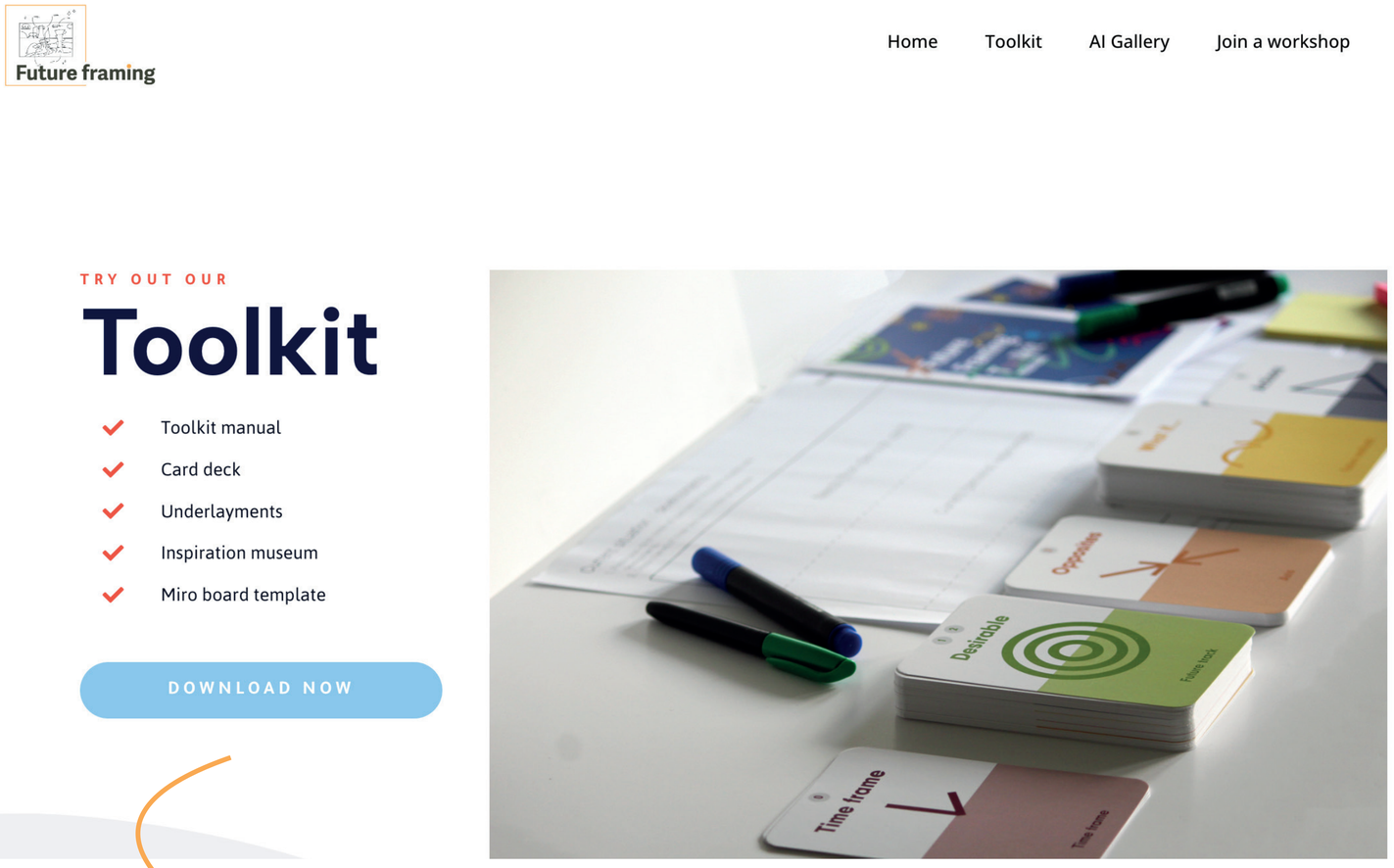


Figure 5.24 The toolkit page explaining each aspect of the toolkit and a button to a drive to download the toolkit

Drive link to the toolkits

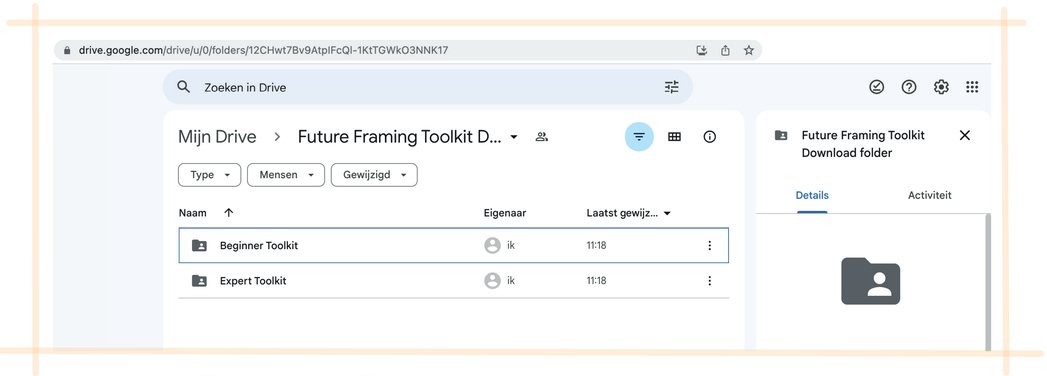


Figure 5.25 The drive to download the beginner or exper toolkit

5.8.2 Toolkit

The toolkit page, see Figure 5.24, provides the list of items inside the toolkit. It also presents a download button to open a Drive folder and download the toolkit. The Drive folder can be seen in Figure 5.25. The remainder of the toolkit's the page shows and describes each element within the toolkit.

5.8.3 AI Gallery

The AI Gallery's goal is to explain more about how to use visual AI. It explains the definition of a prompt and the qualities of a good prompt. Images show output made in Midjourney and when users move over the images with their mouse, the corresponding prompt is shown. This provides some guidance on the types of prompts people can use and the difference in their elaborateness. Figure 5.26 shows the AI gallery page.

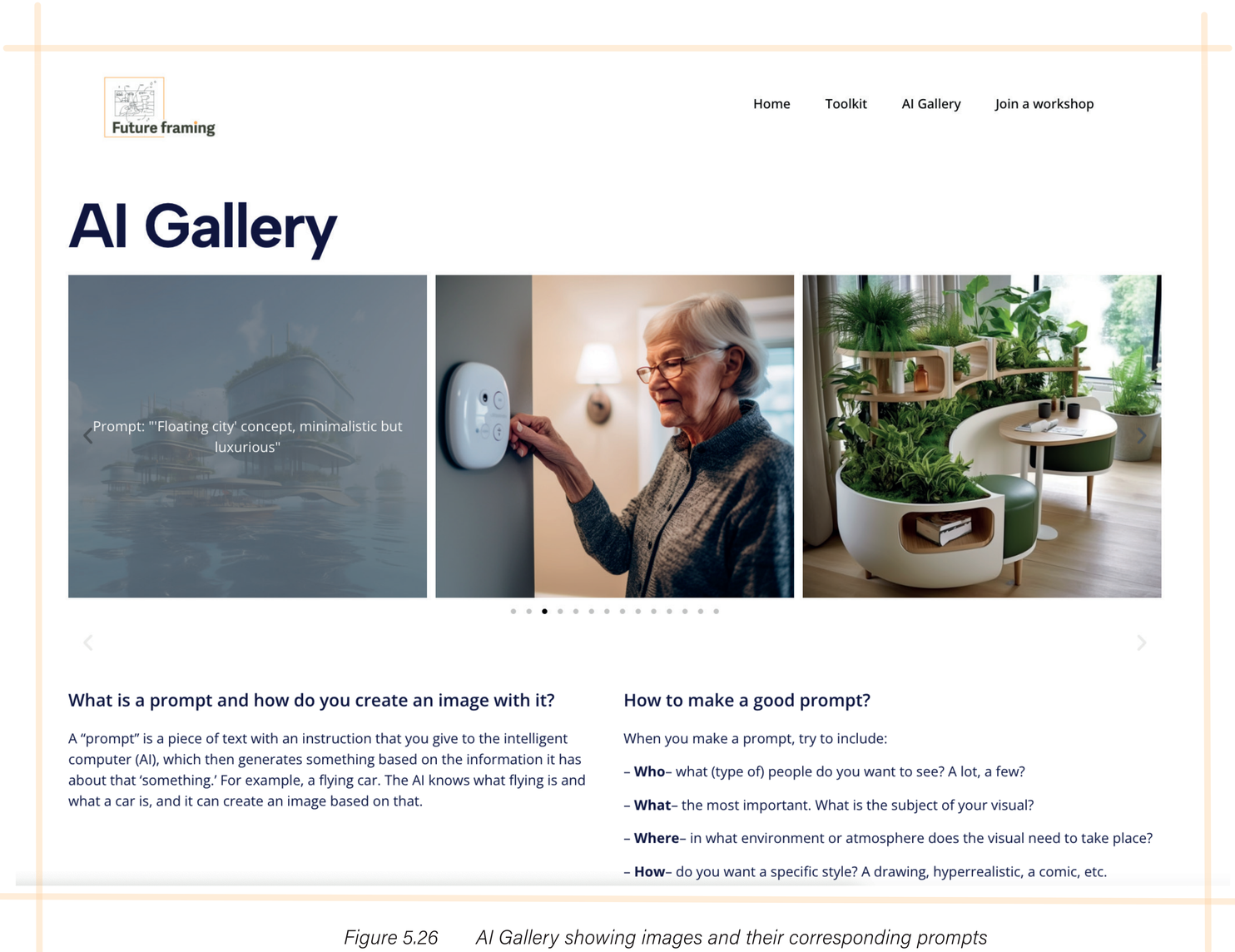


Figure 5.26 AI Gallery showing images and their corresponding prompts

5.8.4 Join a workshop

Figure 5.27 shows the page to enroll or request a workshop. People can do two things, they can apply for a workshop as an individual or as a group. If someone applies as an individual and there are sufficient participants; a group of unknown people come together for a session about their topic of interest. This way the future framing workshop also facilitates new connections, introducing new people in the same area of expertise or interest. Another option is to request a workshop with a predetermined set of participants. This can include a team or a group already working together.

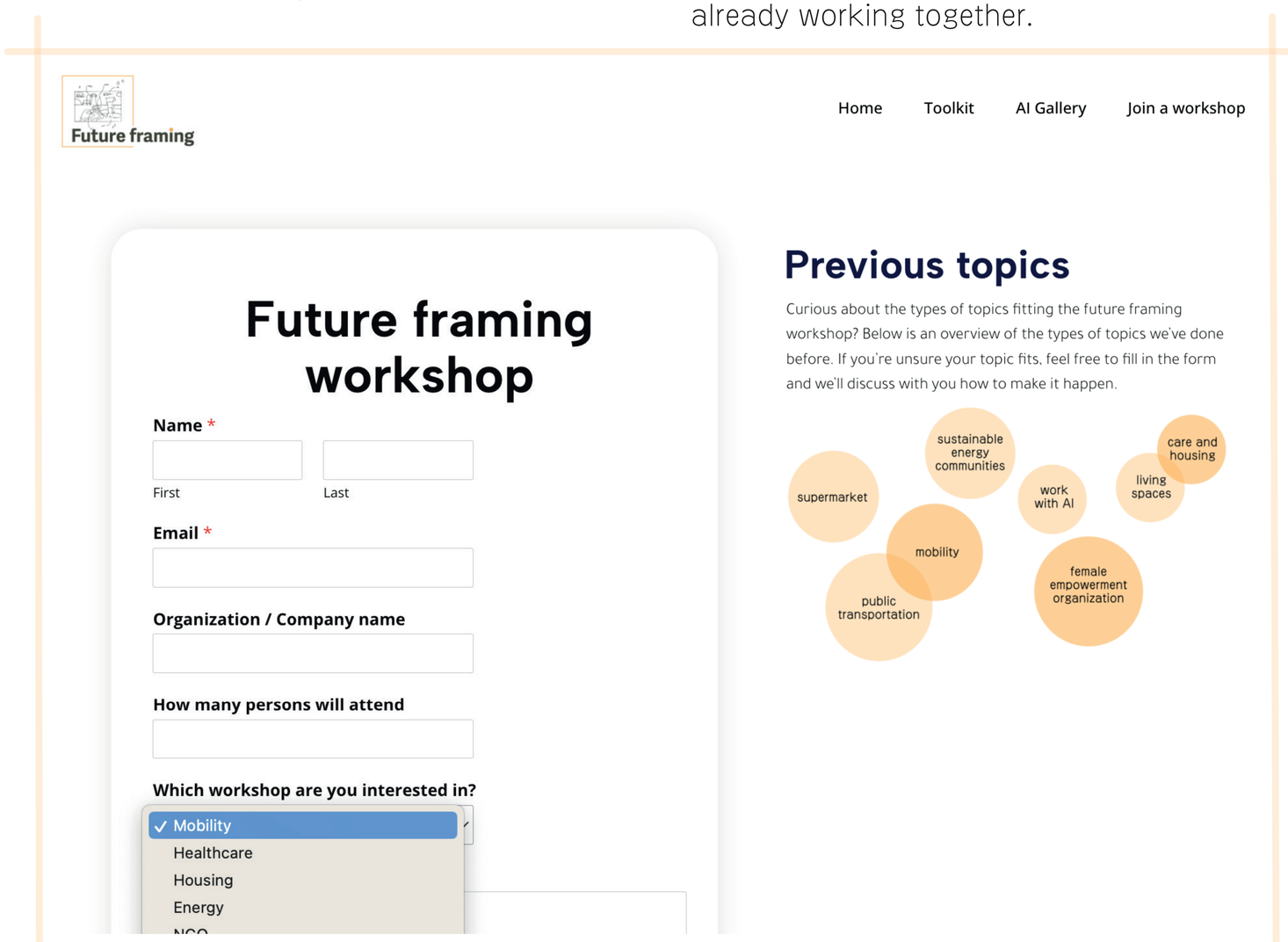


Figure 5.27 The join a workshop page

5.9 Future development

Chapter 5 showed the V1 design of the toolkit and all elements involved. Since it is only version 1, we see room for improvement upon further development. Additionally, even though this is almost the end of this project, the toolkit has a future event planned.

Future design development
The toolkit can benefit from a more elaborate and fitting user interface, maybe incorporating both types of AI into one website with two tabs to move from one to the other. This would simplify the use for participants, although it should be looked into if this is technologically possible. Additionally, the materials are designed to be used without a facilitator but it needs to be tested to see if it is easy to use without (experienced) facilitator. Likely, some unforeseen alterations and clarifications are necessary to improve it as a stand-alone product. Incorporating the QR code of the feedback form into the manual allows participants to communicate feedback about their experience more easily. Although, this form might need to be simplified to retain more completed forms. It is quite long currently.

The next step will be the PUSH UX conference in October to facilitate a workshop using (parts of) the toolkit. Previous learnings from the first conference will be applied to host a better workshop.

5.10 Conclusion

Closing chapter 5, which showed all aspects of the method and the first version of the toolkit. We presented the details of the method, and their in- and outputs. We showed the toolkit's card deck, underlayments, and manual and described its intended use. This chapter also includes a facilitator's guide and an overview of the website designed to spread the toolkit. Finally, we explained our view on the future development of this method and the next step for the toolkit. We can conclude the toolkit has a strong basis but can improve through sessions without (experienced) facilitator and the feedback we receive from those.

06.

Conclusion & discussion.

This chapter focuses on the outcome, further recommendations beyond this project, and personal reflections.

> “Future visioning often implies leadership, especially when it comes to shifting the vision from the stages of the imagination and creation, to the realization.”

(Simonse, 2018, p.88)

6.1 Conclusion

We are almost at the end of this project. Concluding this project, we recap the main objectives, its relevance, key findings, implications, and the next steps for the future framing method.

The objectives of this project: to open the box of possibilities to the future and facilitate the dialogue of possible futures. AI provides a new angle in this conversation through its ability to enhance human abilities. The main outcome is a methodology and approach to co-create and build future visions incorporating AI technology in an overall user-friendly, accessible, and effective process. A toolkit was developed to translate the methodology into a tangible thing and guide this process. This project took an innovative approach by combining AI, creative facilitation, futuring, and co-creation. The method adds value to existing knowledge as such an approach is currently non-existent.

The future framing method, brings together the thought, the dream, and the plan. It takes a group from a vague idea of the future to a desired future state, and a plan to reach this state. The method is shaped by testing with a wide range of topics and many iterative cycles. From short initial sessions to build a minimal viable method to longer sessions diving deeper into the topics and focusing more on the use of AI. The effective incorporation of AI requires time, especially for people being introduced to AI during the session. Evaluation results from all sessions validate the positive impact of the method on participants through design criteria fitting the design goal. The majority of participants expressed interest in joining another workshop. The design goal, to spark empowerment and ownership in participants while creating their own desired future vision in a co-creation session, is successfully implemented with this end result.

The future framing toolkit is accessible and usable for everyone at: https://future-framing.nl. The toolkit is designed for individuals, organizations, and professionals who are interested in envisioning and shaping the future. It provides them with a comprehensive set of resources and methods to facilitate co-creation sessions, and discussions focused on future framing. Users of the toolkit can gain valuable insights, explore different perspectives, and collaboratively develop a shared vision of the future. Overall, the toolkit serves as a valuable resource for anyone seeking to actively engage in shaping the future. The toolkit also includes beginner-friendly content: a manual explains the process and provides routes to make it accessible for everyone to try out. A beginner and expert toolkit differs in the number of cards to avoid waste and unnecessary items while providing more structure and guidance to those who need it.

Implications for the Future Mobility Network
For the Future Mobility Network (FMN), a consultancy specializing in fast-tracking new mobility solutions through a hands-on approach, it is valuable to align on a universal vision for the future of mobility. Within their company but also with the clients they work with. FMN is a fast-pacing company with many different ongoing projects and diverse stakeholders, this puts them in a unique position to look further ahead using this future framing method. It allows FMN and clients to create a future vision together, stimulating more long-term co-operation and potentially setting more ambitious goals within their projects. They can apply it to clarify needs and project objectives short-term too. Additionally, FMN can use its own future vision as a persuasive tool to potential clients. This all also holds true for companies similar to FMN.

Implications for the design field
In a broader sense, this project impacts the design field in two ways. Firstly, facilitating a process to define desired futures together. This decade of change requires -- change. How we go about this is up to us. Inspiring a sense of empowerment regarding the future we strive for can fuel innovation and motivate us to set goals that drive the necessary change. Through design we, as designers, can transform our desired future into tangible, actionable designs that resonate with the collective and facilitate the realization of our vision(s). Secondly, this project started right when the AI hype took off. This method considers and embraces this new technology, which no doubt will change the way we design too. AI is a tool within this project and a creative one too. The skill of AI literacy takes time to develop but it is worth it. As an example, we created and

used specific mega-prompts for ChatGPT in our online workshop. These can be created for personal use by designers too. Or this can facilitate easier use of design methods for designers and non-designers. AI requires a kind of play mindset and this project took that approach in different ways the design field can benefit from too. While being smart about the way to incorporate it, some participants left their own input, thoughts, and ideas at the door- which takes away from the impact AI and humans can have as sparring partners.

Implications for society
As we've emphasized throughout this report, we find ourselves in a crucial period of transformation: a decade of change that calls for a reassessment of our actions for the type of future we want. Some of our current behaviors may not align with the type of vision of the future some are still (unconsciously) holding onto. We hope by making the toolkit widely available and easily accessible to empower and inspire action into individuals and organizations. And by spreading positivity and embracing the possibilities we can make a meaningful impact on society.

Next steps
The method will continue its journey, outside of this project, although we will see in what kind of shape and form. A few current steps are on the horizon. Solidifying and spreading the knowledge of the method in the form of a (scientific) publication. And a conference to host a break out session at Push UX in October 2023. These are both good starting points to develop the outcome of this project further.

Let's keep exploring the future.

Let's realize this decade of change.

6.2 Discussion

We mention limitations, alterations, and suggestions for future research on the future framing method.

Time
The time investment available within this project was a limitation. For effective application of the future framing method and the generation of maximum value, ideally, allocating two half-day sessions would be recommended. The first afternoon can be dedicated to crafting the vision statement, exploring ideas, and fostering creative discussions. The second afternoon can focus on organizing and refining the ideas, generating additional ones if needed, visualizing the envisioned future, and devising a comprehensive action plan. This also allows for time to effectively introduce beginners to AI.

Sharing the vision with a wider audience within the company
Within the focus of this project, we did not incorporate sharing the future vision with a wider audience within the company. We see an opportunity to incorporate this step after the initial and final session to further enrich and solidify the future vision. Similarly by involving different individuals in the second session, with several participants from the first one to avoid undoing the first session results. Incorporating more diverse perspectives and input can create a more resonant and inclusive vision for the future.

Level of preparation before the session
During this project, most participant groups were from the same organization or team. When the goal is to go through the future framing process with a diverse group of stakeholders, communication between these stakeholders should take place before the session to communicate a level of preparation among all stakeholders. One person within this group should arrange this alignment. Examples could entail each stakeholder determining when their collective project is successful, when the session would be successful, or what their vision on the project's topic is. A collective level of preparation stimulates a smoother process since different organizations probably work differently too. With more experience in the application of these diverse stakeholder groups the facilitator can prepare a checklist, or something similar, to help this person determine the necessary preparation.

Improving the V1 toolkit
Improving the toolkit in the future can enhance the execution of this method. In this project, we developed a V1 version of the toolkit. The card deck, which is currently comprehensive, can be refined as the future framing method is used more widely. A selection of the most useful cards can be made, or the design of the card deck can be improved to facilitate easier identification of the different phases and enhance portability. Additionally, it would be interesting to further research the effectiveness of the method when used without an experienced facilitator.

Artificial Intelligence tools' lack of intuitiveness
One main limitation of the future framing method lies in the current state of its AI tools. The level of effort required for users to obtain their desired outputs, particularly in visual AI tools, is too high. The lack of intuitiveness and the need for extensive trial and error pose challenges. Moreover, as different AI tools are employed, varying interfaces and specific requirements add complexity, such as the need for separate user accounts. As AI continues to develop and facilitate greater interaction between diverse platforms, this current weakness can transform into a strength. For instance, participants could collaborate within a shared workspace, enhancing their engagement and efficiency. It opens up the possibility for participants to collaborate within a shared workspace, enabling seamless teamwork and enhancing the co-creation process.

AI literacy
If participants lack prior experience with AI, a valuable suggestion is to allocate an additional (shorter) session dedicated to familiarizing them with AI. This session can be tailored to suit the specific needs and context of the company involved. By providing participants with insights into the practical implementation of AI and its potential applications, they can adopt a playful mindset and have time to absorb the information. This not only enhances their understanding and a greater feeling of capability

but has the ability to add an element of enjoyment through playing and exploring without the content first. An additional session has the potential to increase the overall value of the whole process. By incorporating an introductory session on AI, participants can approach the in-depth sessions with a solid foundation of knowledge. Enabling them to leverage the capabilities of AI in the future framing process in a better way. This fosters a more engaging and enriching experience for participants and maximizes the impact of the session's content and outcomes.

Application of AI
In the current future framing method, chatGPT is mostly used when diverging and Midjourney when converging. We can attest to the fact there are many ways to apply AI and within this method, other applications are also possible. Our approach was simply one of many. The mindset when using this method should be flexible and try out different ways to keep exploring ways to use AI. This can benefit the method and the outcomes. Future developments adjust the way to apply AI within the future framing method too. In the future, there might be ways chatGPT can improve ideas or help select the ones it likes the most. Maybe chatGPT will be able to translate Midjourney's visuals into concrete concepts and can translate the necessary items, and steps, or even elevate the concept.

AI hype and developments
As we ride the wave of AI hype, it's unclear where the future will take us. New regulations and developments in the AI field will have a big impact on the future of this method. The continuous advancement and adoption of AI will undoubtedly shape the future landscape of this future framing method, offering more expanded capabilities and innovative ways for exploration. Hopefully, this will make AI more accessible and user-friendly, opening up exciting possibilities. As people become more skilled in using AI, this future framing method can become quicker, easier, and even more adventurous. They can push the limits and discover new ways to apply AI in this method, exploring the full potential it offers. The future of AI is promising, and it will undoubtedly shape the way we approach this method.

Willingness to adapt
The effectiveness of the implementation of the future vision involves the willingness to adapt. This mostly involves organizations using the future framing method. This is an internal process, which the process of creation of the future vision has the ability to enhance. Although, the participants' organization should enable space and/or facilitate the change within the company or the products and services they offer fitting their future vision. The vision itself stimulates change but the environment should allow and enable the change too. This could involve money, time, or the freedom to follow-up on the actions within the future vision. Successfully finishing the future framing method is not the final step.

In conclusion, this section offered limitations, possible alterations, and considerations when using the future framing method. Additionally, it described the unknown future AI developments that will impact this method. Finally, highlighting the application of this method requires a willingness to adapt for the successful implementation of the future vision. Calling for the need to continue with the future vision after finishing the future framing method.

6.3 Personal reflection

To end this project, I will mention some of my personal reflection points collected during this project.

Talk it out
Throughout this project, one of the most inspiring and motivating aspects for me was the opportunity to engage with a diverse range of fascinating individuals and receive their valuable feedback and advice. Interacting with these individuals, exchanging thoughts, and gaining new perspectives brought fresh insights and renewed energy to the project. Eventually, when you work alone on such a big project, at a certain point you will feel stuck or less motivated. It helps to listen to someone else's opinions and get out of your own head. Conducting these workshops, interviewing, and talking to people gave me valuable information but also re-sparked my motivation and energy.

Learning curve
The progression and development of the sessions significantly contributed to my growth as a facilitator. Beginning with smaller groups, such as students, allowed me to gain confidence and familiarity with the method and process. As the sessions extended to organizations and a conference setting, I felt more empowered and capable of guiding the process with increased leadership. I see room to improve and learn more as I continue to facilitate in the future.

Enjoying the ride
I embraced a flexible and open-minded approach throughout this process, allowing me to seize opportunities and be open to new and unexpected possibilities. By listening to participants' feedback and exploring alternative set-ups, such as organizing an online workshop, I was able to reiterate on the 'old' method too. This mindset of embracing every opportunity, accepting failure as part of the learning curve, and finding joy in the process kept me motivated, even during challenging moments.

Complexity
I was initially drawn to the challenge and complexity of this assignment, but I also felt quite lost in the beginning stages. I experienced a lack of confidence in using AI and integrating the various elements of the future vision creation process. By becoming more knowledgeable through research and trying to solve complexity through design, such as the probing tool or mapping out the application of AI in each creative facilitation phase, I gained a deeper understanding and generated a better overview of the possibilities within this assignment.

Play time
An integral part of my project was becoming skilled at AI and applying it. Something I should have incorporated inside my planning at the beginning of my project, phase 1, was more play time with AI. Also playing with AI outside of the bounds of this project and to go outside-the-box with it. This play mindset helps to gain new perspectives on applying AI and learning what it can do. I recommend this for beginning AI users too.

Catalyst
As I conclude this project, I have discovered and developed a deeper appreciation for the elements I truly enjoy in my work. I believe AI can be a valuable creative tool to facilitate the design process and I am curious how to further implement it in my work in the future. The fun in facilitating, researching, and designing- and seeing the fruitfulness when integrating these three into one project. I enjoyed the possibility to include and learn about all the different session topics. Finally, this project became a catalyst for thinking about what type of impact I want to have as a designer and at what type of organization I want to create this positive impact.

Overall, this project was the highlight and most complex project of my student career but I feel proud and satisfied with its outcome. The process and learning curve within this project make me feel more confident as a designer and I look forward to seeing what I will be focusing on next. I am sure I will take elements from this graduation project and use the skills and tools I have accumulated during it in the future.

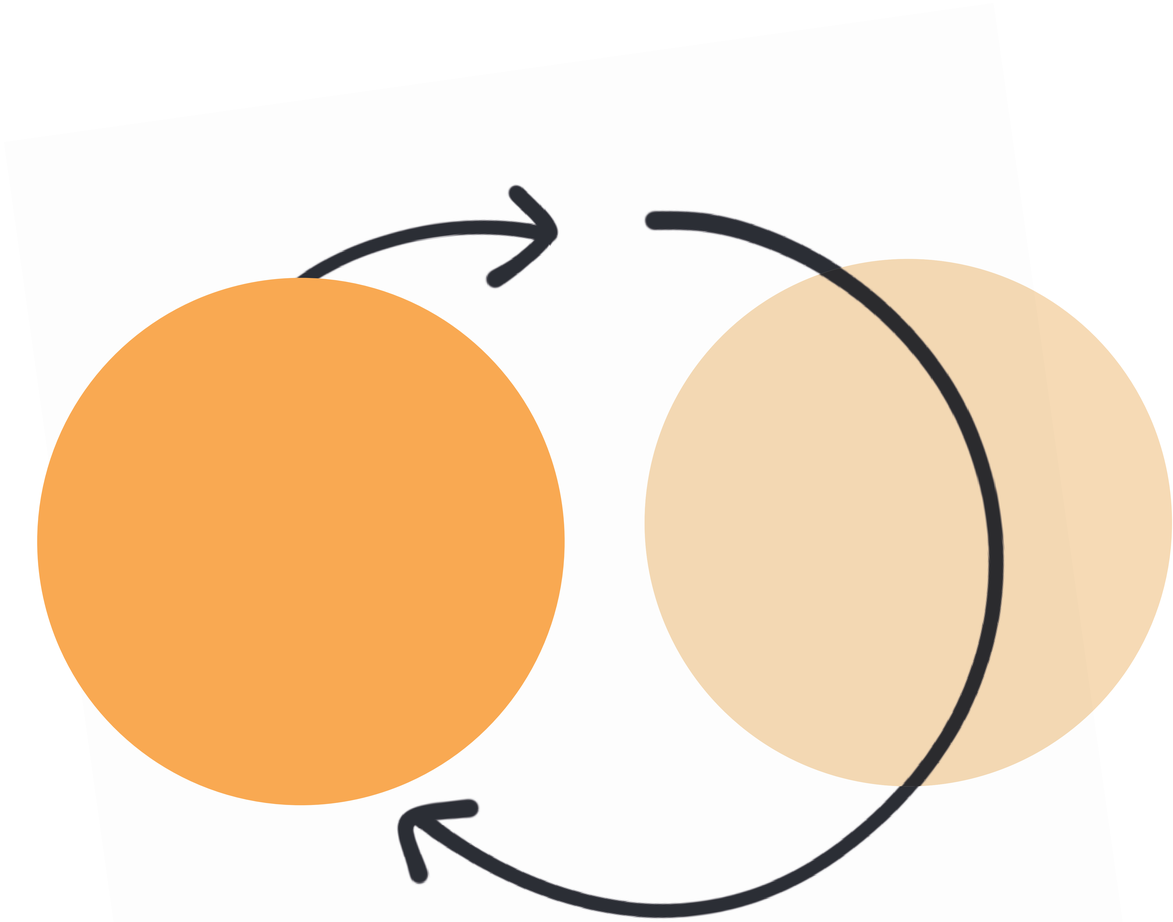


Figure 6.1 Visual representation of personal reflection

07. References.

This chapter provides the references mentioned throughout this project.

> To be human is to refuse to accept the given as given.

(S. Neiman in Black (2009), para 12),

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