Designing Open Foresight

Participatory Trainings in Developing Organisational Futures Thinking

LAB University of Applied Sciences
Institute of Design and Fine Arts
Degree Programme in Design
Bachelor's Thesis
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Abstract

Foresight views future as an open path with many alternative directions. It offers tools for organisations to prepare for risks, discover opportunities, and actively create a preferable future. Despite its wide-scale potential, foresight is often a dedicated task that remains siloed as its own, marginal function in the organisation. Bringing foresight activities closer to routine tasks, and having the entire organisation participate in future-oriented work are recommended in the development of foresight practice. To provide a solution for spreading foresight use to diverse parts of the organisation, a participative foresight training program was designed in the thesis.

The theoretical framework of the thesis builds on understanding the objectives and practice of two operations in organisations: foresight and training. The central concept of the thesis is open foresight, which signifies on an open-ended process for foresight, where broad participation with various stakeholders and environments is encouraged.

The development and experimentation of the training program was done in collaboration with a large company in Finland, using design thinking and the process of experimentation-driven innovation. At the beginning of the development process, Futures Frequency workshop model by Sitra was utilised as a base from which a new type of training was formed. Two experiments of the training were conducted, where the training materials and its framework were developed and tested in a real-life use environment. Participants of the training experiments were employees from different parts of the case company who had some or no prior experience in foresight. The training experience, perceptions on the use and benefits of foresight, and the impact and challenges after the training were evaluated with surveys.

After the development and experimentation, a Minimum Viable Product of the foresight training program was designed, and it is presented on the systemic and strategic level. The goal of the training program is to increase awareness and abilities in foresight among workers and stakeholders of different skill backgrounds. It provides a framework for organisations to develop open foresight and extend collaboration in future-oriented work. The final result outlines the training objectives, its content modules, and a program for the training workshop and webinar. It presents a perspective on discovering training participants, the training ecosystem, impact evaluation, and roadmap.

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Thesis supervisor:
Petteri Venetjoki

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Tiivistelmä

Ennakointi näkee tulevaisuuden avoimena polkuna, jolla on monia vaihtoehtoisia suuntia. Se tarjoaa työkaluja organisaatioille varautua riskeihin, löytää mahdollisuuksia ja luoda aktiivisesti toivottavaa tulevaisuutta. Laaja-alaisesta potentiaalistaan huolimatta ennakointi on usein erikoistehtävä, joka jää organisaatioissa omaksi marginaaliseksi toiminnokseen. Koko organisaation osallistumista ennakointiin ja tulevaisuuteen orientoituneen työskentelykulttuurin yhdistämistä rutiinitehtäviin suositellaan ennakoinnin kehitystyössä. Ennakoinnin vaikutuspiirin laajentamiseksi opinnäytetyössä muotoiltiin osallistava ennakoinnin koulutusohjelma.

Opinnäytetyön teoreettinen viitekehys rakentuu kahden organisaation toiminnan ymmärtämiseen: ennakoinnin ja kouluttamisen. Opinnäytetyön keskeinen käsite on avoin ennakointi, joka tarkoittaa jatkuvaa ennakointiprosessia, jossa kannustetaan laajaa osallistumista eri sidosryhmien ja ympäristöjen kanssa.

Koulutusohjelman kehitys tehtiin yhteistyössä suomalaisen suuryrityksen kanssa muotoiluajattelua ja kokeilukehittämisen prosessimallia käyttäen. Kehitysprosessin alussa hyödynnettiin Sitran Tulevaisuustaajuus-työpajamallia, josta muodostettiin uudenlainen koulutus. Koulutuksesta järjestettiin kaksi kokeilua, joissa koulutusmateriaalia ja sen runkoa testattiin todellisessa käyttöympäristössä. Koulutuskokeiluihin osallistui kohdeyrityksen työntekijöitä, joilla oli jonkin verran tai ei ollenkaan aikaisempaa kokemusta ennakoinnista. Osallistujien kokemuksia koulutuksesta, käsityksiä ennakoinnin käytöstä ja hyödyistä sekä koulutuksen jälkeisiä vaikutuksia ja haasteita arvioitiin kyselyillä.

Kehitys- ja kokeiluvaiheen jälkeen suunniteltiin ennakoinnin koulutusohjelman Minimum Viable Product, joka esittelee koulutusohjelman systeemisellä ja strategisella tasolla. Koulutusohjelman tavoitteena on lisätä ennakoinnin tietoisuutta ja kykyjä erilaisista osaamistaustoista tulevien työntekijöiden ja sidosryhmien keskuudessa. Se tarjoaa toimintamallin yrityksille kehittää avointa ennakointia ja laajentaa tulevaisuuteen suuntautunutta yhteistyötä eri tahojen välillä. Lopputulos hahmottelee koulutustavoitteet, sen sisältömoduulit sekä ohjelman koulutustyöpajalle ja -webinaarille. Se esittelee näkökulman koulutuksen osallistujien löytämiseen, sekä koulutuksen ekosysteemin, vaikutusarvioinnin ja tiekartan.

LAB University of Applied Sciences

Muotoiluinstituutti
Teollisen muotoilun koulutusohjelma
Opinnäytetyö AMK

Avoimen ennakoinnin muotoilu: Osallistavat koulutukset organisaation tulevaisuusajattelun kehittämisessä

Tekijä: Noora Staf
Kevät 2024
89 sivua

Opinnäytetyön ohjaaja:
Petteri Venetjoki

Asiasanat: Ennakointi, avoin ennakointi, tulevaisuusajattelu, koulutus, muotoiluajattelu, strateginen muotoilu, kokeilukehittäminen

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preface

The world as we know it has been redefined in the 2020s. As we observe the continuous tickertape of unexpected news headlines of pandemic, conflict, and climate crisis, one begins to wonder what more is to come. What does the future look like, and how to prepare for the unforeseeable? The air is thick with uncertainty.

If foresight wasn't on the organisation's strategic agenda before, it certainly has garnered more attention. The work of futurists and foresight specialists is experiencing an influx of demand in every industry, and this is reflected by a growing amount of research. Foresight prepares for the unexpected by viewing the future as an open path with many alternatives. It offers tools for anticipating risks and challenges. It helps to discover opportunities, and to actively create a preferable future.

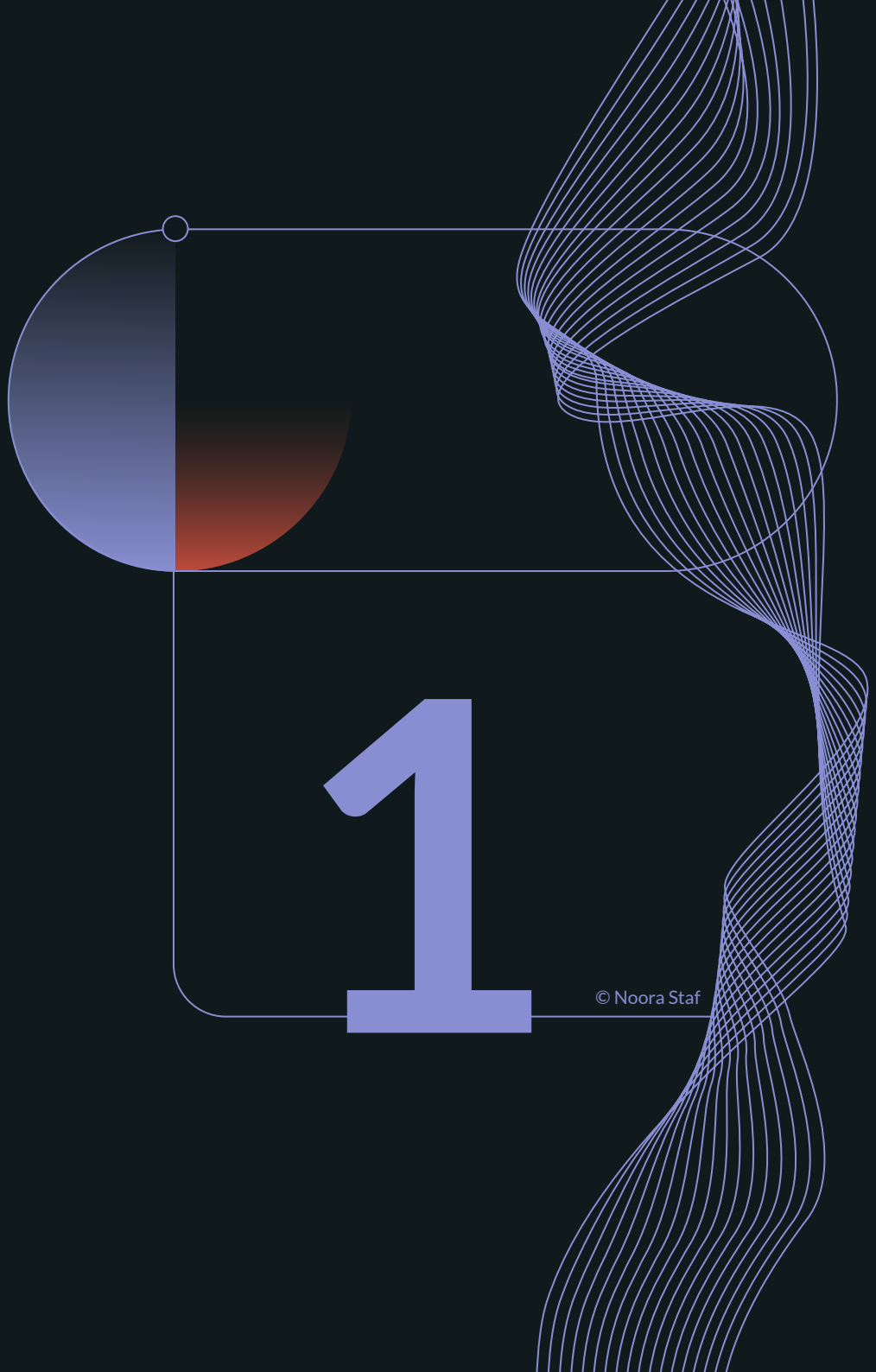
However, ambiguity and misconceptions encircle the topic of foresight. There is still road to pave from desire to the actual systemic implementation of foresight in both small and large organisations. Many seemingly basic questions hang in the air. What is foresight and how to get started with it in an organisation? What are the simple and concrete tools that anyone should or could use? What is the point of futures thinking for me, or us, as nobody knows the future – isn't that like looking into a crystal ball?

This project went on to discover what it takes to develop open foresight, finding clarity on how to spread awareness and abilities in futures thinking among workers that are new to idea. A foresight training program was designed and experimented with a large company. In the end, a practical and systemic approach to building an open foresight training program is presented.

Design plays an important role in this project and not only because it is the program this thesis falls under. In theory and in practice design and foresight share a key goal – innovation – and there are many interlinked processes and tools to utilise. While it may read "foresight" and "industrial design" prominently on the cover page, I consider this firmly as a strategic design thesis. Design processes, design thinking, and the role of design as a strategic, organisational tool is the approach that has supported the success of this project.

Finally, I will unveil my not-so-hidden agenda. Returning to the topic of this manic, changing world, the ultimate motivation for the thesis comes not from the point of view of capitalising on despair and uncertainty. My motivation lies on mastering creativity, optimism, and resilience, and this I believe can be cultivated with futures thinking and the foresight toolkit. I need to thrive, and our world needs that, too.

Noora Staf, April 2024



Introduction

1.1 Defining the topic

1.1.1 Topic

What is the role of futures thinking, foresight, and training in developing workers and businesses? How can open foresight be organised and designed? In this thesis, a foresight training program and its development are presented. The goal of the training is to increase the awareness and abilities in foresight among workers that have some or no prior experience in foresight. The training is experimented and developed in collaboration with a case company, a large Finnish B2C (Business-to-Consumer) organisation. The development process utilises the design approach and methods.

1.1.2 Challenges in recent research

Before starting this project, recent foresight research was reviewed to discover current challenges and opportunities for development. Research published in 2020 by the Finnish Parliament's Committee for the Future which analysed 20 foresight reports and a survey of 75 decision-makers, concluded with two main challenges. The first main challenge referred to the utilisation of future-related information. They discovered that there is an abundance of information, for example trend reports, available. However, access to information information is not enough in a time where decision-making processes need relevant overview of the operating environment: the challenge is lies in identifying the most important phenomena to focus on and ability to distinguish the essential from the irrevant. (Ahvenharju et al. 2020, 57-58.)

The second main challenge that emerged from the analysis referred to extending foresight from strategic level to the operative level. The research recognises the problematic of foresight being siloed into a marginal function. Foresight operations should be integrated to the organisation's activities. (Ahvenharju et al. 2020, 59-60.)

Challenges in connecting foresight to operations were discovered also in other studies. This challenge of reaching an operational and integrated approached of foresight was chosen for deeper research. Need for more foresight resources was identified, both in terms of overall foresight abilities, and foresight leadership (Koskinen 2019, 63; Virtanen 2023, 17).

The importance of interaction and broader collaboration in foresight was recognised (Koskinen 2019, 61). Bringing the futuring activities closer to routine work, and having the whole staff, not only foresight experts, participate in foresight was found as interesting development idea (Heinonen, 2019, 64; Virtanen 2023, 17). Foresight training was identified as one of current needs (Virtanen 2023, 22). The report published by the Finnish Parliament also promped everyone to practice futures thinking:

> *"Foresight is therefore not only awareness of the probable future, but also critical thinking and creativity. That is why foresight cannot be outsourced only as information acquisition, but it is a thinking skill that everyone must learn by themselves."*
> *(Ahvenharju et al. 2020, 59.)*

1.2 Process

1.2.1 Process outline

The primary goal was to work on developing impactful foresight with a large Finnish company. The project started in August 2023 with ideation and pitch development. In September and October the idea was discussed with six companies in Finland. The company was selected by the author and the project was commissioned by the company in November. At that point, the topic was defined as design of a foresight training program.

The project utised an iterative design approach referred to as experimentation-driven innovation (Hassi et al. 2015, 4). It progressed in creative cycles, with phases of discovery and definition, where ideas and assumptions are identified, and development and design, where the solution began to take shape through experiments.

Training development took place from November 2023 to February 2024 in collaboration with the case company. The focal points in this phase were the two experiments of the training: first in December and second in February.

Thesis writing started in December 2023 and the author designed the final result, Minimum Viable Product presented in chapter 5, during February and March 2024. The project timeline is presented in Figure 1.

1.2.2 Commisioner and case company

The development and experimentation of the designed concept was conducted in collaboration with a large Finnish B2C company with multiple businesses and a large product and service development organisation. Throughout the report referred to as "case company", the commisioner has an organisation specialised in strategic management, chain management, technology, design, sales, and marketing operations. They offer a variety of services through their own organisation and subsidiaries.

A large company by definition employs more than 250 people, and either have a turnover of over 40 M€ or balance sheet of over 20 M€. The case company is by this definition well in the category of a large company.

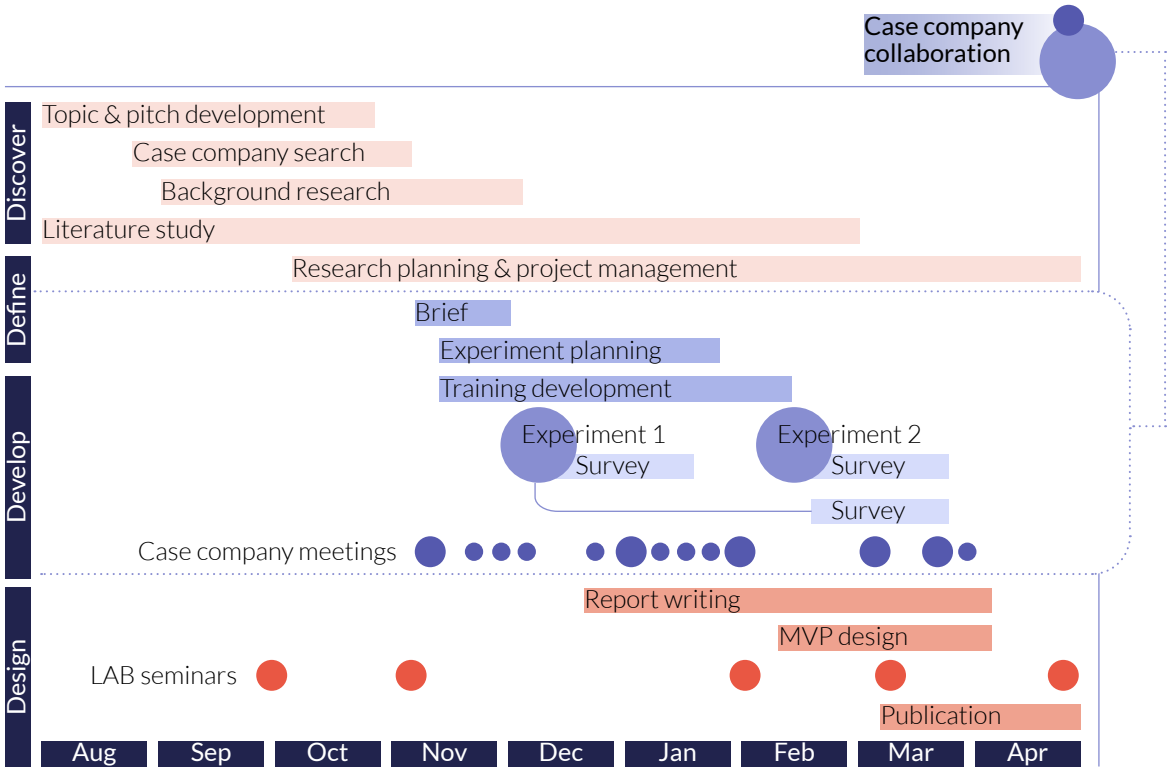


Figure 1. Thesis process and timeline

1.3 Research objectives and limitations

1.3.1 Objectives and opportunities

The project started with an objective to increase the application and impact of foresight. The idea of designing a foresight training program was selected, and the program was developed with a case company using experimentation-driven process. The goal of the training was to increase awareness and abilities in futures thinking and foresight among workers with some or no experience in foresight. The impact of the training, and perceptions on the use and benefits of foresight among the training participants were evaluated with surveys.

Collaborating on the project with a case company that has a large organisation and several business functions presents opportunities for diverse, practically oriented research, where development of the training, its materials, and methods can be experimented in a real-life setting. While the training is developed with one company, the ideal end result is a training program that has general use for a range of organisations.

The overarching objective is to continue the research of open foresight and bottom-up foresight, and to support its practice with an approach that makes foresight accessible, understandable, and usable to new people at different functions and organisational levels. This provides an opportunity to promote future-readiness of companies and the application of foresight with a training model that can increase participation and inclusivity among foresight practice.

1.3.2 Research questions

Research question 1

What kind of training program can develop awareness and abilites in foresight among workers operating outside the field of foresight?

Supporting questions

How to define foresight? What foresight information, processes and methods have general application? What are the key elements of a training program design? What skills, process, information or other results should the training program produce? What foresight training programs are available?

Research question 2

What work tasks and projects can benefit from the use of foresight and futures thinking?

Supporting questions

What objectives and challenges are associated with the practice of foresight? What skills and processes related to foresight? How is foresight organised and managed in companies?

1.3.3 Research methods and framework

The design result of the project was a foresight training program. The research methods were chosen so that they support the design process and results (Figure 2).

Literature study forms the theoretical basis, focusing on two topics: foresight in organisations and training in organisations. The theoretical framework builds the conceptual understanding of the research topic, and influences the results. Chapter 2 on foresight outlines the training objectives, contents, ecosystem, impact and roadmap. Chapter 3 on training formulates the training planning and program. These form the basis for the design process, presented in chapter 4.

Experimentation was utilised for two pilot trainings, to test and refine the training, to learn who might be the ideal participants, the type of materials, instruction, and format suitable for the training. During the experiments, observations were made on the training progression, and the completion of the training tasks.

Surveys were distributed to the training experiment participants. Their purpose was to evaluate and gain feedback on the pilot trainings, and to map the participants' perceptions of tasks and projects futures thinking and foresight practice. Two surveys were distributed (Table 1).

Table 1. Surveys

Training survey (4.3.2)	**Follow-up survey** (4.5.2)
Population	
Training group 1 (Dec 2023) Training group 2 (Feb 2024)	Training group 1 (Dec 2023)
Distribution	
At the end of the training	10 weeks after the training

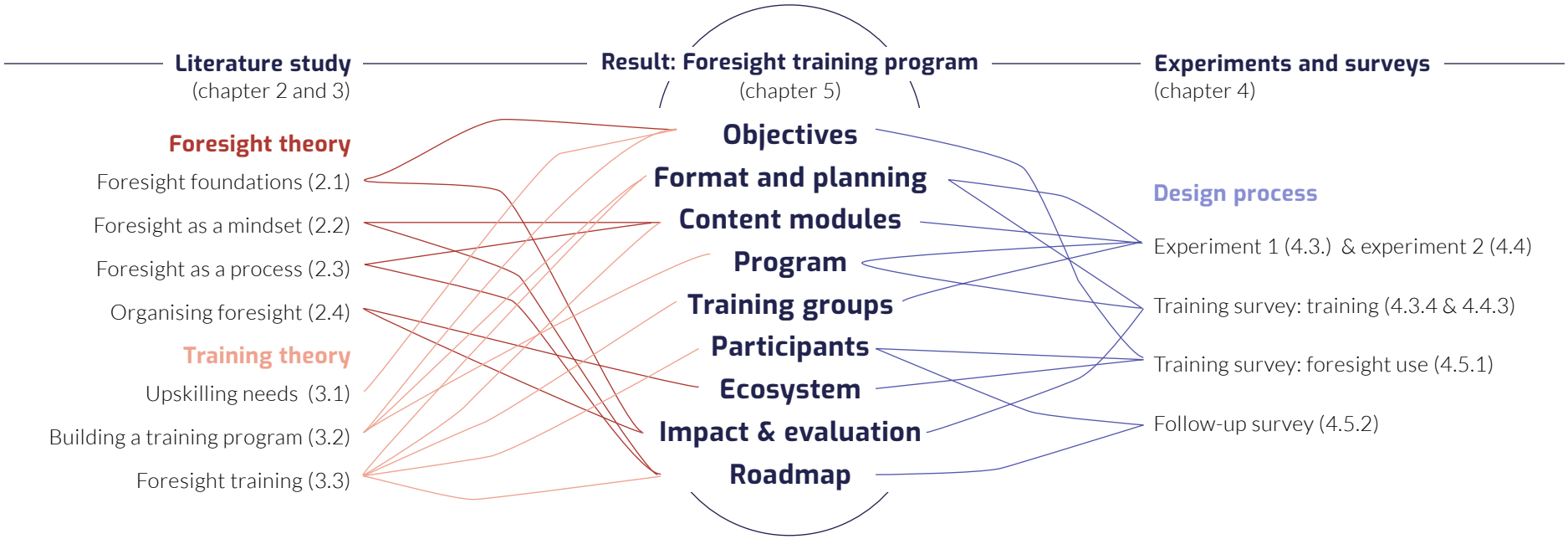


Figure 2. Connections from research methods to design results

1.3.4 Limitations

The background and literature research were focused on foresight practice and its organisation, with a secondary focus on training for working professionals. Some of the background research excluded from the scope of this report were three informal, unstructured interviews with individuals who were experienced in foresight training and research. The objectives of the interviews were to gain understanding on current challenges in foresight research and practice, which helped to refine the research approach, and to prepare for organising and facilitating the trainings. The research limitations resulted from the time limitations set for a thesis at this degree level.

During the design process, the focus was on experimentation and development of the training format and its contents, and on evaluation of the training participants' perceptions and experiences after the training with surveys. Topics that were excluded, or remain at the outer fringe of the scope, are the role of spatial arrangements, lecturing and facilitation in the training, as well as training pedagogy and knowledge development mechanisms. The developed training content deck would neither be presented in its entirety.

Working with a large organisation on the design process was instrumental in meeting the set goals. As foresight is a strategic function by purpose, business-critical information would be shared during the training development and the training experiments. Maintaining confidentiality limits the report composition.

1.3.5 Quality, reliability and ethics

Thoughtful research plan, selecting the appropriate research setting and reporting style are a measure of quality research, as is commitment to research reliability, validity, and ethics. (Tuomi & Sarajärvi 2009, 127, 228). Throughout the work, **validity** is provided by reviewing if what was outlined as the research subject in the beginning would be delivered in the end. A factor of **reliability** is whether the research can be replicated and for this the focus was on careful documentation and clear reporting. As the research includes a case study, there are limitations in generalisation of the results.

When future workshop is a part of a research process, ethical considerations include examining the impact for the participants, facilitators, organisers and other influencing parties (Armanto et al. 2022, 228) and these aspects were considered. The research objectives were explained to the experiment participants.

Regarding personal data, particularly the surveys conducted, the goal was to not collect any unnecessary personal identifiers. All effort was made to neither examine nor present any data in way that it could be connected with any individual. In addition, in writing and publishing the report, it is important to be respectful of people and work within the research community. All sources used are clearly indicated throughout the thesis.

1.3.6 Report structure

Chapter 1 presents the topic, research question and limitations.

Chapters 2 present the theoretical framework on foresight, and **chapter 3** on training. These form the foundation for the practical development work presented in the following chapters.

Chapter 4 describes the development process, where the idea was planned and experimented in collaboration with the case company.

Chapter 5 presents the final result: a Minimum Viable Product for a foresight training program.

Chapter 6 draws conclusions on the process, reflects learnings and outlines suggestions for future research.

2

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Foresight in organisations

2.1 Foresight foundations

Foresight shapes a path towards a preferable future. It looks at how individuals think and behave: foresight is a mindset that challenges assumptions and imagines different options for the future. It also looks at how organisations operate: foresight is a process and a toolkit that can direct strategy or create innovations. This chapter introduces the topic of foresight and its role in companies.

2.1.1 Foresight vocabulary

Futures thinking and foresight are a part futures studies, the overall research field that explores humanity from a futures point of view. Futures studies systemically looks towards the future, assesses change, and constructs possible paths. (Malaska 2000, 239.)

While the terms futures thinking and foresight may be used synonymously, there are distinct uses. Futures thinking (fin. tulevaisuusajattelu) is described as the broader and more conceptual term, and can be more often found in academic texts. Foresight (fin. tulevaisuuden ennakointi) focuses on future-oriented activities, processes, and methods that people and organisations. (Aalto et al. 2022, 12.) You can find foresight for example in the corporate handbook and in public policies. Foresight term can be supplemented with another word relating to the purpose or organisational domain for foresight, such as strategic foresight or corporate foresight (Rohrbeck & Kum 2018, 105; Aalto et al. 2022, 12).

Minna Koskelo, adapting from Roy Amara (1981), outlines the key principles in foresight: the future is unpredictable and undefined, thus the future can be created and there are many possible futures (Koskelo 2021, 55). This explains the plurality that often comes in the vocabulary: the 's' in 'futures' thinking.

Further into the vocabulary, for the process and results of foresight, verbs such as 'to envision', 'to anticipate', 'to shape', and 'to future' appear (European Commission 2023; Smith & Ashby 2020, 22-23). On what not stay, paradoxically, even if we say 'foresight', the verb 'foresee' may inadvertently lead to imagining a fortune teller; a comparison to steer away from. Words such as 'predict' and 'forecast' are avoided (Aalto et al. 2022, 12) to separate foresight from forecasting; foresight sees many possible futures, and forecasting is used when one line towards the future is planned, only as far as can be reliably predicted (European Commission 2023; Koskelo 2021, 55).

In this report the term 'foresight' is used collectively for cases where both futures thinking and foresight apply to that context. In addition, acts of futures thinking and foresight are in this report referred as 'to future' or 'futuring'.

2.1.2 Objectives for foresight

Foresight motivations

Foresight is driven by several motivations and challenges. The overarching motivations for foresight are change and uncertainty (Malaska 2000, 239; Hiltunen 2012, 24; Smith & Ashby 2020, 20-21; Koskelo 2021, 30). The drive for foresight may be assigned to certain types of changes, such as the pressing climate crisis (Poussa 2021, 8) or, to change in general, such as complex and dynamic circumstances of today's global business.

While studying change, foresight is careful to inspect it from multiple perspectives. It examines what drives change, what is its direction, what is the breath and velocity of movement, and how the velocity is developing. It is important to recognise that not all movement have constant or - how we often feel - increasing pace, but that change can also be slow or slowing down, and that some things remain unchanged. (Hiltunen 2012, 23-26.) Organisations commonly look for change outside its walls, in its environment: changes in competition, in technology, and in the social, political, or financial landscape (Kononiuk et al. 2017, 26). The motivation for this may be to anticipate change, to prepare for it, or to identify new business opportunities (Kononiuk et al. 2017, 23).

Foresight may come with economic motivations. René Rohrbeck and Menes Etingue Kum performed a longitudinal research that measured the future preparedness of a set of companies in 2008 and the impact of foresight on their performance in 2015. They discovered a positive connection between foresight and the balance sheet, stating that those companies that were classified as "vigilant", meaning active in foresight were, on average, 33% more profitable than the benchmark, "average" companies. (Rohrbeck & Kum 2018, 113.)

Foresight functions

To understand the motivations and uses for foresight, research points to Patrick Becker's (2003) often-cited corporate foresight studies, where he outlined five functions for foresight, illustrated in Figure 3.

This is supported by recent research on the use of futures knowledge in Finnish organisations, discovering strategic and long-term planning, R&D, and innovation management as the common uses for futures knowledge (Pouru et al. 2019, 88). Foresight directs the organisation's decision-making (Calof et al. 2012, 84) and is a part of the strategic toolkit (Hiltunen 2012, 227). It can have a role in product development, create competitive edge and facilitate innovation (Dufva 2015, 18). Foresight results can build partnerships as well as support communications and brand-building (Koskelo 2021, 114).

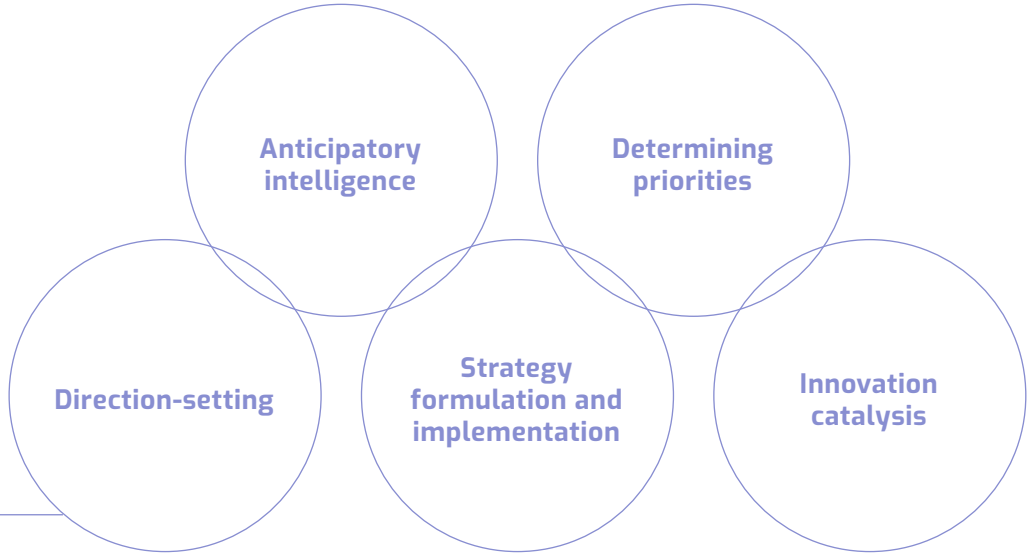


Figure 3. Functions for foresight, adapted from Becker (2003, 1-2)

2.2 Foresight as a mindset

2.2.1 Challenging assumptions

In foresight, how we think and perceive is always under scrutiny. 'Futures thinking' is not merely thinking, where one processes ideas about the future. It is also an activity one examines and challenges the way they think, process, or perceive ideas about the future.

As we understand the world today, nobody has been to the future (Aalto et al 2022, 347). Our impressions of the future are individual or collective assumptions. These impressions may be limited by stereotypical images of the future (Koskelo 2021, 119), or so called "official futures", which are the dominant, fixed perspective of the future (Smith & Ashby 2020, 20-21).

Humans are creatures of habit, swayed by feelings and desires. We cherish utopian, optimistic ideas about the future. We fall victim to acute pessimism, possibly be enforced by dystopian images of the future, typical to the entertainment industry science fiction. Or, we trap ourselves with linear thinking patterns, assuming events to continue with a similar trajectory. (Hiltunen 2012, 62-63; Koskelo 2021, 124-125.)

Foresight utilises behavioural sciences and the study of human cognitive skills and psychology to understand our thinking patterns relating to the future (Hiltunen 2012, 56; Dufva 2015, 37; Koskelo 2021, 117). Our perception is deceptively selective, making it hard to notice slow, incremental change, or to detect meaningful data from the noise (Hiltunen 2012, 71).

To build more effective foresight, Pouru, Dufva and Niinisalo (2019) explored how futures knowledge creation and utilisation are practiced in Finland. They concluded that current futuring practices have a narrow scope and operates in a separate block. To build more effective foresight, their remedy is to broaden the scope of planning and horizon scanning as well as to broaden minds by challenging assumptions about the future and by considering foresight as a continuous capability. (Pouru et al. 2019, 90.)

2.2.2 Futures consciousness

A helpful model to develop the futuring mindset comes from a framework of futures consciousness published in by Ahvenharju, Minkkinen and Lalot (2018, 16). Described as a holistic approach, it refers to an ability to consider alternative futures, characterised by empowerment to strive towards a universally better future (Ahvenharju et al. 2018, 21). Figure 4 illustrates the five dimensions of futures consciousness.

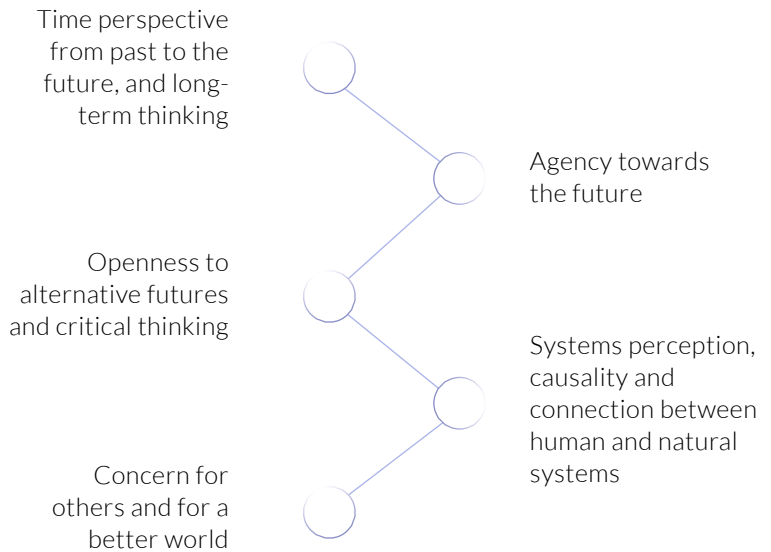
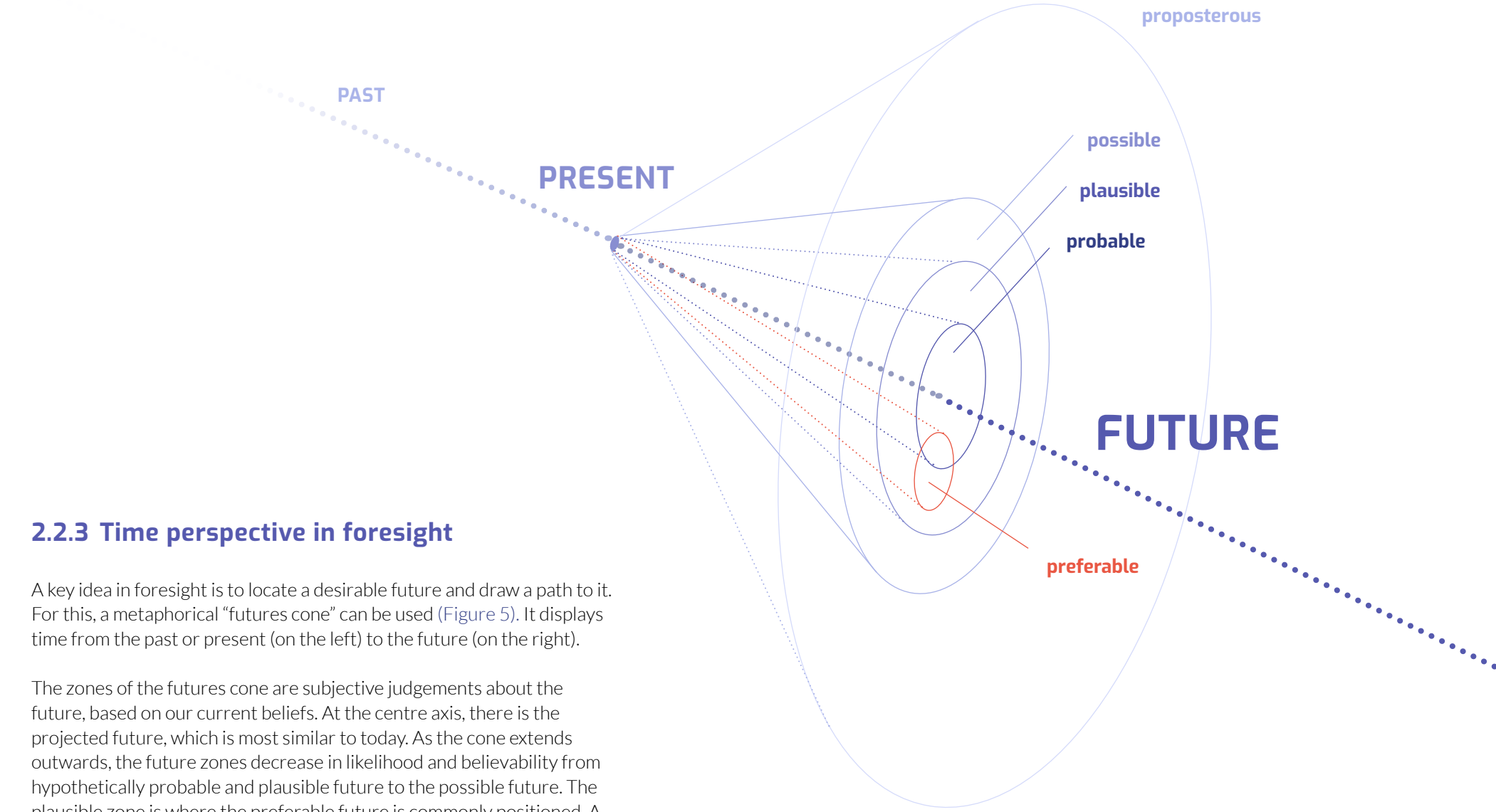


Figure 4. Futures consciousness, adapted from Ahvenharju et al. (2018, 13-16)´



2.2.3 Time perspective in foresight

A key idea in foresight is to locate a desirable future and draw a path to it. For this, a metaphorical "futures cone" can be used (Figure 5). It displays time from the past or present (on the left) to the future (on the right).

The zones of the futures cone are subjective judgements about the future, based on our current beliefs. At the centre axis, there is the projected future, which is most similar to today. As the cone extends outwards, the future zones decrease in likelihood and believability from hypothetically probable and plausible future to the possible future. The plausible zone is where the preferable future is commonly positioned. A preposterous future - considered impossible - lies beyond the possible realm. (Voros 2017.)

Figure 5. Futures cone, adapted from Voros (2017)

2.2.4 Systemic and creative mindset

Systems approach and systemic thinking are a field of study that supports foresight (Malaska 2000, 4; Dufva 2015, 29). Successful foresight utilises the systemic perspective to take into account all relevant and competing forces. In practice, it is the skill to grasp complex topics and as a result, for example, develop systems maps onto which foresight can be built. (Calof et al. 2012, 90).

Along with canvasing and mapping the world with a systemic mindset, it is important to untangle the mind and give space for creativity. Pentti Malaska states that "futures research is nothing else but refinement of the every day futures thinking, i.e. perceiving and envisioning reality" (Malaska 2000, 2). Elina Hiltunen (2019, 11) continues this idea with her formula for foresight (Figure 6). Foresight needs facts as the future is some type of continuum of the past – such as seen illustrated by the futures cone - and both current and historical data helps to project future timelines and visions. Along with facts, foresight requires imagination. (Hiltunen 2019, 11.) Imagining different visions or scenarios is a method to method to map relevant choices (Kononiuk et al. 2017, 23).

To spark our imagination of the desired future, foresight makes us ask "what if" (Sitra 2023). With relevant information and critical questions, we can validate our thought patterns and, upon them we can build inspirational and actionable visions of the future.

Imagination is not final objective foresight, but a way to spark action and movement. (Aalto et al. 2022, 348-349.) Foresight does not stop at vision: it prompts to take an active approach in shaping the future. In organisations this is helped by the process and toolkit of foresight, which is discussed in the following chapter.

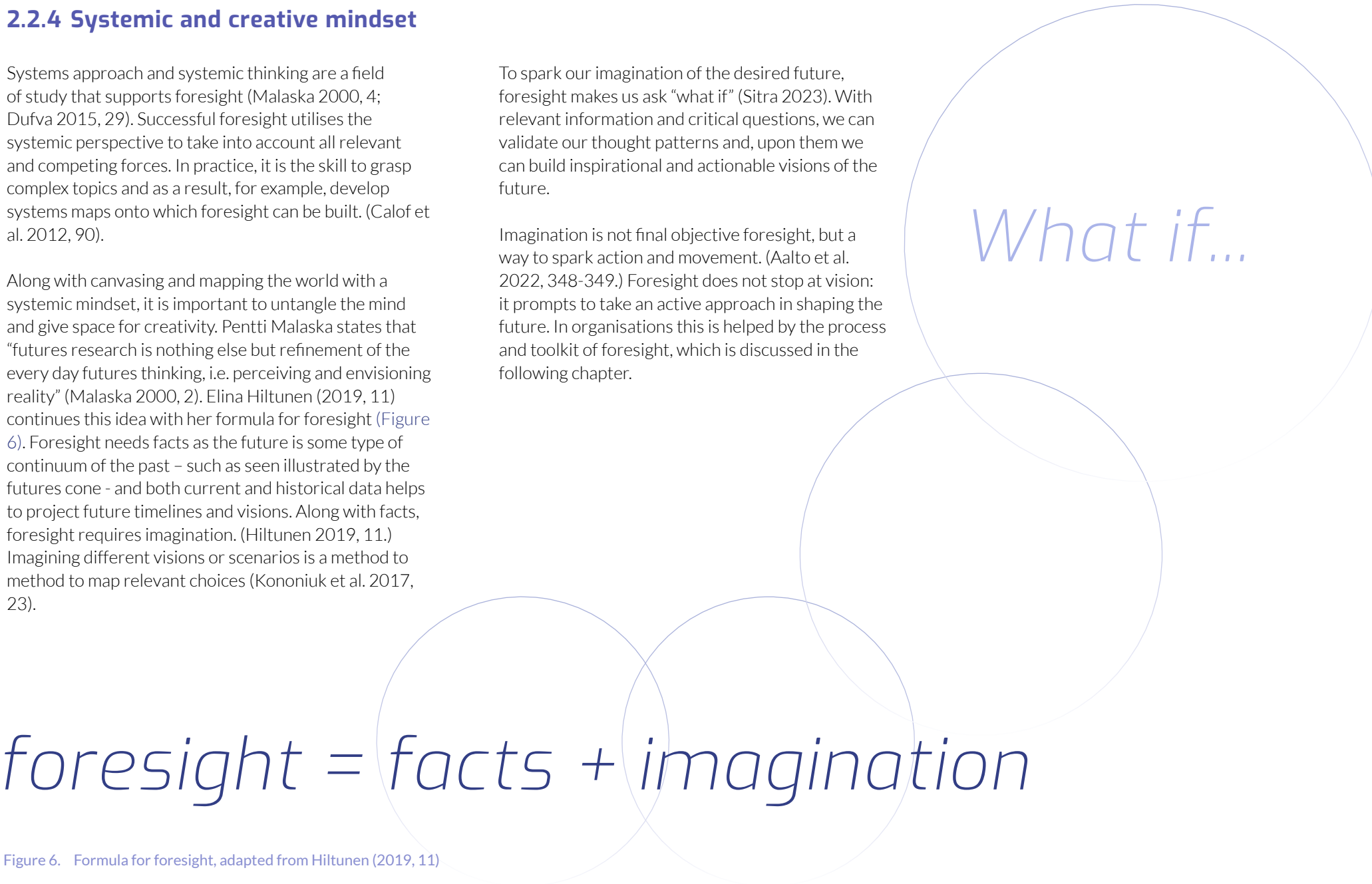


Figure 6. Formula for foresight, adapted from Hiltunen (2019, 11)

2.3 Foresight as a process

In the corporate setting, foresight relies not only on a mindset, but on processes. The processes utilise a set of tools and organisations develop structures to support foresight practice. This is the second dimension of foresight, which is examined in this chapter.

2.3.1 Foresight process

A process is a set of stages to complete an activity. As there can be different purposes for foresight, it is understandable that there are a number of process descriptions in foresight literature. Among them, there are clear similarities. Firstly, foresight is described as interconnected process (Popper 2008, 66), often drawn as a continuous cycle where learnings cumulate and insights feed back to the cycle (Kononiuk et al. 2017, 30; Smith & Ashby 2020, 30).

Secondly, the process framework tends to follow along similar stages with corresponding activities that begin with framing or scoping the project, proceed with collecting data from past and present, and continue with forecasting where alternative futures are developed. This is followed by planning a strategy and actions that enforce the plans. (Popper 2008, 67; Hines & Zindato 2016, 184.) An approach of Hines and Zindato (2016, 184) presents the foresight framework in five steps, illustrated in Figure 7.

Figure 7. Foresight process, adapted from Hines & Zindato (2016, 84)

2.3.2 Foresight methods

The foresight process relies on recognised methodology and a toolkit. Organisations that practice foresight tend often employ multiple foresight methods (Popper 2008, 70). To discover suitable methods, companies can evaluate methods through their various categorisations.

In Rafael Popper's research on how companies select foresight methods, Popper outlines the foresight methods though four capabilities, describing how each method processes information: creativity, expertise, interaction, and evidence. The methods are mapped on the Foresight Diamond, where each method has mix of capabilities and qualities, and a certain degree of popularity. (Popper 2008, 64-66.) Figure 8 illustrates the Foresight Diamond (Popper 2008, 66) with example methods.

An organisation can utilise the Foresight Diamond to discover suitable methods through attributes that support the types of data or research capabilities they possess (e.g. qualitative vs. quantitative) or methods that match the types of skills found among their staff (e.g. expertise and creativity). For example, a widely used foresight method is scenarios (Popper 2008, 69; Koskelo 2021, 98). According to Popper, scenarios are a qualitative method, driven by creativity and somewhat equally based on expertise and interaction. Futures workshops would be described as highly interactive and slightly more creative than expertise-based (Popper 2008, 66).

Foresight methods can be also categorised based on their uses or functions. Kononiuk, Sacio-Szymańska and Gáspár presented four functional approaches for foresight: foresight for strategy building, to support innovation creation, to navigate opportunities and threats, and to set strategic directions and investment priorities. To take the previous example of scenarios method, it is identified as a key foresight method for strategy building, and for example technology roadmapping would be optimal for navigating opportunities and threats. (Kononiuk et al. 2017, 28-29.)

When evaluating methods, also the length of time perspective applied to foresight should be considered. On one end, the motivation could be to discover long term uncertainties or vision, where scenario work or horizon scanning might be employed. On the other end, foresight method could provide input for managing near-future threats and opportunities, which might involve preparation, planning, and policy-making. (Aalto 2022, 353-354). This type of mapping can help organisations to pinpoint a foresight method to their specific research capability, purpose, or horizon length.

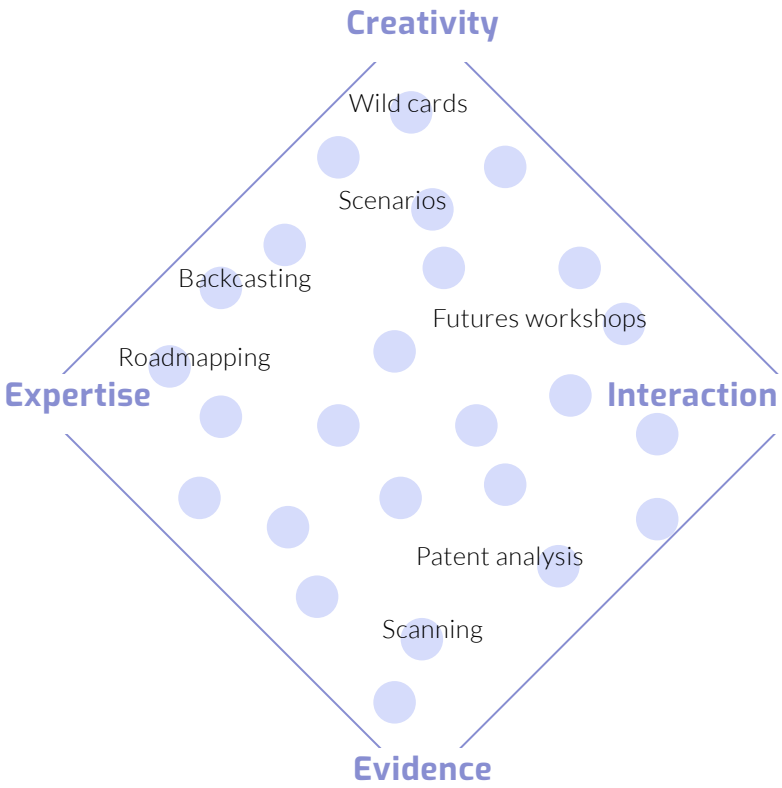


Figure 8. Foresight Diamond, adapted from Popper (2008, 66)

2.4 Organising foresight

2.4.1 Shaping a foresight organisation

The company's objectives and structure shape how foresight appears in organisations. Foresight can be outsourced. However, the benefits of having an internal foresight capability comes from building it on internal knowledge and capabilities. As Madeline Ashby puts it (Smith & Ashby 2020, 193):

"You wouldn't borrow someone else's strategy, why borrow their future?"

Companies building a foresight organisation should implement a system that matches the current or aspired processes and functions, the technologies and data at hand, and the employee skills and leadership systems (Aalto 2022, 354). In large companies, operations - such as foresight - are explained and developed through organisational hierarchies and structures. Patrick Becker outlined in 2003 that foresight can be arranged in large organisations in three distinct ways: centrally at the corporate level, divided at the business unit level, and laterally by temporary task forces. The corporate level foresight was found the most common in his research, and there it was often a task under the enterprise's central research and development organisation. (Becker 2003, 2.)

Becker (2003, 2) went on to categorise foresight operations into three organisational forms. Collecting Post refers to companies with low levels of need and structure in foresight, where "part-time futurists" are dispersed in the organisation. Observatory is a more cohesive and strategic organisational form, with by an autonomous and specialised full-time foresight team. Think Tank is the broadest and most knowledgeable organisational form for foresight, and the work of this unit of full-time generalist futurists may extend from its home organisation to socio-economic and regional topics. (Becker 2003, 2-3.)

Becker's categorisation was extended in 2006 by Cornelia Daheim and Gereon Uerz with Outsourcer, which does not mean an outsourced team, but a small, skilled unit or a project team associated with foresight. It uses the internal perspective to integrate outsourced futures knowledge to the home organisation's operations. (Daheim & Uerz 2006, 5.)

2.4.2 Leading foresight

Organisation of foresight is connected to how it is lead. In a study by Daheim and Uerz (2006, 3) on corporate foresight in European large companies, 75% of the companies studied considered foresight an executive responsibility and in 60% of the cases top management regularly took part in foresight. The rationale this "top-down" lead foresight is explained by the central role of top management to facilitate integration, their overarching viewpoint, and ability to implement necessary decisions. (Daheim & Uerz 2006, 7). However, in their study, Daheim and Uerz (2006, 11) recommended having broader participation and for this, the "bottom-up" approach can provide an framework.

The bottom-up foresight surfaces from the fundamental change of in the consumer markets and business operations, where value creation is driven by innovation and user-focus (Munnecke & Lugt 2006, 11). The bottom-up foresight involves the front-line workers to harvest emerging and tacit knowledge on the micro-level. Radical innovation is created, which is in contrast to the top-down approach that develops incremental innovation and provides a macro-level analysis. (Munnecke & Lugt 2006, 5.)

The two approaches, top-down and bottom-up, are not incompatible; in fact, they can be "two sides of the same coin" (Munnecke & Lugt 2006, 5). In their innovation framework, top-down foresight delivers analysis and futuring strategies on the macro-level, and bottom-up foresight supports the process with a solution-oriented examination of the user context (Munnecke & Lugt 2006, 9),

This multidirectional approach to foresight has its supporters. Hiltunen urges organisations to distribute foresight responsibilities to all workers (Hiltunen 2012, 237). Pouru, Dufva and Niinisalo support foresight practice where "futures knowledge is connected to the organisational everyday reality" (Pouru et al. 2019, 90). Koskelo envisions that individual contribution to foresight should be nurtured and foresight education becomes universal (Koskelo 2021, 264-264).

2.4.3 Open foresight

While the success and impact of foresight relies on commitment to the process and relevant objectives, it also relies on ensuring high levels of participation, and building a "foresight culture", conclude Daheim and Uerz (2006, 13-15). Increasing participation is echoed by Mikko Dufva, who suggests that improving the creation of futures knowledge calls for a continuous process with more adaptability and flexibility, with diverse and broad participation (Dufva 2015, 48). In organising foresight, open foresight is a framework that builds foresight culture and involves diverse stakeholders.

Daheim and Uerz describe open foresight as the latest step in the evolution of corporate foresight: an action- and innovation-oriented process that doesn't only explore change, but shapes change (Daheim & Uerz 2006, 13). The main motivations to open the foresight process are outlined in by Rau, Schweitzer and Gassman, illustrated in Figure 9 (Rau et al. 2014, 30).

Similar to open innovation, open foresight involves a wide range of elements in future-oriented work. It includes external stakeholders, such as users, and external data in the futuring process (Miemis et al. 2012, 92). This supports the network approach of foresight, where a foresight ecosystem builds a shared knowledge pool (Pouru et al. 2019, 89).

In addition to include diverse stakeholders, open foresight should also explore diverse themes and environments across different sectors. It is recommended that the process of open foresight is open-ended, extending past individual objectives. (Daheim & Uerz 2006, 15.)

To organise open foresight, Miemis, Smart and Brigis highlight that the structure should have sincerely collective and participative elements, and provide incentives for individuals to participate. To remove disincentives and barriers, there needs to be open access, which in today's world means having an online component. (Miemis et al. 2012, 93-94).

Foresight workshops are seen as method for open foresight, inviting the employees to take part in the foresight process. As the result, the broader participation in foresight brings a wider knowledge base back to the innovation management (Rau et al. 2014, 27). This is discussed in chapter 3.3 2.

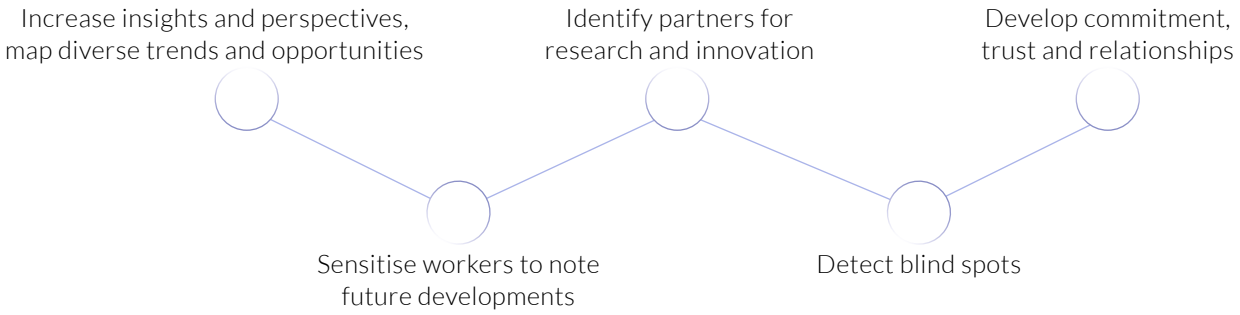


Figure 9. Motivations for open foresight, adapted from Rau et al. (2014, 30)

2.4.4 Foresight evaluation and best practices

Developing foresight practice in an organisation requires evaluation of current foresight capabilities. For this, so called maturity frameworks can be used. One example, Foresight Maturity Model (FMM), was published in 2009 by Terry Grim. It measures elements of the foresight process stages - framing, scanning, forecasting, visioning and planning - with an addition of one element: leadership. The maturity stages start with "Ad hoc", where foresight is scattered and unchoreographed, moving to "Aware", "Capable", "Mature", and ending at the fifth level of "World-class", where you will leaders of foresight that create new methods. (Grim 2009, 71-73.) Schreiber and Berge condensed the maturity model into four stages, and in 2019 Deborah Scheiber presented an updated view (Figure 10) that addresses topics such as sustainability, diversity, globalisation and rapid technological developments (Schreiber 2019, 42).

Maturity models can provide a yardstick to qualitatively - and even numerically - assess the organisation's foresight capabilities. They can serve in developing internal foresight or help the sourcing team to evaluate qualifications of foresight service vendors. Schreiber provides a list of questions that can guide foresight development, including information access, understanding of time, organisational structure, emerging roles, and resource allocation (Schreiber 2019, 40-41). Grim also provides explicit recommendations for organisations aspiring to level up in foresight. For example, to advance from the first to the second level of foresight maturity, he suggested utilising education. (Grim 2009, 72.)

The ideas relating to open and bottom-up foresight can be found among the best practices. A mark of foresight maturity, advancing to third level of the Schrieber-Berge maturity model, there is an expectation to open foresight for wider participation, gather input from the whole organisation, and to promote inter-disciplinary practices (Schreiber 2019, 45).

In another recent study, an evaluation model to discover the impact of foresight at the Finnish Innovation Fund Sitra was presented. Based on the study, the evaluation of foresight practice should be - much like the foresight process - participatory and interactive. In the evaluation, a holistic perspective and multiple viewpoints should be considered. The study recommended to clarify the context, such as actors and operating environment for foresight, and to identify the elements of futures knowledge used, including data and processes. In addition, they suggested to examine how organisational learning supports futuring. Understanding the strategic mission and linking that to practical and operational levels of foresight were recommended. (Vataja et al. 2019, 326-328.)

Not to be trapped by evaluation systems, the level of foresight and the practices used should fit the organisation's resources, ambitions, and the industry they work in. Grim notes that an organisation should attempt to gain the highest level of foresight maturity only when their business success depends on top notch foresight; each company should understand the importance of foresight for them and plan their investments accordingly (Grim 2009, 74).

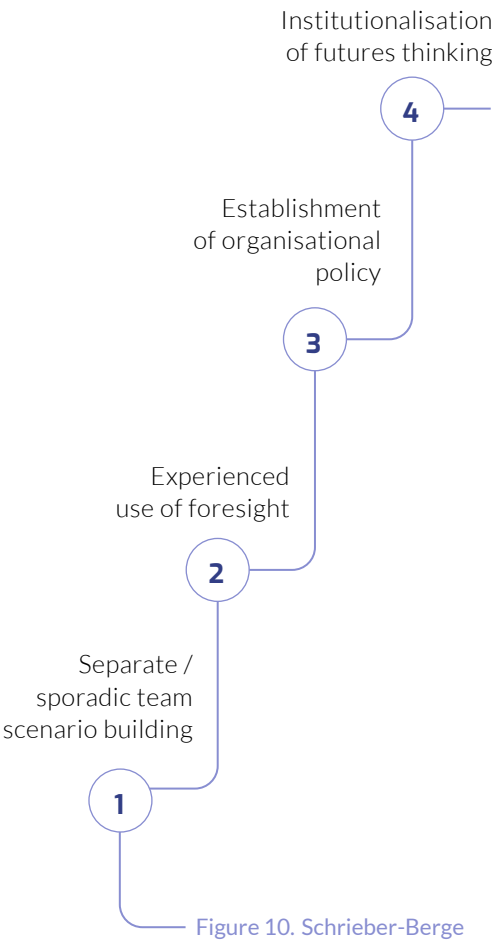
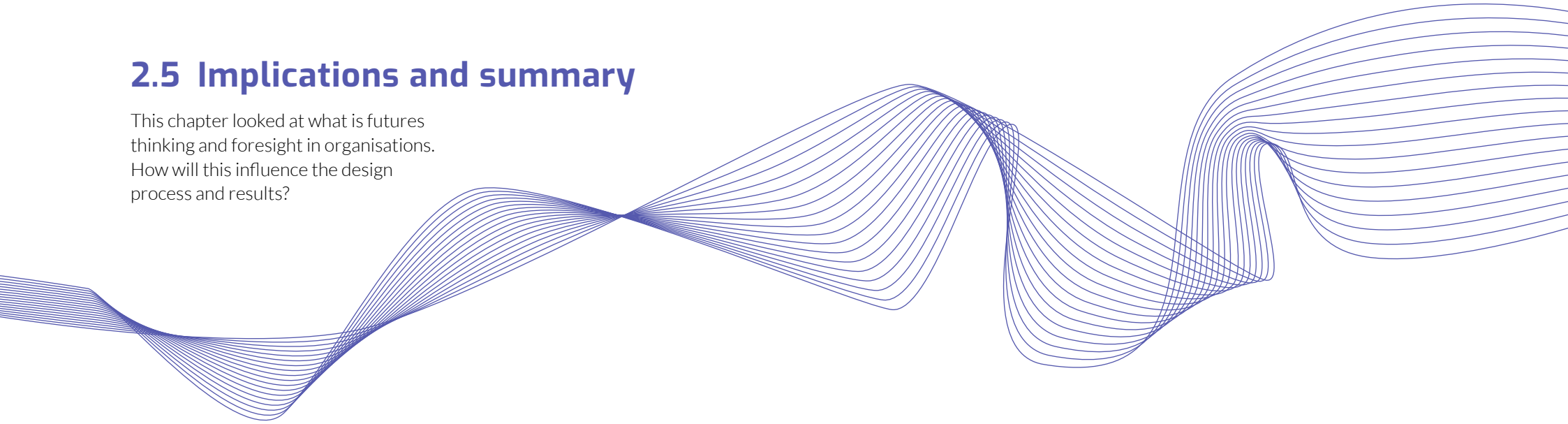


Figure 10. Schrieber-Berge maturity model for futures thinking, adapted from Schreiber (2019, 36)

2.5 Implications and summary

This chapter looked at what is futures thinking and foresight in organisations. How will this influence the design process and results?



Foresight relates to understanding change, envisioning alternative futures and creating actions towards a preferable future. Foresight often enters the picture when organisations are choosing optimal paths in an evolving landscape, for example to direct the company's strategy or to create an innovation roadmap.

On one hand, futuring is a mindset and skill to develop. On the other hand, it is a cyclical process to implement, supported by a diverse toolkit. The company's objectives and structure shape how foresight is organised. Maturity assessment can provide best practices to improve the impact of foresight.

What are the implications of chapter 2 to the design process of the foresight training program presented in chapter 4? The current development path on foresight research recommends developing an open and interdiscplinary approach to foresight where broad participation is central to success. This supports the development of a participative training program. Education is also described as an effective way to improve the organisation's foresight maturity, assuring that training can be a meaningful way to develop foresight practice.

How does the theory appear in the final result of the design process in chapter 5, the foresight training program? In the first part of this chapter (2.1) meaning was assigned to foresight by looking at its central terms and its key motivations for companies. The second (2.2) and third part (2.3) looked at developing capabilities in foresight: on one hand the challenging, systemic, and creative mindset, and on the other, the process and methods that are utilised. These three parts will form the main content topics of the training program.

The fourth part (2.4) looked at how foresight can be structured in companies. This helps in the design process to strategically position and connect the training program within the company, to engage the right participants and resources, and to discover the training ecosystem.

Training in organisations

3.1 Upskilling needs in companies

Companies have a long history in training their workers. As businesses and industries evolve, training is a way to bridge critical competence gaps, to pass information, and to teach skills that are in demand at that moment. This chapter will review the current motivations to train workers, and after that the key stages and components of the training program design.

3.1.1 Motivations to train workers

What motivates companies to train workers? Future of Jobs Report 2023 by the World Economic Forum (WEF) addresses the global development of worker roles and skills. The report summarises a research of 803 companies with a collective total of 11.3 million employees across industries and world regions (World Economic Forum 2023, 7).

From the report, current drivers for training workers can be detected. Firstly, upskilling workers improves the company's resilience, as **skill gaps are seen as the greatest barrier to business transformation, much larger than outdated regulations or shortage of capital** (World Economic Forum 2023, 49). Secondly, training is seen as an investment that pays off. Already within the first year, companies anticipate increased mobility across roles, work satisfaction and productivity (World Economic Forum 2023, 7).

Thirdly, providing training is found as an effective way to hire and retain staff. Only offering promotions and higher wages were seen as better methods in both hiring and retaining workers than training programs. (World Economic Forum 2023, 53).

3.1.2 Skills in demand

WEF estimates that **60% workers will require training before 2027** (World Economic Forum 2023, 7). Emerging technologies, developing consumer needs, supply-chain transformations, and sustainability challenges affect businesses and the job market. New job titles are being created and current roles require new skills. (World Economic Forum 2023, 20.)

Analytical thinking and creative thinking were the highest ranked core skills in 2023 (World Economic Forum 2023, 38). They were also at the top of the reskilling and upskilling focus for 2023-2027 (World Economic Forum 2023, 42) (Table 2). As discussed in chapter 2.2, these skills can be considered central for foresight, and other relevant skills ranked high on the lists, such as resilience, flexibility and agility.

Table 2. Core skills and reskilling focus, adapted from World Economic Forum (2023, 38, 42)

Core skills in 2023	Reskilling focus 2023-2027
1. Analytical thinking	1. Analytical thinking
2. Creative thinking	2. Creative thinking
3. Resilience, flexibility and agility	3. AI and big data
4. Motivation and self-awareness	4. Leadership and social influence
5. Curiosity and lifelong learning	5. Resilience, flexibility and agility
6. Technological literacy	6. Curiosity and lifelong learning
7. Dependability and attention to detail	7. Technological literacy
8. Empathy and active listening	8. Design and user experience
9. Leadership and social influence	9. Motivation and self-awareness
10. Quality control	10. Empathy and active listening

Cognitive skills
Management skills
Technology skills
Self-efficacy
Working with others

3.2 Building a company training program

3.2.1 Training adults

To build a training program, first it is important to understand the difference between education and training? Education refers to general and long-term skill and knowledge development (Carliner 2015, 4). Training seeks a more immediate effect, typically within months, and is related to improving work performance (Wan 2013, 5; Carliner 2015, 4). In terms of training, David Carliner refers to andragogy, a term he attributes to Malcolm Knowles (1973). This is described as the "art and science of teaching adults", in contrast to pedagogy, which refers to teaching children. (Carliner 2015, 6.)

Carliner's seven principles for training adults point out that teaching adults need an approach different from children as (1) adults learn differently. Adult learners have multiple responsibilities and thus have (2) limited time and (3) capacity for information, only looking for what is relevant to them. Adult learners (4) develop competences in phases: the first moths in their jobs they are the most motivated to learn new things. They are (5) goal-oriented and will (6) bring their previous experience to the training. The most impactful learnings happens among adults when they can (7) integrate the new skills to their daily routines and assign meaning to the learning directly. (Carliner 2015, 6-8.)

3.2.2 Training development

Training development does not have a fixed approach or process. One example of a process utilising a design perspective is referred to as "ADDIE". The acronym comes from five activities: analysis, design, development, implementation, and evaluation (Carliner 2015, 8-9).

In the **analysis** phase, objectives and needs are defined, and expected results, and evaluations outlined. During **design**, the skill requirements and learning objectives identified, and the media and structure planned. In **development**, the design plans are refined with lesson plans and materials, and the program is tested with a pilot group or with the developer team. The **implementation** takes the training from promotion to enrolment, and the training is conducted. In the **evaluation** phase, the training is assessed against its goals. (Carliner 2015, 9-12.)

Another approach is to look at the training program development through its key elements. Margaret Wan (2013, 5) has outlined seven keys to a successful training, illustrated in Figure 11.

Keys to a successful training program

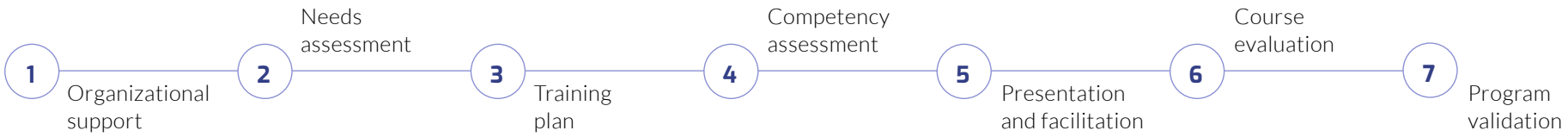


Figure 11. Successful training program, adapted from Wan (2013, 5)

3.2.3 From competences to objectives

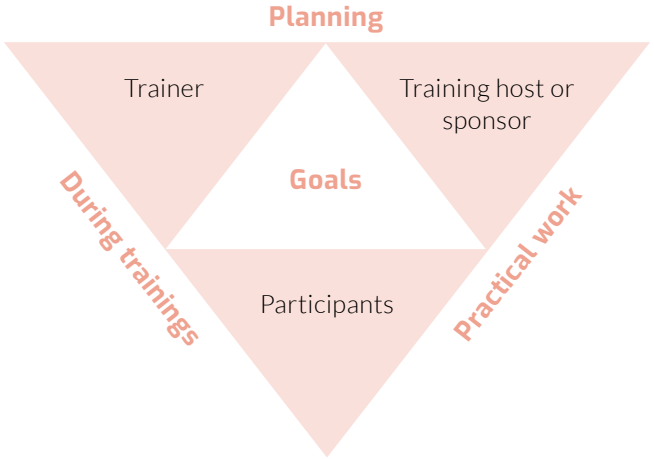
One of the early, and most critical, stages of training development is identifying and assessing the need for training. Based on that, the training goals can be determined. The terms learning objectives or instructional objectives are used, and these refer to the competence gap: the difference between the current knowledge and skills of the training participants, and the ideal resulting knowledge or skills (Wan 2013, 23).

In assigning the objectives there are many influencing forces (Figure 12). Training host organisation or training sponsor can define the goals, and so may the participants, or the option is that the trainer helps to identify relevant objectives (Kupias & Koski 2012, 12).

Idenfying meaningful and achievable objectives is not a trivial task. Päivi Kupias and Mia Koski (2012, 18). that when training expert of specialist workers it may be easier to identify the goals for what the trainer does, than what skills the learners are expected to develop. Another factor in setting the objectives is the level of competence that is looked for (Figure 13): should he participants learn to repeat the learnings, understand them, or use them creatively (Kupias & Koski 2012, 19). There should be relevant expectations, as the training alone might not be the solution, especially if competence gaps are not solely related to competence, but inefficient resources or processes. (Carliner 2015, 4-5.)

Once meaningful objectives are outlined, they can be mapped to main and supporting objectives. David Carliner states that a typical training program has three to seven main or terminal objectives: those are the learnings the participants must master by the end of the training. The supporting objectives enforce the main learnings. Moreover, the training design should account for entry or prerequisite objectives that the participants must have to enter or succeed in the program. (Carliner 2015, 67-68.)

Figure 12. Training goals, adapted from Kupias & Koski (2012, 12)



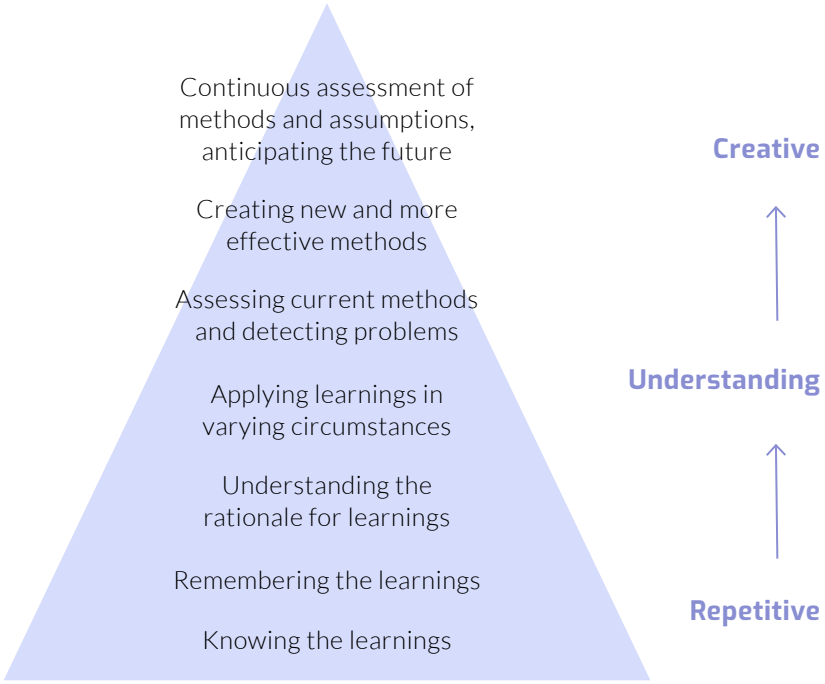


Figure 13. Learning objectives, adapted from Kupias & Koski (2012, 19)

3.2.4 Training format and plan

Training design can be driven by the choice of training format. The format choice limits options for training design and implementation, and it also sets expectations for the participants. The expectations can be related to the training medium, the structure of program and information, and the type and style of materials. (Carliner 2015, 83-84.)

Typical training formats are live trainings or synchronous learning, and self-study programs or asynchronous learning (Figure 14). Live training could be a workshop or classroom training, which can be held in person (face-to-face) or as a live online webinar or a virtual classroom. Live training programs are commonplace for difficult or sensitive topics, and for developing interpersonal, behavioural, or conceptual skills. Self-study programs the learners complete at their own pace, and these can be for example online tutorials or printed workbooks. (Carliner 2015, 85.)

A choice of medium for the training – in-person, online or print – should support the training objectives and format, and guide the development of training and material structure (Carliner 2015, 86).

Instruction materials can be summarised in information units or maps. In addition to the instructuction materials, supporting materials, or back matter, should be developed, such tests or assessments, certificates, other related training programs and resources, follow-up support, and program evaluation. (Carliner 2015, 93-95.) The anatomy of the training is summarised by Margeret Wan, illustrated in Table 3.

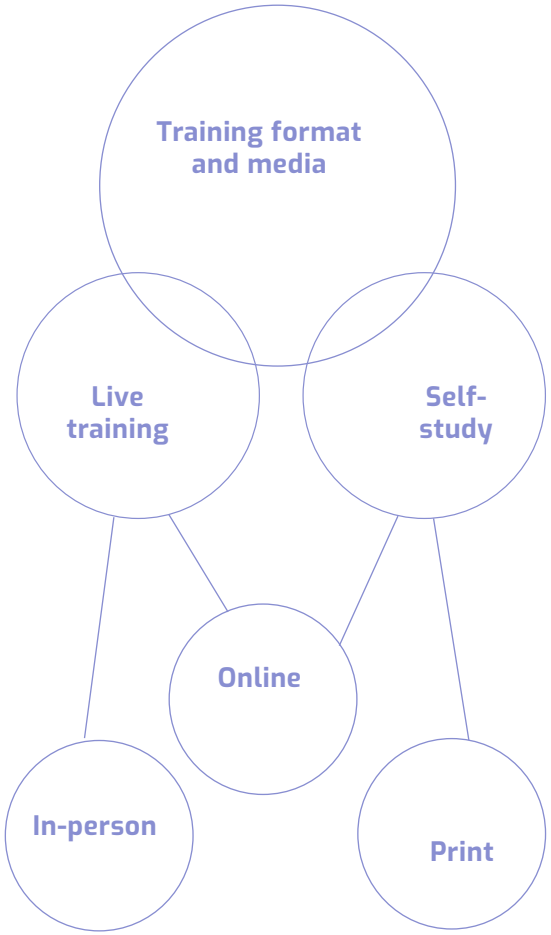


Figure 14. Training format and media considerations, adatpted from Carliner (2015, 85-86)

Table 3. Training plan anatomy, adapted from Wan (2014, 20-21)

Training anatomy
Course title and description
Target audience, their needs assessment; job titles or functions and the related prerequisites; backgrounds, genders, age groups, languages
Learning or perfomance objectives
Course completion criteria, the level of competency and its assesment
Continuing education credit, training qualification or certificates
Instructional strategies
Training aids, media, and equipment
Training environment, physical and virtual considerations
Testing methods for students
Course validation, trainer's observations, self-evaluation and auditor evaluation

3.2.5 Instructional strategies

Training reception can depend on the learners' interest in the topic. An instructional strategy can help to improve the reception, it should support the topic and motivate learners to engage with the material. (Carliner 2015, 106.) Learning objectives, the type of information and content, trainer's skills and situation can guide the selection of instructional strategies (Wan 2013, 42-43). Carliner (2015, 115) describes the choice of instructional strategy to be a process of "part science, part art, and part intuition".

There are varying classifications of instructional strategies, for example by objectives, such as mapping information, applying knowledge, ideation, and forming meaning (Kupias & Koski 2012, 105). In Table 4 Margaret Wan's categorisation of instructional strategies and their paired learning objectives are presented. A mix of instructional strategies are recommended. As a group can consist of different types of learners, with increasingly shortening attention spans, switching between instructional strategies every 20-30 mins helps maintain audience attention. (Wan 2013, 37.)

3.2.6 Program evaluation

The training program success is built on clear objectives and planning, and ultimately on evaluation. Evaluation accounts for the trainers' performance, the participants' learnings and efforts, and the overall results (Kupias & Koski 2012, 176). Tests can validate the participants learnings, and this can be a measure to evaluate the training as well (Wan 2013, 103). Surveys and observation can provide feedback about the training and the trainer (Wan 2013, 103). In the big picture, evaluation should be seen a process to develop and not a box to tick (Carliner 2015, 12).

Ultimately, benefits and impact are evaluated against the used resources (Kupias & Koski 2012, 176). The evaluation can include the Return on Investment (ROI) calculation to make a positive business case for training. The calculation can account for increase in productivity or quality of work on a determined payback period. From the total training benefits, the material and personnel expenses are deducted (Wan 2013, 109-111). A training program is sustainable when the investment objectives are matched, and the learning goals align with the organization's overall goals (Wan 2013, 103).

Table 4. Instructional strategies and matching learning objective levels, adapted from Wan (2013, 44)

Instructional strategy		Learning objective
On-the-job training	→	Application, problem-solving
Lecture and panel	→	Knowledge
Group discussion	→	Comprehension, problem-solving, evaluation
Demonstration and practice	→	Application, psychomotor, problem-solving
Role-playing	→	Affective, application, problem-solving
Self-guided discovery	→	Problem-solving, analysis, synthesis, evaluation
Collaborative learning	→	Problem-solving, analysis, synthesis, evaluation

3.3 Foresight training for companies

3.3.1 Learning and teaching foresight

Learning foresight is both challenging and natural to humans. We are comfortable with planning for the future and it is an everyday activity, but the everyday futuring is considerably narrow (Ollila & Hujala 2020, 400). The ambiguity of futures thinking challenges the commonly fixed mindsets and our biases limit both perception and the ability to imagine the future (Bengston 2018, 199).

Futures thinking and foresight are a growing topic among education. Beyond education, the development of futuring skills tend to be a side product and not the main objective. Attention is directed to outcomes, such as "future outlook of industry X", and not on the process or what the participants learn from it. (Ollila & Hujala 2020, 401.)

What should people learn on foresight? The terms of futures consciousness and futures literacy often appear in this context (Ollila & Hujala 2020, 406-407). Defining the topics for foresight education and training are still development, both regarding children and adults (Ollila & Hujala 2020, 408). Based on a review of over 50 years of futures research, David Bengston (2018) compiled ten principles for teaching futuring skills. These include the following topics: "The future is (1) plural; (2) possible, plausible, probable, and preferable; (3) open; (4) fuzzy; (5) surprising; (6) not surprising; (7) fast; (8) slow; (9) archetypal; and (10) inbound and outbound." (Bengston 2018, 193).

Johanna Ollila and Teppo Hujala summarise the futuring skills, illustrated in Figure 15. They also note that learning of futuring is affected by the person's skills, emotions, and agency. (Ollila & Hujala 2020, 403.)

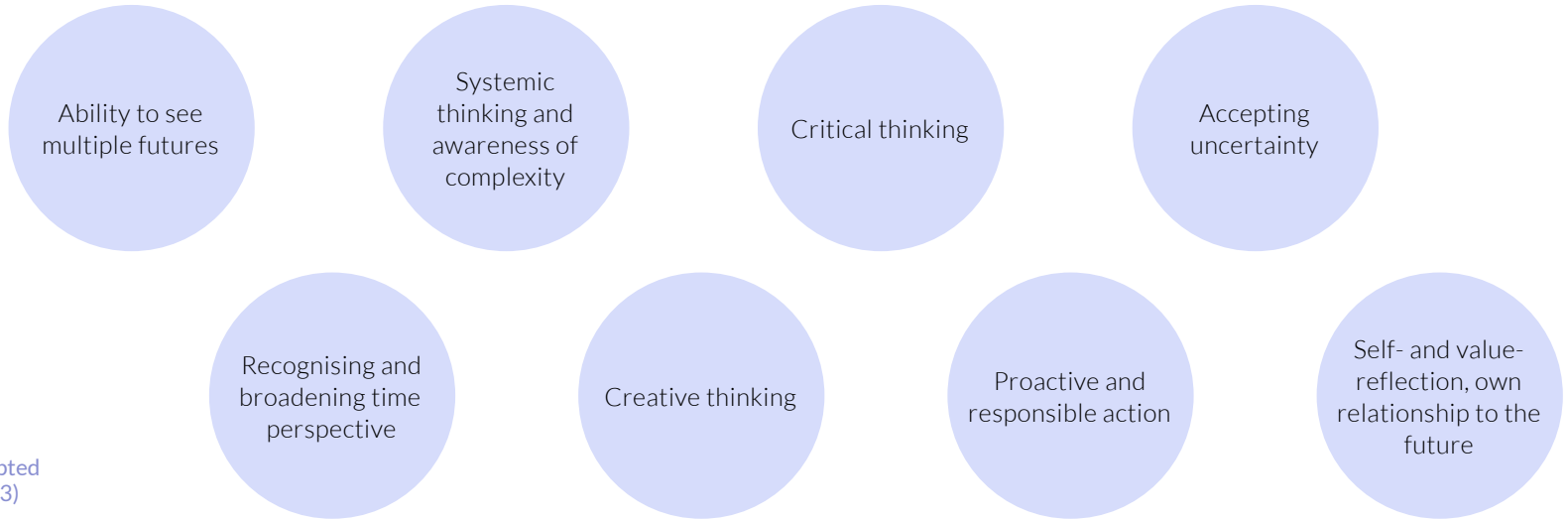


Figure 15. Futuring skills, adapted from Ollila & Hujala (2020, 403)

3.3.2 Foresight workshops

Considering that adult learners focus developing work related competence in short time spans, as established earlier, it might be helpful to look at workshop methods as a base format for developing the foresight training program. Foresight and future workshops offer a participative format to practice futures thinking and foresight as an individual event or as a part of a larger development process (Armanto et al. 2022, 225). They can also be a way for organisations to develop open foresight (Rau et al. 2014, 28).

Objectives and outcomes

A shared objective in various foresight and future workshops include developing futures knowledge and creating action to shape the future. (Armanto et al. 2022, 225). The purpose should not be to get the participants to approve a predefined solution, but it should genuinely offer an opportunity to exchange ideas. Participants are invited to share their expertise, thoughts, and critique, from which new knowledge can be created. (Armanto et al. 2022, 225-228.)

Developing futures literacy may be the only expected outcome of the workshop. Concrete outputs can be created, and scenarios are typical results. Perceptions on the future, such as qualities for desirable futures should be collected. Decision-makers relevant to the workshop context should gain access to the results. The level of how empowered and committed the participants are, and how much influence they have on the topic are linked to how meaningful the outcomes will be. (Armanto et al. 2022, 225-228.)

Future workshop planning

There are a few notable aspects about planning a foresight or future workshop (Figure 16). One aspect is the time anchoring: what year is the workshop focused on (Rau et al. 2014, 28). A shorter time perspective may support immediate development processes; a longer can help to detach from the present moment (Armanto et al. 2022, 224). Also the use of the timeline may vary, such as, traveling both forward and back on the timeline, as is done in "futures heritage lab-2 (Siivonen et al. 2022, 255-256). Another aspect to consider, is how many possible futures will the workshop attempt to develop (Rau et al. 2014, 28).

Participants are at the focal point of planning. Workshop can be open for anyone to participate without prerequisite, or closed and limited for specific groups. The role of lecturers and facilitators should be planned as well. Depending on the format, the trainters may or may not have experience in foresight - ofen experience is considered beneficial. (Armanto et al. 2022, 224-228.)

The workshops can be defined by their structure. For example, future workshops commonly begin with a critique phase where present challenges are discovered; followed by an imagination phase of mentally transporting to the future; and lastly in the execution phase the participants return to reality and concrete actions to shape the future are devised (Armanto et al. 2022, 229-230). A foresight workshop can also include an integration phase where the learnings or outputs are integrated back to the organisation's strategic planning (Rau et al. 2014, 29).

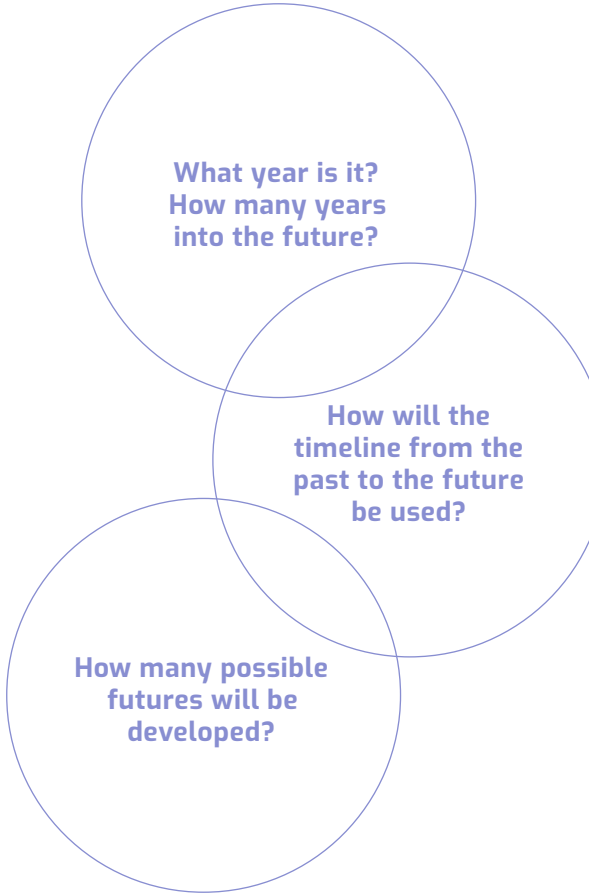


Figure 16. Future workshop considerations

Future workshop formats

There are diverse future workshop formats. The workshop can be based on a particular purpose, such as opportunity identification (Rau et al. 2014), or it can be offered for particular groups. In Table 5 three workshop formats are presented for comparison: Futures Frequency, Futures Clinic, and Futures Heritage Lab.

Table 5. Future workshop formats

● Distinguishing features

Name	Futures Frequency (fin. tulevaisuustaajuus)	Futures Clinic (fin. tulevaisuusklinikka)	Futures Heritage Lab (fin. tulevaisuudenperintöverstas)
Key objectives and questions	Future belongs to everyone. "How to improve the connection from futures thinking to action? How to easily develop futuring abilities?"	Increasing futures consciousness and knowledge of foresight methods. "Innovative and interactive dynamo of futures work" and "learning by doing".	Making cultural heritage and future more meaningful. "What could we do differently today, so that the future would be more sustainable?"
Program and structure	First participants challenge ideas about the future, then they imagine desirable future in groups and in the end plan for taking action. Three-hour workshop.	Materials sent to participants before workshop. Workshop begins with provocation using futures window (visuals of trends and weak signals). Developing futures and innovations.	Use of timeline directs the structure. Begins from the present, then visiting the past, followed with leap into the future. Ends to the present, and reflection. ●
Ideal group or location	No prequisites for participants: open and suitable for anyone. ●	Ideally organised in a creative foresight space. ●	Specifically for the use of dynamic museums. ●
Application and adaptation	Open to adaptations and different themes.	Open to adaptations and different themes.	Focus on cultural skills and sustainability transformation. ●
Foresight methods and time anchoring	Vision and What if-questions. Focus year: 2050.*	Futures wheel and PESTEC mapping are typically included.	Collaborative methods. At least 20 years, even 100 years forward.
Materials and preparations	Content decks, worksheet and guidebooks openly accessible.	Requires extensive preparations and post-workshop reporting. ●	Stories and images for inputs. Cultural skills and activities for workshop.
Source	Dufva 2022, 244-249, *) Sitra 2023	Heinonen 2022, 237-243	Siivonen et al. 2022, 250- 257

3.4 Implications and summary

This chapter looked at motivations and methods for organisations to train their workers. How will this influence the design process and results?

Upskilling workers is considered critical to business success and is an effective method to retain and hire workers. Skills related to foresight - creative, analytical and systemic thinking - were found to be currently in high demand globally. Training adults and complex skills have implications for training design: the program should address key competence gaps in the company and have clear objectives. A variety of instruction strategies and training formats can be used. Planning an effecient training that relates to the participants' role is relevant.

What are the implications of chapter 3, to the design process of the foresight training program, presented in the following chapter? For foresight training, the objective and outcome of the training may be intangible, such as providing information and developing futuring knowledge. For a meaningful experience and results, the workshop should engage participants with relevant, shared goals and context.

Education formats may not be directly suitable for training workers. Several foresight and future workshop methods are available, and can be utilised for training development. From an analysis and comparison of several workshop methods the Futures Frequency workshop format was found as the most promising method for the design process in this case, due to its open and accessible approach in terms of participants, materials and adaptations.

How does the theory appear in the final result of the design process presented in chapter 5, the foresight training program? In the first part of this chapter (3.1) relevance of upskilling in thinking skills was established. This will support the business case for the implementing the training program. The second and third part (3.2-3.3.) looked at training program design and format in general, and for foresight in particular. These will help to plan the training program, its objectives and instructional strategies, and account for relevant factors in the design process.

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4

Design process

4.1 Process overview

This chapter describes the design process and research methods utised in this project. The selected development approach for the project was experimentation-driven innovation.

4.1.1 Experimentation-driven process

Design thinking and service design offer iterative methods for developing concepts. Cyclical processes are typical, where problems are discovered, ideas tested, and solutions designed, prototyped and refined for implementation. (Miettinen 2009, 11-13). Experimentation-driven innovation is a design process model, where experiments are central. Experiments are used for testing the uncertainties and weaknesses of the idea as early as possible (Hassi et al. 2015, 4). The process is characterised as systematic approach with continuous, and purposeful learning (Hassi et al. 2015, 25). The process can be divided to five stages - goal, need, ideas in development, experiments, and outcome - but it should not be mixed with a linear process: interaction between different stages and methods of is common (Hassi et al. 2015, 37-38).

In addition to producing information and validation to the idea through the experiments, the process can provide new ideas and options. The experiments also help in building relations with key stakeholders, such as customers and investors, and this in turn can attract new resources to the project. (Hassi et al. 2015, 10-11).

This process fits well with fast-moving business environments where products need to hit the shelf as soon as the demand for them peaks – or to an agile thesis project. The motivation for selecting experimentation-driven innovation for this project was to accelerate the timeline between the start of the project and the first experiment, and the availability of base concept for the training to begin experimentation with.

Process overview and timeline

The overall timeline for the project extended from August 2023 to April 2024. The initial goal was to develop the impact of foresight, working with a leading Finnish company. The company for the case study was selected and project defined in November.

Training development and design took place from November 2023 to February 2024 in collaboration with the case organisation. The process is illustrated on the following page in Figure 17. The focal points were two experiments of the training: first in December and second in February. At monthly intervals the learnings were summarised, development evaluated, goals revisited, and plans revised. Thesis report writing started in December 2023 and design of the result, Minimum Viable Product, took place from February to March 2024.

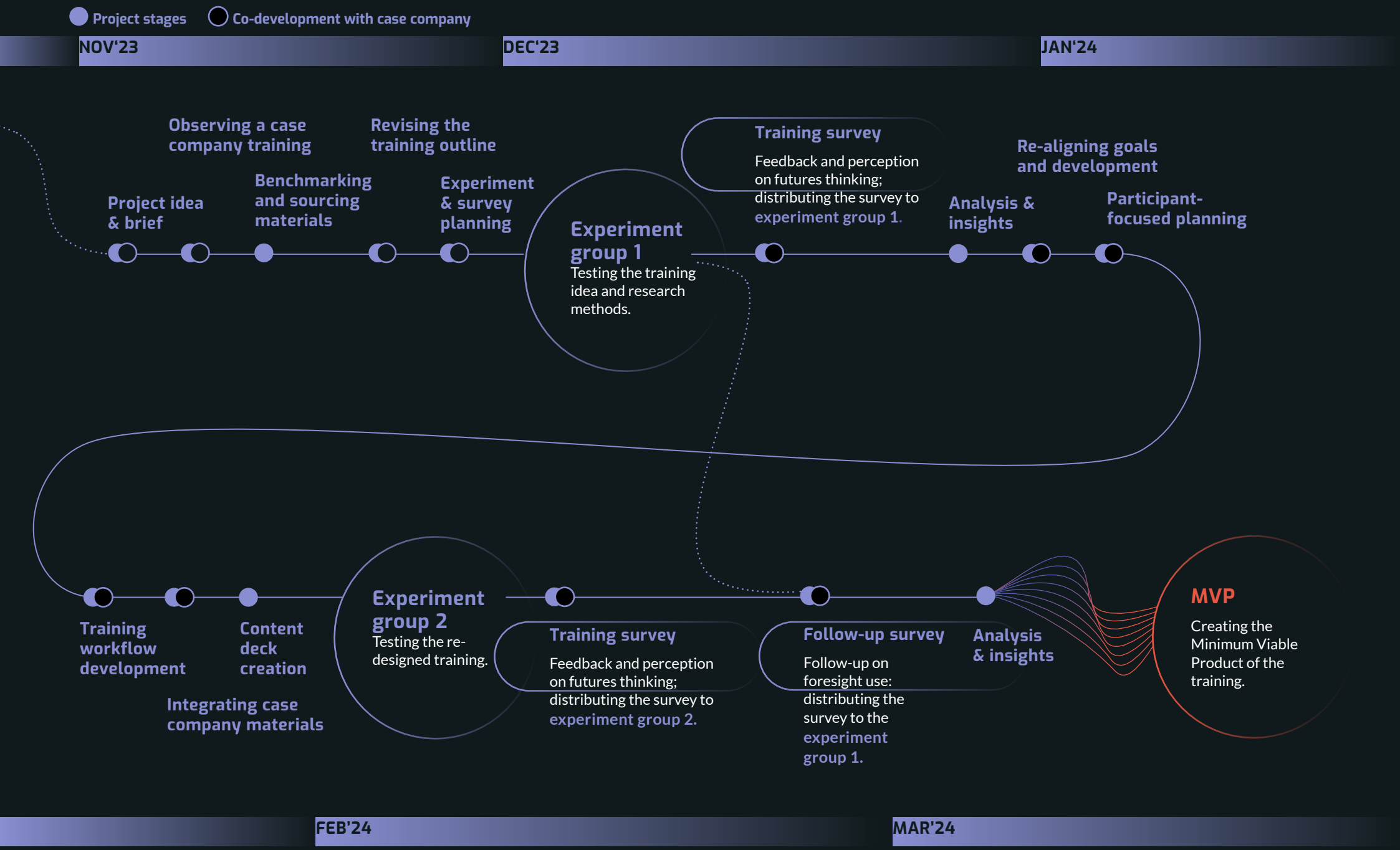


Figure 17. Design process

4.1.2 Project goals and design brief

The experiment-driven process may start with a problem or with an idea for interesting enough to experiment. The idea is refined during the process, and this may also contribute to realignment of the goals. (Hassi et al. 2015, 35-36).

Project idea and goals

First, goals for the development are defined and the core ideas identified. Based on discovered current challenges in foresight, the **overarching goal** of this project was to increase the impact of foresight by making it accessible, understandable, and usable to new people at different organisational levels. To develop an approach for this with a large organisation, the **idea** was to design a training program for foresight.

The idea would be experimented with the case company. In November, at the beginning of the collaboration, the existing foresight operations and organisation within the company were discussed, and the needs and goals for the foresight training program were defined in a virtual meeting with four members from the case company.

The main **goal for the training program** was to increase awareness of futures thinking foresight among people or teams with some or no experience in foresight. The operations and motives for foresight most relevant to this training were outlined with the case company. These were vision and strategy development, monitoring the operating environment, risk and opportunity mapping, product and service development, and innovation.

Based on the goal of the training program outlined with the case company, a design brief (Table 6) could be created.

Table 6. Design brief

Target group: The training is initially offered to workers in expert or specialist role. They or their team may have little or no experience in foresight and work outside senior leadership or the field of foresight. For the experiments, participants from different backgrounds and levels of the organisation were looked for.

Contents: The training contents should provide a clear introduction to futures thinking and foresight, and enable the participants to add elements of foresight into their work. This could mean learning to practice futures thinking and foresight individually or in teams, and it could mean the ability to source foresight operations and tasks.

Length: The pilot training should be less than seven hours long. As training would probably fall outside the participant's work scope, it should not take significant resources from the participant.

Format and facilitation: An in-person workshop format with lectures, discussion, and group work was preferable. The author, Noora Staf, would lead and facilitate the trainings during the development process.

Design outcomes

There are two main development paths and two parts to the design results:

Planning framework. This refers to the question of how the training is organised and who it is for. It also includes the training stakeholders and the activities or functions it connects to in the organisation, the training goals and evaluation. Regarding the planning framework, the participants were focused on. A key outcome would be to better identify the ideal target group and understand their needs for information and practical skills in foresight.

Training outline. This refers to the question of what happens in the training, and what information, skills, and other aspects the training should help develop. Regarding training outline, the training contents was a key element, identifying the main topics and suitable instruction strategies. The modularity of the training outline would be valuable as it relates to its use and adaptability.

These two focus areas relate to the overarching idea of making foresight accessible and applicable. For this, understanding how foresight is related to different work roles and organisational levels is needed, and from that a training program that creates and strenghtens foresight abilities can be developed.

Design drivers

Based on the challenges, goals and the brief, design drivers outline the quality and contents of the training program (Table 7).

Table 7. Training program design drivers

Informative

Presents key information that is grounded in academic and practical best practices. Clear and structured in format and information.

Practical

Contextually relevant material to the participants and their organisation. Interactive training with participative elements that builds skills hands-on.

Flexible

Adaptable and modular structure, easily customised for different uses, integrated with new resources and other training programs or activities.

4.2 Training and experiment planning

4.2.1 Experiment plan

The idea to experiment and develop was a training program for foresight. After establishing the goals and the brief, the process continued with planning the training experiments.

Experiment objectives and methods

The objective of the experiment process was to test the training structure, contents, and materials, and to understand the role of foresight from the individual and organisational perspective. The training participants were at the focal point of the process. Supporting the objectives, the process had two main elements:

Two experiments of the pilot training at the case company with participants from the organisation. These were performed to understand how the training structure, timetable, contents, and materials work in reality. Insights were collected by observing and making notes on the training flow, time use, and questions made by the participants, and by a feedback discussion at the end of the training.

A training survey and a follow-up survey for the training participants. These were performed to understand how participants from different backgrounds perceive futures thinking and foresight, and how it connects to their work, and to gain feedback on the training.

Training components and their importance

The experiment process benefits from splitting the idea into smaller components (Hassi et al. 2015, 87). Key parts of the training were identified and categorised. Their importance was evaluated by how uncertain or critical they are to the idea: Figure 18 illustrates results of the author's evaluation. Foresight toolkit as the learning objective and group work as the instruction strategy were considered as the most important elements, both critical and uncertain. Some critical aspects were labelled as "not critical" due to limitations of the research scope, such as facilitation and spatial arrangements.

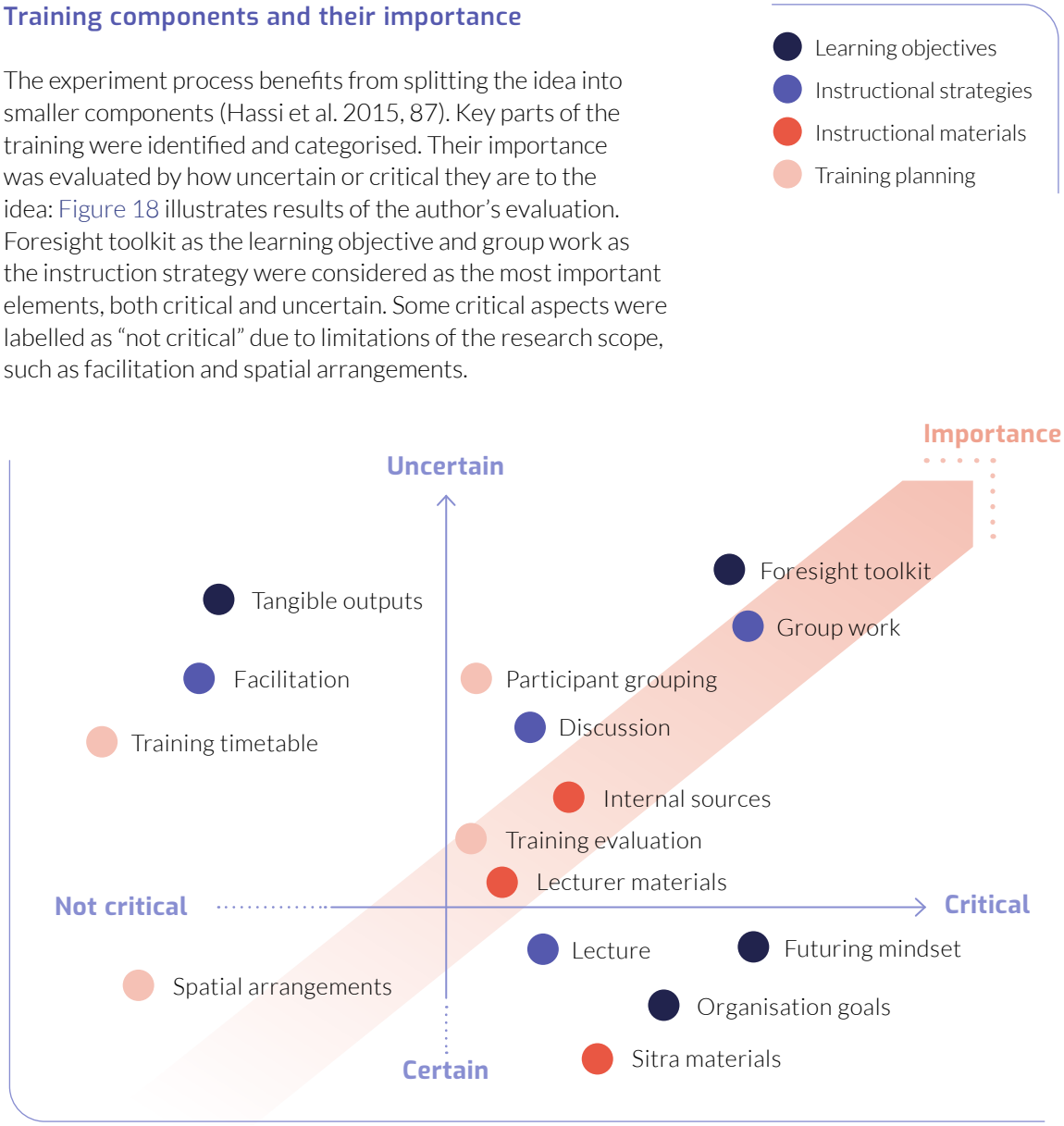


Figure 18. Analysis of the training components

4.2.2 Base format: Futures Frequency

Sitra's Futures Frequency (Sitra 2023) workshop format was selected as a base for the develoment process. The motivations for selecting Sitra Futures Frequency workshop method, later referred to as "Sitra FF", were a matching length and purpose of the workshop, free access to various supporting materials, and the required language support (Figure 19). The workshop developers came from an established organisation and the workshop format was tested by a wide range of organisations (e.g. Kauppinen 2022) and a recently conducted independent research on the workshop method (Halonen et al. 2022) was available.

"The purpose of the Futures Frequency method is to increase participants' ability to imagine different futures and act towards the realisation of a preferred future. The underlying aim is to popularise future-oriented thinking skills and strengthen people's agency and faith in the future."

(Poussa et al 2021, 3-4.)

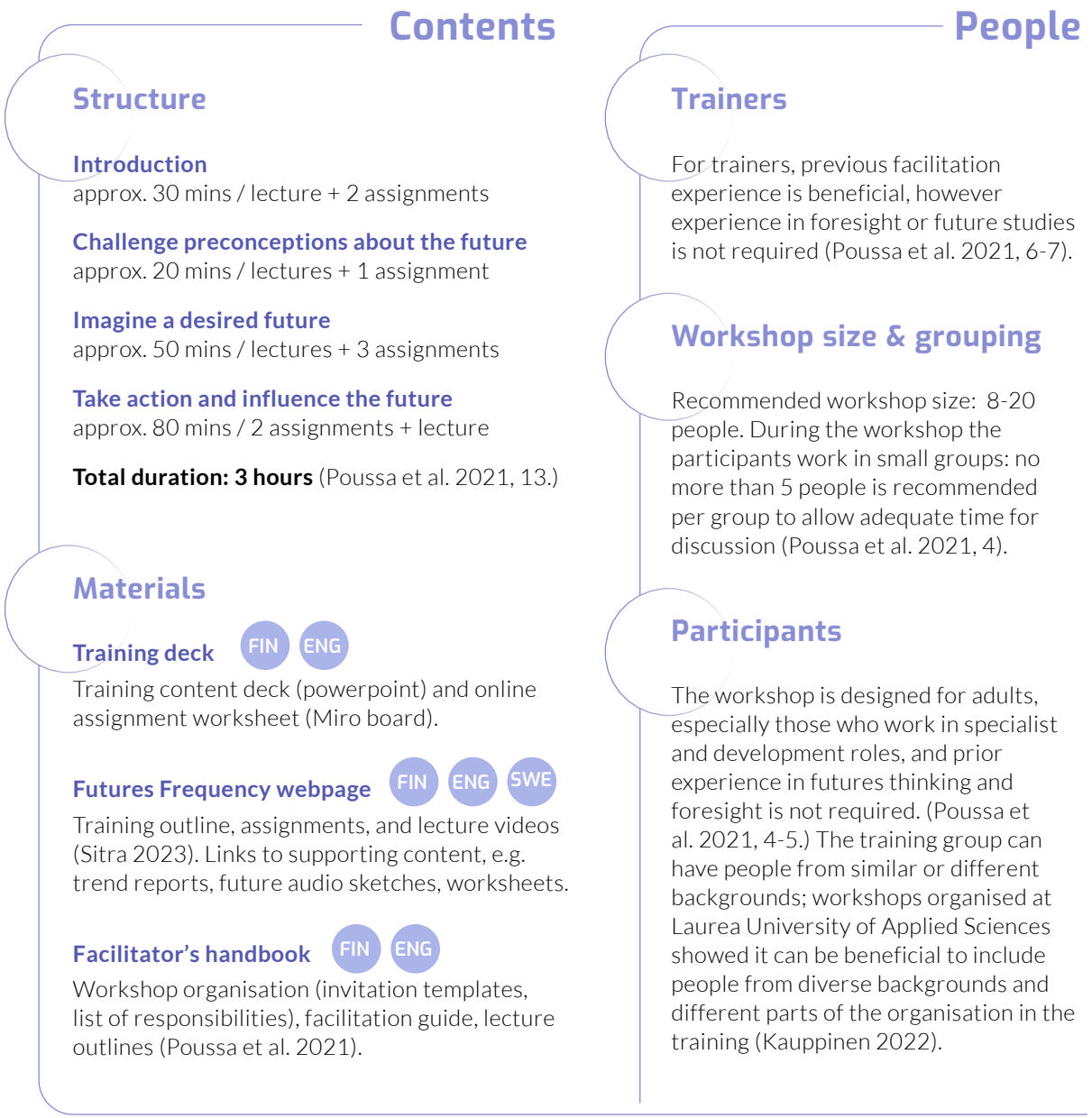


Figure 19. Analysis of Sitra Futures Frequency format

4.2.3 Concept development

Material development

The training format and materials should be relevant to the training objectives, the competences to develop, and the chosen instructional strategies. The facilitator's guide outline material use and possible adaptations. The structure can be adapted by, for example, dividung it into multiple sessions, and both in-person and online environments can be used. The workshop can be customised with a thematic framing. (Poussa et al 2021, 5-6.) For the first training experiment, the Sitra FF materials were analysed and adjusted to fit the purposes of this training (Figure 20). New, customised material kit was created by the author.

Training format development

Sitra FF training format is based on three instructional strategies: lectures, discussion, and group work. The case company hosts a variety of trainings. One webinar and two in-person trainings of the case company on design thinking were observed in November. Observation was focused on the type of instructional strategies utilised and the overall timeline for the training. These were found similar to the Sitra FF format, with lectures, discussion and group work varying throughout the day's program. It was noted that the training format would be familiar to participants from the case company, and that the training tone of voice should be friendly and informative.

Topics & structure

Analysis

The analysis showed that the Sitra FF materials include all elements from the framework of futures consciousness (Ahvenharju et al. 2018, 16), indicating a focus on the individual's futuring mindset. Foresight process was not presented.

Based on the theorethical research and the outlined design drivers, the training should be as practical as possible. This means that in addition to the futures thinking mindset, an introduction the practice and process of foresight in companies should be included.

Adjustments

Introduction of foresight key terms was created to establish a shared language for the participants. In addition, objectives for companies to practice foresight and an overview of foresight methods were added.

The base material concept takes the participants to the year 2050, which was decided to change to 2040.

The duration and main structure was kept as it is for the first experiment. Sections that were not considered relevant to a business environment were for example lecture slides that were addressed to citizens and their power to influence the society, and to save training time these were removed.

Instruction & practice

Analysis

The group work sections, where the training group breaks out to smaller groups (later referred to as "practice groups") to practice futures thinking and foresight was identified as the key component.

The assignment that the participants spend the most time with is vision: first an individual vision and then a shared vision with the practice group. Action items and "future news" headline are created in the end.

Adjustments

Most group work tasks were be kept as they are to give a baseline of activities to experiment on. To allow the participants to use their creativity, the final assignment was adjusted to be any type of "future content", with a news headline, press release and an advertisement as examples. A short assignment about history timeline was removed.

Optional topics or themes for creating the vision were considered, such as "eco-minded consumers" or "well-being at work", not to limit but facilitate work given the short time to complete the assignment of defining a vision. However it was decided to use the assignments as they are, with no thematic restrictions.

Figure 20. Training material analysis and adjustments

Image 1. Training workshop in December (Image: Case company)

4.3 First experiment

The first training took place on December 8, 2023 (Figure 21). It was organised at the company's headquarters in Helsinki, Finland (Image 1). The invited participants were from the company's design, market analytics, and strategy functions.

Participants	Hours	Format
18	3	**Workshop:** Lectures, discussion, independent and group work

Figure 21. Training 1 summary

4.3.1 Program and participants

Participants and team

In this experiment, the main idea was to test the outline and materials with a "friendly audience"; a training group made up of people expected to be somewhat familiar with the topic of foresight. Majority of the 18 participants were from the design and a few from market and customer insight, and strategy functions. Some of the participants titles included Business Development Analyst, Market & Consumer Insight Lead, Design Lead, Service Designer, Senior Product Designer and Visual & UI Designer.

The training was lead by one person (Noora Staf), with supporting facilitation and photography by one person from the case company.

Practice groups

During the training, participants worked on future-related assignments individually and in smaller practice groups. The practice groups were created at the start of the event from people with different backgrounds or who didn't usually work together. The group headcount was limited to 2-5 people. Five practice groups were formed in this training from the 18 participants. The groups had 3, 3, 3, 4, and 5 people.

Training program

The training was titled "Foresight and Futures Thinking" and it was described as a training experiment. The main change of the training outline, compared to the Sitra FF workshop method, was adjusting lecture materials to include the foresight process and business objectives. The training program and the new sections are displayed in Figure 22.

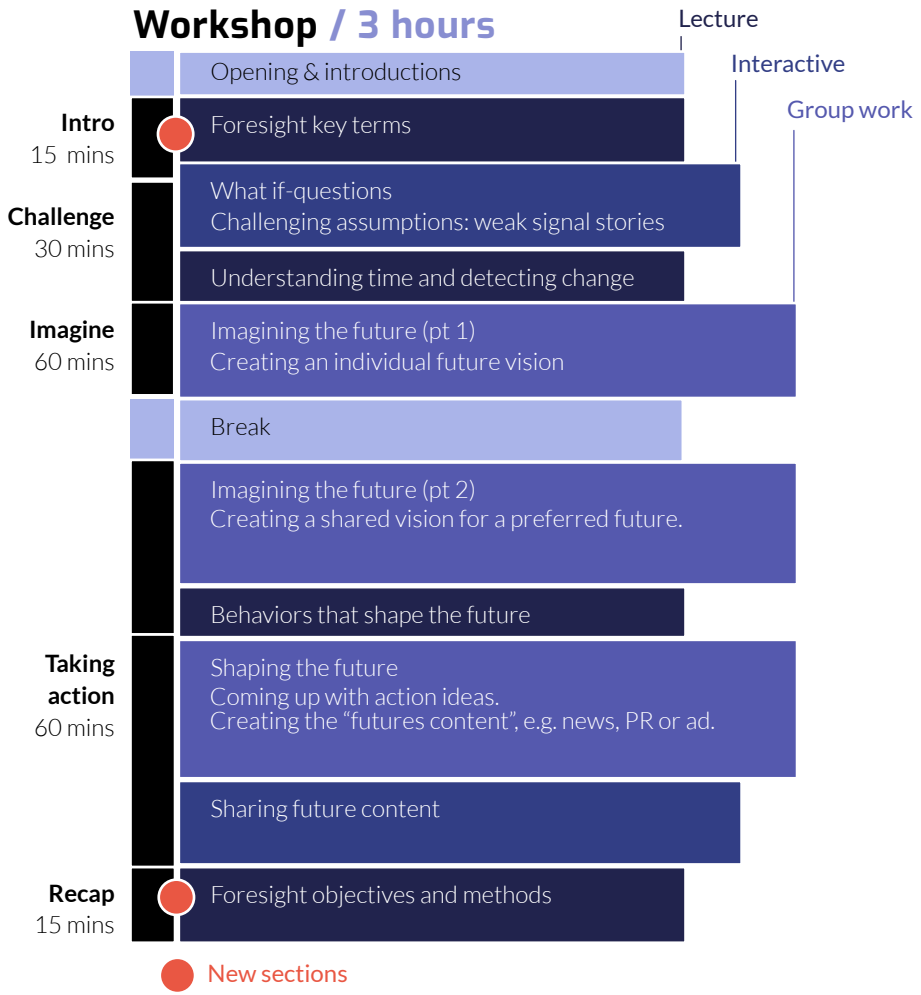


Figure 22. Training program in the first experiment

Workshop

Futuring terms & goals
Lecture: Futuring mindset, understanding time and foresight main objectives.

Image 2. Training 1 opening lecture (Image: Case company)

"What if.." questions
Individual task: Create "What if" statements for preferable future.

Image 3. Training 1"what if" questions board (Image: Case company)

Challenging mindset
Group task: Read a weak signal story and discuss among the group about your future assumptions.

Image 4. Training 1 weak signal story print (Image: Noora Staf)

Shared vision of 2040
Group task: Creating the group's shared vision for a preferred future.

Image 5. Training 1 group work (Image: Noora Staf)

Image 6. Training 1 behavior map (Image: Case company)

Future content
Presentations: Each group presents their "future content; news headline, PR, ad, or creative content.

Image 7. Training 1 future content presentations (Image: Case company)

4.3.2 Training observations

Observation methodology

In experimentation-driven development, the purpose with experiments is to see what happens in reality as people act differently than they say they would act (Hassi et al. 2015, 130). A key method is observation; in this case a participative observation method (Tuomi & Sarajärvi 2009, 82) was used.

Observation should be made with a neutral and open mindset (Hassi et al. 2015, 130). The observer was also the lecturer during the experiments. This means the observations could be biased and there was little time to make notes. **The observations were limited to aspects that have little room for interpretation, such as recording information**: the participants' questions during lecture and group work, the topics the participants chose for the tasks and whether the participants were able to complete the tasks.

Image 9. Training 1 group table (Image: Noora Staf)

First training experiment: observations and insights

The overall training timetable worked well, lectures and group work were completed as scheduled. Participants seemed focused: no phones or laptops were needed during the training, and they were not used.

During group work (Image 5), it appeared that the groups could complete all the assignments. The ideas that the groups chose for the task of shared vision, which was the main task of the training, were relatively general. The visions were related to increasing empathy or solving climate change, and they featured world leaders and humankind as the central persona. Most of the visions were remotely related to the business scope of the organisation.

On the final assignment of the "future content", where the participants could use their creativity, most groups created one of the suggested items, such as a future news headline or press release. One group made a drawing of the central persona (Image 7). The flip-board where the participants what-if questions were collected was a good gathering point for the participants during the break (Image 3).

The material in the lecture sections (Image 2) worked mostly well for the purpose and timeline. There were comments from the participants about the printed story excerpts of weak signals (Image 4), used in the discussion section about challenging assumptions. The participants experienced that the material was not particularly challenging.

One facilitator for all the five groups seemed enough for the practice sections. Regarding questions on the assignments, for example there was a question if particular data should be used for the tasks.

4.3.3 Survey methodology

To deepen the understanding on the experience, motivations and needs of individuals, interview and survey were found as suitable methods (Tuomi & Sarajärvi 2009, 72). Surveys were used in this research, with participants of the two training experiments as the survey population.

There were two different surveys: training survey (results in chapters 4.3.4, 4.4.3 and 4.5.1) and follow-up survey (results in chapter 4.5.2). The training survey was distributed at both trainings at the end of the training. The themes and objectives of the training survey are presented in Figure 24. The purpose of the survey is not to make statistical generalisations and for this reason in formulating the survey, open-ended questions (Tuomi & Sarajärvi 2009, 85) were considered as key elements. The training survey format is summarised in Figure 23 and a full copy can be found in Appendix 1.

Rationale for the survey method

The choice of survey had two main motivations. Firstly, time budgeted for this part of the research and the estimated size of the population (between 30-50 people) meant that the interview could not be performed and analysed for the whole group, while a survey could. Selecting a subset of the studied group for interview was an option, but creating a representative sample would be be difficult. Secondly, research on the base material (Halonen et al. 2022), Sitra FF workshop method utilised surveys. This was considered a good reference point for survey structure and for analysis of the results.

Survey analysis

The multiple choice questions and likert-scale statements were statistically analysed. In the open-ended questions, all the responses were read in their entirety and used as a whole to inform the development process. To display an overview of the responses in this report, material-based content analysis (Tuomi & Sarajärvi 2009, 92-93) was used: words and phrases with similar contents were simplified and clustered by themes.

Training survey format

Format: Microsoft Forms

Training survey questions:
Group 1 (Group 2)

4 (3) multiple choice questions

2 (2) Likert-scale tables with 3 and 7 (3 and 8) statements

7 (7) open-ended questions

Figure 23. Training survey format

Theme	Objective
Foresight perception and use Prior experience on foresight Futuring mindset and agency Perception on work tasks and projects related to foresight	Understand the applicability of foresight in general, who might be the ideal training participants and what projects, processes or functions the training should be linked to. The results of this theme are presented in chapter 4.5.1.
Training development Personal training experience Most useful part of the training Most challenging part of the training What more to learn and other feedback	Understand how the training was experienced to help improve the training program. The results of this theme are presented in chapters 4.3.4 and 4.4.3.

Figure 24. Training survey themes and objectives

4.3.4 Training survey: group 1

Overall training experience

78% of the training participants responded to the training survey (Table 8). The personal training experience was asked with seven statements, using the Likert-scale (Figure 26). On the positive - completely or somewhat agreed - end of the scale, the training was found useful by the respondents and exercises easy to understand. Several respondents got new ideas. The statement on whether the training changed the participant's own thinking about the future had the most divided responses. This may be related to the participants' prior use on foresight: over two-thirds of the respondents expressed they had utilised foresight or futures thinking in their work (Figure 25).

Table 8. Training survey for group 1: respondents

Survey group: Training participants (18)
Distribution: Dec 8-15, 2023

Survey respondents:
78% response rate, 14 respondents
Home organisation:
79% (11) design
21% (3) market & customer insight
Work role:
79% (11) specialist
7% (1) director / VP
14% (2) other

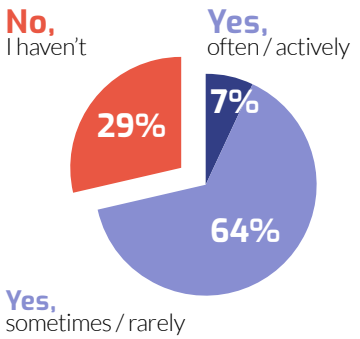


Figure 25. Training survey for group 1: Prior utilisation of foresight (n=14)

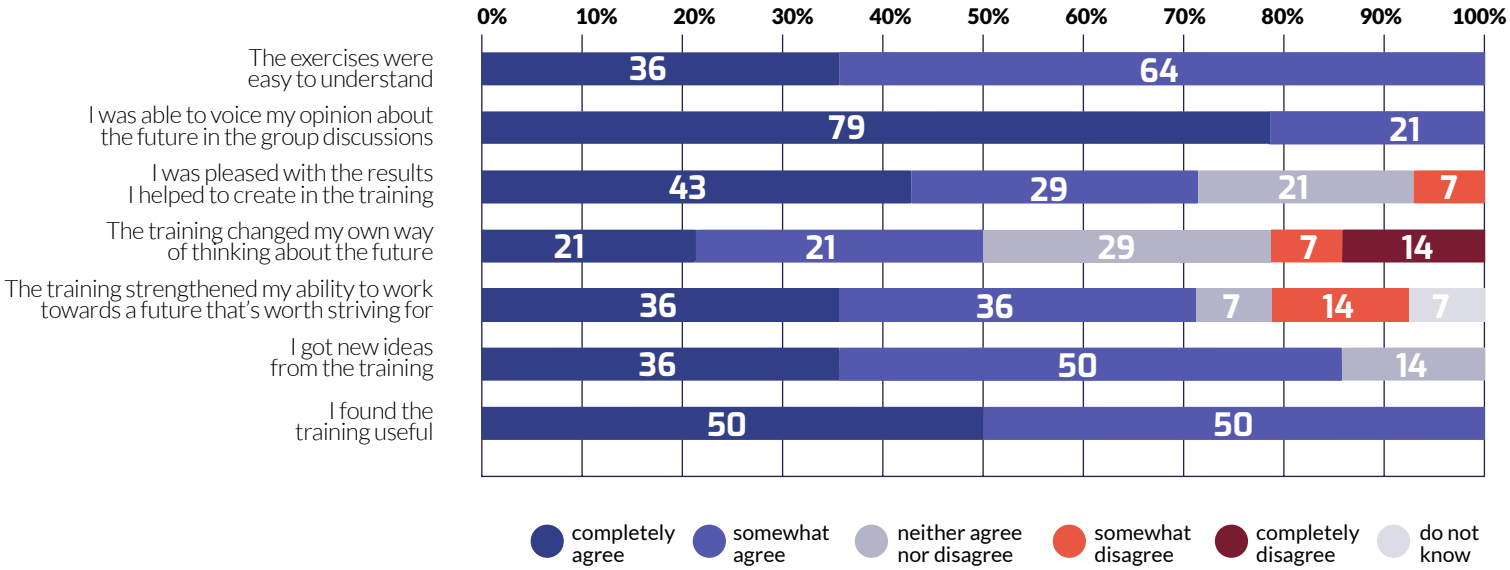
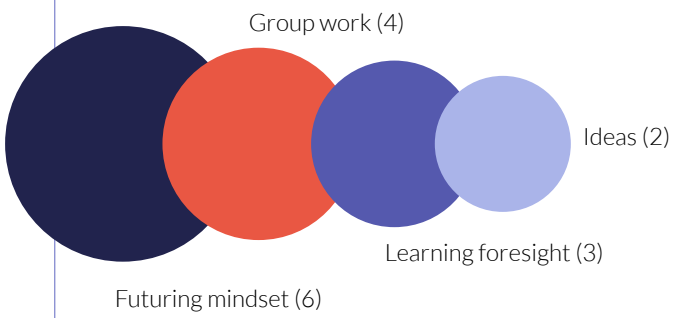


Figure 26. Training survey for group 1: Personal training experience (n=14)

Most useful and challenging parts of the training

Reviewing the responses to the open-ended questions provided more detail on the participants' workshop experience. Regarding what was the **most useful or important part of the training,** developing the personal mindset was most frequent theme (Figure 27) with altogether six respondents, with topics such as liberating thought, thinking further and wider, and imagining possible futures mentioned. Group work was mentioned by four respondents, which discussion with the group, working together, and exercises to use in practice. Learning and information on foresight and new ideas were also recurring themes in the responses.

Figure 27. Training survey analysis for group 1: Most useful part of training (n)

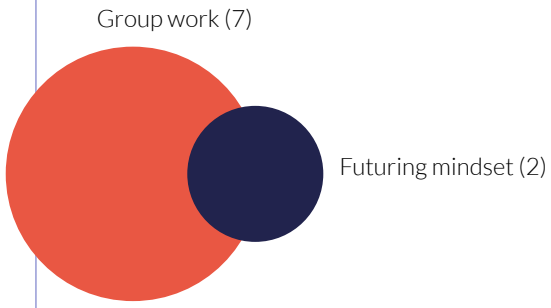


"Opening up the mind and vision."
- Design, Specialist

"Working with others and imagine future possibilities together and potential ways to achieve it." - Market & Customer Insight, Specialist

On what was the **most challenging part of the training,** the group work was clearly the top theme, with seven respondents. On that theme the lack of scope and context was mentioned most often (four respondents), along with problems with getting started and converging on an idea. On the other hand, diverging and broadening scope were also considered challenging (Figure 28). Samples from the responses can be seen on the bottom of the page, some of them are translated from Finnish to English.

Figure 28. Training survey analysis for group 1: Most challenging part of training (n)



"To summarise large ideas and different perspectives - Market & Customer Insight, Specialist

"To broaden your own thinking".
- Design, Specialist

"Jump without any context into thinking about the future." -Market & Customer Insight, Specialist

On what the participant **would like to learn more about**, practical foresight methods & process, including for example concrete and simple foresight tools for small project, were mentioned by three respondents. Foresight data and trends, and foresight from the business perspective were also mentioned.

In the **open feedback** at the end of the survey, the presentation skills and materials received positive feedback and the training was described as cohesive.

"I would like more simple tools and exercises that I could use with my own team."
- Design, Specialist

"Utilization from a business perspective." - Market & Customer Insight, Specialist

4.3.5 Insights and idea development

Experiment insights

To draw insights from the experiment, it is useful to summarise the learnings and new ideas, to review the critical uncertainties and hypotheses, and their meaning for the idea development (Hassi et al. 2015, 176-177).

Based on the training survey, the participants particularly enjoyed thinking further and more broadly. Working together was considered useful and thought-provoking and most participants got new ideas. It could be concluded that liberating and expanding the minds was a success point of the training, and that is relevant to futures thinking. More scope, business context and foresight data were expected to be part of the training, creating a need to find balance between promoting free thinking, and having a more defined scope and context.

In the experiment planning, group work sections and the foresight toolkit were considered as the most critical uncertainties and a focus of the experiment. While the survey indicated that the group work exercises were easy to understand, group work was mentioned most often among the challenges. The need for the training to provide information on foresight methods and tools for the participants to use in their work was indicated.

These aspects can relate to both group work and lecture sections of the training and are something to develop in the following phase. There was room for improvement in terms of the results participants helped to create as well as how it strengthens abilities to work towards a future worth striving for. Overall, many aspects of the training experience were found positive, and the training useful.

Training development and planning the second experiment

The second training experiment would take place in February 2024, two months after the first. The invited participants would be possibly less familiar with foresight, more diverse and more representative of the likely future participants. They would be from the organisation's business and technology functions, with roles that are frequent in the company. In December and January, the participants' prior experience and needs in foresight were discussed with three project leads from the case company in virtual meetings to develop training invitation and contents. It was also decided to add a webinar to the training program.

The training format development would build on insights from the first training: adding time, business context and foresight process elements to the training. The focus was on the group work sections. In the first experiment, creating a shared vision was the main task. An idea was to change the main task in the upcoming training experiment to be scenarios. Vision and scenarios are different in process and in purpose. Where vision can serve as a singular goal for the future, a scenario provides a possible but alternative view to guide or challenge decision-making (Hiltunen 2012, 180-181).

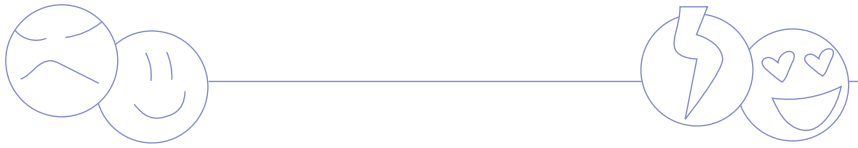
The idea of scenarios was approved by the case company. Training materials and tasks were planned with four design and foresight specialists from the case company in three meetings taking place in January and February. Case company's own foresight materials were added to the training program.

The motivation for change from vision to scenarios as the training main activity was based on an assumption that scenarios would be more useful for the likely participants' routine work: a person who works outside leadership may have less opportunities or need to create a vision, but a scenario, an alternative view of the future might be relevant. The scenario process may also allow the groups to look at risks and opportunities more diversely in the training, without the need to come to consensus.

This meant that a majority of the training was changed, with a whole new workflow for the group work sections, including new learning goals, materials, and assignment. The design challenge was to balance simplification and accuracy. How to make the work method understandable to people new to foresight in a short time and yet offer essential learnings for the participants? The instruction and progression of the assignments were critical. Table 9 summarises the development process.

Table 9. Driving insights and training adjustments after the first experiment

Driving insights	Idea	Training adjustments
As suggested by the feedback, training should introduce foresight methods and materials more detail. Adding material requires more lecture and practice time.	**Extending the training**	The training would be extended and split into two parts by adding a 1-hour webinar one week before the 3-hour workshop. By having time between the webinar and the workshop meant that more materials and also an independent assignment - homework - could be distributed.
In the first experiment the practice groups for were formed at the start of the training of people from different functions. Problems with getting started on group work and converging on an idea came up.	**Focus on participant grouping**	Practice groups would be created in advance in collaboration with the case company coordinators. Each group would have people who work on same project or operation. The participants were informed about the groupings. Assumption was that the participants may feel more comfortable to voice their thoughts and get started on tasks faster when working with familiar people.
Narrowing the scope of tasks and adding more business context was repeated in the feedback. Foresight data, especially trends, was requested.	**More data, scope & context**	The case company's foresight materials were added to the training to provide business context. A subject matter expert would present a foresight related topic, megatrends and drivers at the webinar, and there would be a homework task on collecting and observing trends. A defined topic, a trend driver, would provide scope to the group practice on all training tasks.
Group work is a critical part of the training. In the first training experiment the main assignment was vision. Training should include more simple and realistic foresight methods, and this feedback directed the development of group work sections.	**Introducing the foresight process**	A completely new workflow, tasks and learning goals were created, with scenarios as the main task. First the participants would scan and collect trends in the homework section. At the workshop the groups analyse and evaluate the collected trends, then create two different scenarios and, finally, a story of one of the scenarios. The only exercise from the original Sitra FF material remaining was the discussion segment for challenging future assumptions, where Sitra's future audio sketches (Sitra 2024) would be utilised.
Feedback showed room for improvement in terms of the results participants helped to create. Definition of what is the result and goal of the training should be refined.	**Role of training results**	Assumption was that learning new information and skills takes time and requires room for trial and error. Regarding planning the group tasks, facilitation and resulting outputs, it was decided to focus on practice using the materials and methods without pressure to create realistic outputs. For example, in the task on creating a scenario, the goal for the participants is to practice creating scenarios, not to create a scenario that is ready to be used after the training.



4.3.6 Creating new materials

Arranging a training required various materials in different stages, starting from planning and marketing documents created well before the training, then preparing the training contents, and finally development materials for feedback and evalution after the training (Table 10).

Which of the materials are the most important depends on the training. It was the author's experience that setting clear goals, and preparing planning materials that keep the idea organised and sells the training to key stakeholders in the company are critical in making the training successful. Equally - or more - critical are training contents: the lecture and practice materials that will be presented and later shared to the training participants. This material kit is here referred to as the "content deck".

To reflect the new learning goals, tasks and added resources, a new content deck was developed. New lecture contents on trends, scenario development, foresight process, and foresight best practices were created. New assignments and worksheets for group work, with the goal of instructing the scenario development workflow, were formulated and these were reviewed by two of the case company foresight specialists. An introduction to the case company's internal foresight materials resources was integrated to the content deck.

Two versions of the new content deck were created: a deck with author's bespoke graphic style (Image 10), and a deck in the case company's branded style and format. The latter branded deck was shared in the training.

Pre-training	Training	Post-training
Training planning: Planning document Timetable **Marketing:** Marketing 3-pager Invitation copy	**Content deck:** Lecture slides Group work assignments Discussion prompts **Other materials:** Trend scanning table Ice-breaker (online poll) Trend resources Future stories (audio) Papers, pens, sticky notes, etc.	**Feedback:** Online survey **Evaluation:** Survey insights Training observations

Table 10. Training materials

Remaining segments of the base concept, Sitra FF workshop

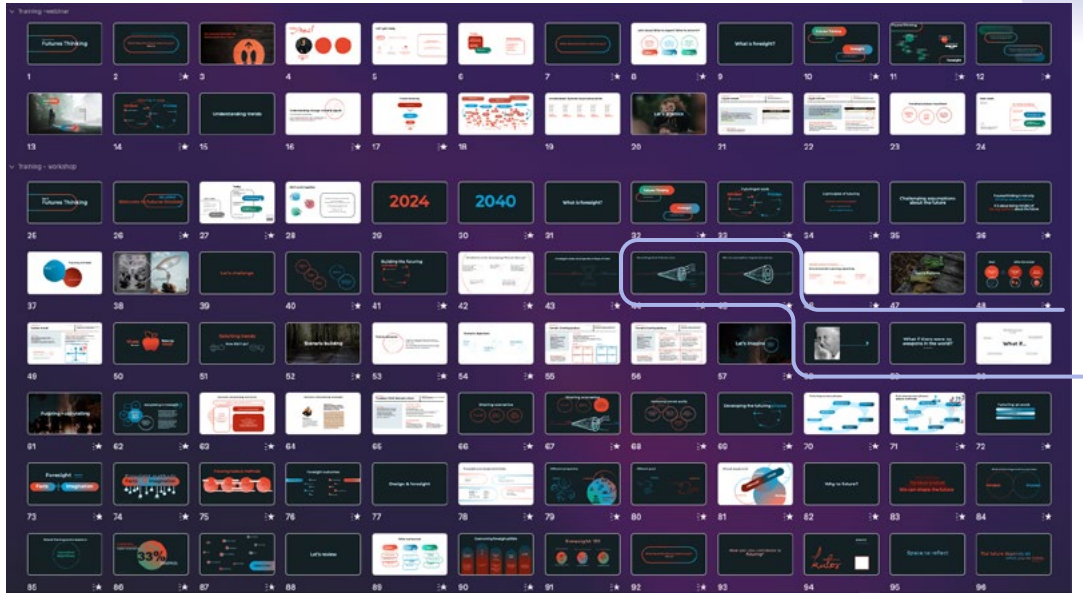


Image 10. Content deck for the training webinar and workshop (Image : Noora Staf)

Image 11. Training 2 workshop groups (Image: Noora Staf)

4.4 Second experiment

The second training took place in two parts on February 8 and 14, 2024 (Figure 29). First, a webinar was hosted on Microsoft Teams on February 8 and the recording was distributed to all invited participants. Workshop was held in-person on February 14 at the company's headquarters in Helsinki, Finland (Image 11).

Participants	Hours	Format
23	4	**Webinar:** Lecture, discussion **Workshop:** Lectures, discussion, independent and group work

Figure 29. Training 2 summary

4.4.1 Training program and participants

Participants and team

The participants were from the business, technology and design functions from the case company. Most of the participants worked in a specialist or planner capacity. Some of the participants titles included Business Developer, Partner Specialist, Product Owner, Tech Lead, Senior Service Designer, Senior Lean Expert, Development Manager, Head of Coaching and IT Development Manager,

The workshop was lead and facilitated by one person (Noora Staf), with a supporting team composed of two people from the case company, who assisted with facilitation and photography.

Practice groups

During the training, participants worked in practice groups, which were created of people who work on the same project or in the same home organisation. There were a total of five practice groups and during the workshop the groups had 3, 4, 5, 6, and 6 people.

Training program

The training was titled “Foresight & Futures Thinking Training” and it was marketed as a pilot training. The program was split to two sessions: webinar on the first week and workshop on the second week. The training program had several new lecture sections and an entirely new workflow in group work sections Figure 30).

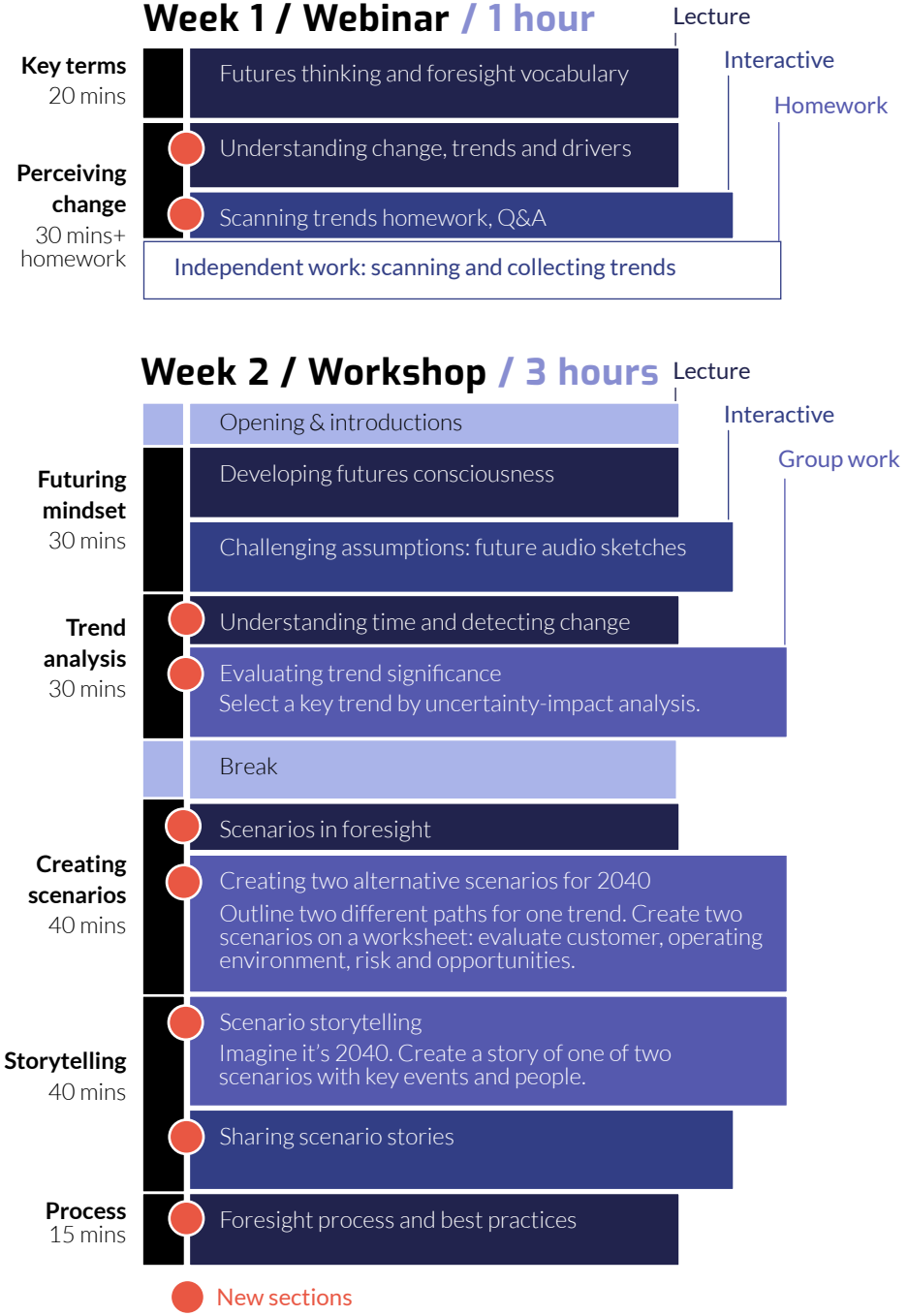


Figure 30. Training 2 program

Webinar (training week 1)

Foresight terms
Lecture: Foresight key terms and developing shared language. Understanding trends and drivers.

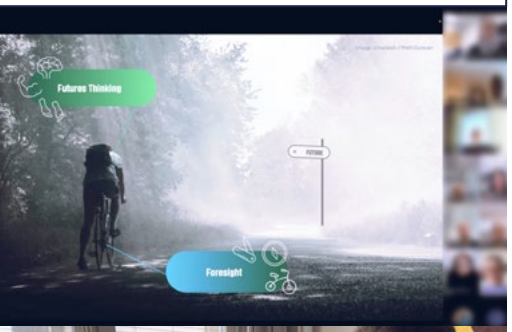


Image 12. Training 2 webinar presentation (Image: Noora Staf)

Homework

Detecting trends
Independent task: Collecting trends on a shared sheet.

Image 13. Training 2 homework task excel sheet (Image: Noora Staf)

Workshop (training week 2)

Futuring mindset and process
Lectures: Developing futuring mindset, understanding time, and detecting change. Overview of the foresight process.

Image 14. Training 2 workshop opening lecture (Image: Case company)

Challenging the mindset
Discussion: Audio sketches with future scenarios. Detecting and challenging personal assumptions of the future.

Image 16. Training 2 discussion on challenging assumptions (Image: Case company)

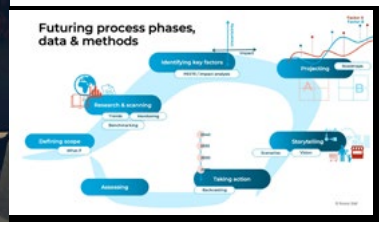
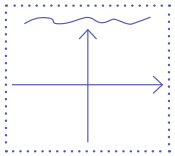


Image 15. Training 2 foresight slide excerpts (Image: Noora Staf)

Workshop, continued
(training week 2)



Evaluating trend signifigance
Group task: Select a trend by uncertainty-impact analysis.

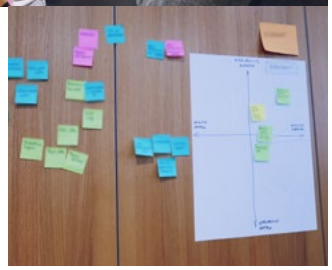


Image 17. Training 2 group work (Image: Noora Staf)

Creating two scenarios for 2040
Group task: Outline two scenarios. Evaluate customer and operating environment, risks and opportunities.

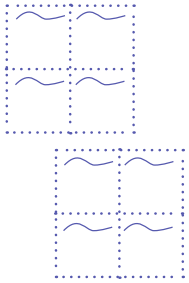


Image 18. Training 2 scenario development (Image: Case company)

Scenario storytelling
Group task: Imagine it's 2040. Create a story of one of two scenarios that describes key events, people and the company's role in it.

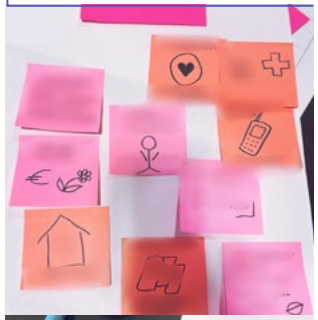


Image 19. Training 2 scenario stories (Image: Noora Staf)

Sharing scenario stories
Presentations: Each group presents their group's scenario story. Discussion on the scenario plausibility and preferability.

Foresight best practices
Lecture: Foresight objectives, methods and toolkit review.

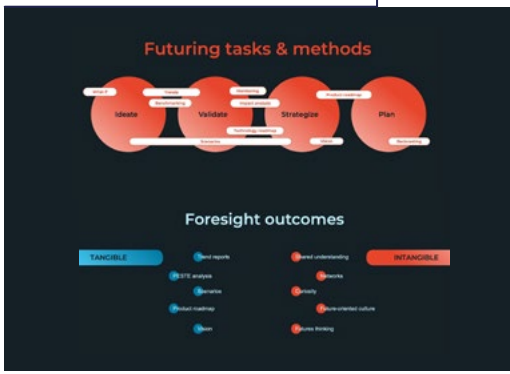


Image 20. Training 2 lecture recap slide excerpts (Image: Case company)

Image 21. Training 2 lecture recap slide excerpts (Image: Noora Staf)

4.4.2 Training observations

Regarding the overall timetable, the webinar (Image 12) and workshops were able to maintain the set schedule. There was great participation on the **homework of trend observation** and collection (Image 13): altogether 107 trends on five topics (on average 21 trends per topic) were listed on the assignment sheet. The groups had collected trends from various sources.

At the workshop, the participants appeared focused on the lectures (Image 14) and assignments (Image 18). **The interactive section where assumptions about the future were challenged,** using Sitra audio sketches about possible future, sparked active discussion (Image 16).

Facilitation during group work focused on the groups that seemed to have trouble starting or completing the assignments. It was not possible to observe if all the groups followed the assignment instructions. Some of the points, where facilitation was needed, were for example in selecting a trend for scenario development (Image 17) and in outlining two different paths for one the trend. There were a number choices available for the groups. The facilitators helped to evaluate and specify the trends, and to discover the range of options for the paths.

The assignment workflow was completed in full, as planned, and all groups were able to a get a one finished scenario story in the end, as was planned. One member of the group presented each story for all groups. Three groups had a written story that they read out loud and two groups explained their scenario story in their own words (Image 20).

The scenarios that the groups developed (Image 19) **were focused on challenges and opportunities related to the organisation or its industry**. All the scenario stories included a customer or an employee. Current or new, hypothetical, services by the company were central to the scenarios. A short reflection of each story was done, where the group members assessed whether the scenarios were probable or possible, and whether they were preferable.

Image 22. Training 2 workshop (Image: Noora Staf)

4.4.3 Training survey: group 2

Compared to the first group, the response rate of the training survey somewhat dropped from the first experiment, and it was 57% for this latter group. This group was more diverse, with respondents from business, design, and technology; no people managers or directors were among the respondents (Table 11). The respondents had slightly less experience in futures thinking (Figure 31) than the first group.

Comparing to Sitra Futures Frequency on the question of the workshop experience, the training survey utilised five statements from the research evaluating Sitra FF (Halonen et al. 2022). There was a similar trend in the responses (Figure 32), with the most notable difference being that the second training of this experiment was experienced more often to strengthen the abilities to work towards a future worth striving for. Both studies had under 20 respondents and offer limited value for statistical analysis. However, this can provide a basis for future studies to work on.

Table 11. Training survey for group 2: respondents

Survey group: Training participants (23)
Distribution: Feb 14-22, 2024

Survey respondents:
57% response rate, 13 respondents
Home organisation:

54% (7)	business
31% (4)	design
15% (2)	technology

Work role:

62% (8)	specialist
31% (4)	lead
8% (1)	other

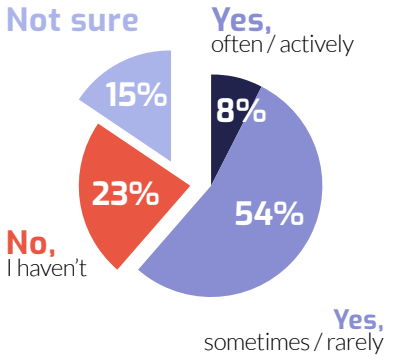


Figure 31. Training survey for group 2: Prior utilisation of foresight (n=13)

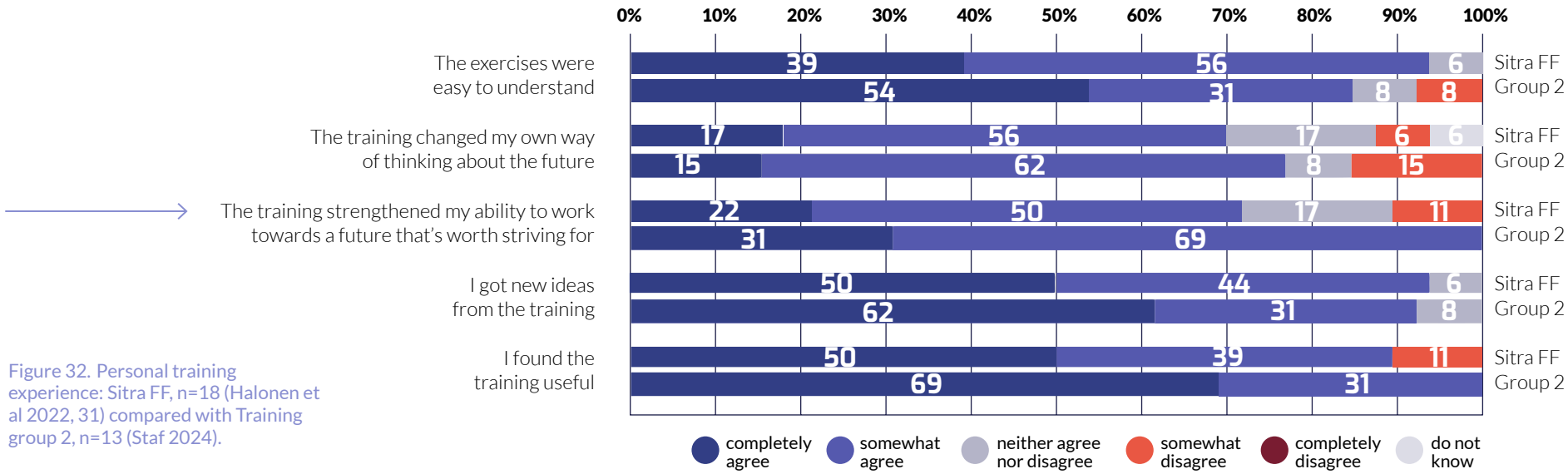


Figure 32. Personal training experience: Sitra FF, n=18 (Halonen et al 2022, 31) compared with Training group 2, n=13 (Staf 2024).

Comparing with the responses for the first group's training survey, the workshop was perceived quite similarly (Figure 30): it was experienced mostly useful, the respondents gained some new ideas, and could voice their opinions about the future. On the responses of this second training, the "exercises were easy to understand" and "I was pleased with results I helped to create" had slightly less agreed responses than on the first training.

However, in the second group's training survey, more respondents considered that the **training changed their own way of thinking about the future and strengthened their abilities to work towards a future worth striving for**. In this second experiment, a statement was added a about the materials of the training, which were found mostly useful. None of the statements in this second group had a "completely disagree" response.

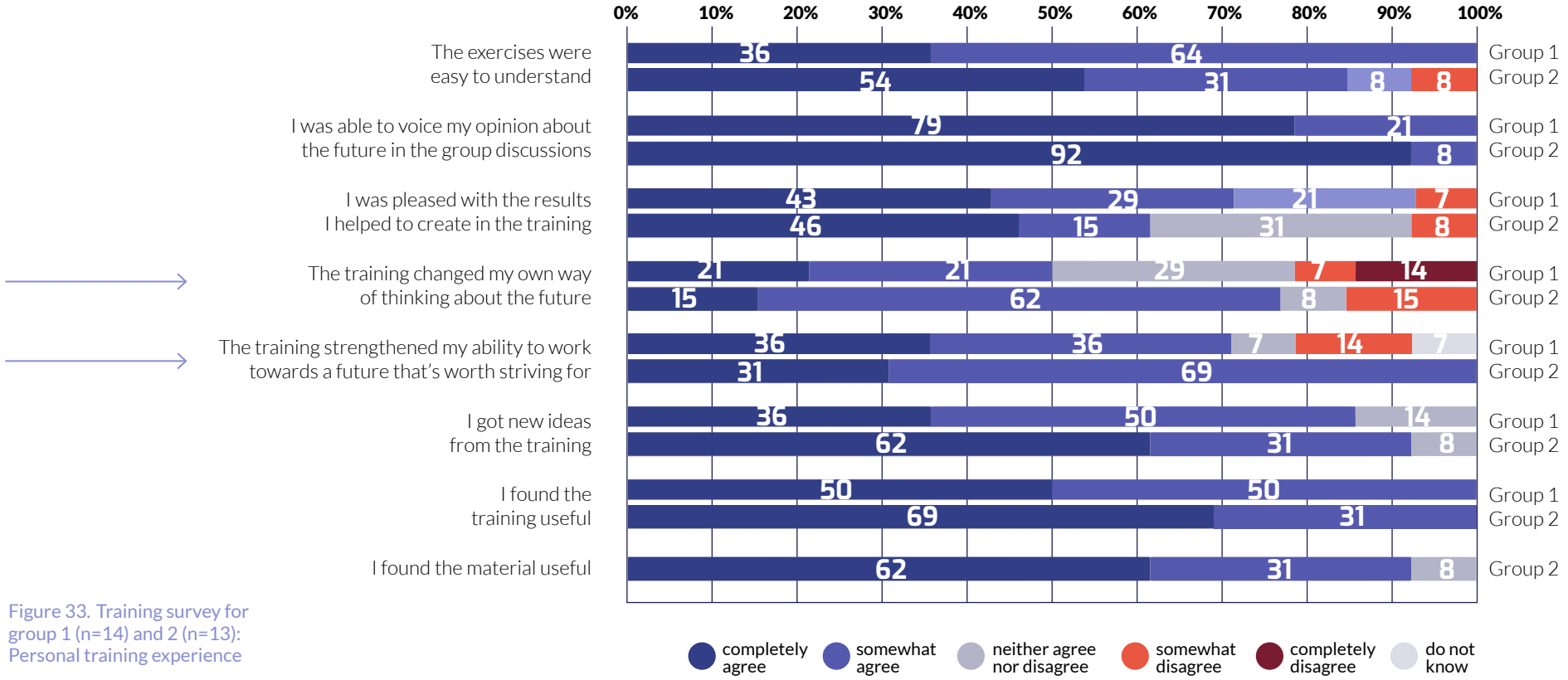
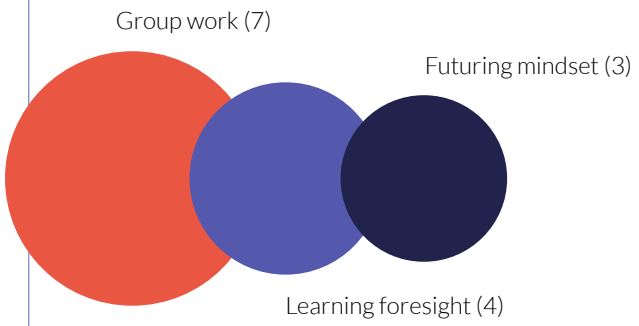


Figure 33. Training survey for group 1 (n=14) and 2 (n=13): Personal training experience

Most useful and challenging parts of the training

On what was the **most useful part of the training**, for the second group, it was clearly the group practice sections: the tasks, working together, and learning through practice were mentioned in over half of the responses (seven respondents). Following that, learning about foresight in general and the lecture sections were considered most useful, and developing the personal futuring mindset. Figure 34 displays the most frequent themes with number of respondents in brackets. Samples from the responses are at bottom of the page, translated from Finnish to English.

Figure 34. Survey results: most useful part of training for group 2 (n)



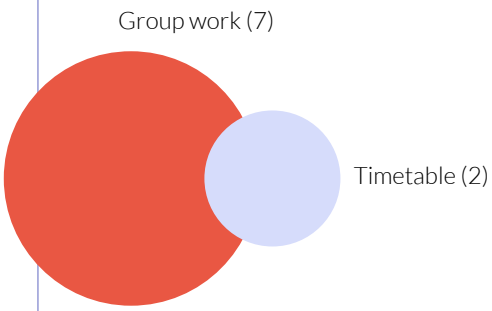
"Meeting colleagues and understanding how they think." - *Design, Specialist*

"Training in practice and applying a tool."
- *Technology, Lead*

"In general getting familiar with futures thinking and awakening my thinking as I'm in the early stages with my own futures thinking. Now it's time to think together how to move forward from here."
- *Business, Specialist*

While the group work sections were considered the most useful part of the training, in the question of the **most challenging part,** it also appeared the most often (Figure 35). On this area, understanding the learning goals and methods in the assignments, selecting the trend, maintaning a concrete topic, and defining the perspective for the storytelling were some of the mentioned challenges. Another common challenge was running short on time.

Figure 35. Survey results: most challenging part of training for group 2 (n)



"Assignments. The training was short and for this reason I didn't feel certain that I understood the methods correctly."
- *Business, Specialist*

"Finding the most interesting of several interesting trends together with the group."
- *Technology, Lead*

On **what more to learn,** the most frequent theme was how to use the learnings in practical work (five respondents), including getting guidance on the foresight process in a real project. More foresight training - about megatrends and about more diverse use of foresight methods - were mentioned, and developing the mindset by challenging assumptions.

"How to apply the thinking in my own work." - *Business, Lead*

"A lot :)" - *Technology, Specialist*

The **open feedback** included suggestions for the use and development of the training, and the training organisation was commended.

"This would work really well as a "future-proofing invervention" to the teams' projects, maybe every six months as externally facilitated workshop? To look at what you're doing with the futuring lense and evaluate possible blind spots.
-Design, Specialist

The trainer was very knowledgeable and could present the topics clearly. This always has a really big effect on the overall feeling. - *Business, Specialist*

4.4.4 Insights and concept development

Improvements in context, scope and group work

Group work and foresight toolkit were determined as a critical part of the training. Based on the training survey, group work was experienced as the most useful part. This may be a result of changing the workflow from vision to scenarios, adding materials and business context. Or, it can be an indication that this training group finds practice as the best learning method.

There was no feedback for lack context and scope on this second training. And this was also shown in what was created in the group tasks: the ollected trends, created scenarios and stories were all linked to the business, and they featured employees, customers, and services.

To be improved: timing, task instructions, and results

However, there were challenges in the group work on foresight tools, regarding both the tasks and how to use the learnings in reality. The the lowest experience rating was for the statement on workshop results. Templatising the tasks and clarifying goals can provide a solution for this, as well as adding training time.

Finding a balance between having tasks that accurately reflect the foresight process, and offer systemic and transferable learnings, while still remain simple to complete is something to work on. There's always a question of what the participants can learn because they didn't struggle with it, and what they can learn because they did. Table 12 on the following page summarises insights and development ideas.

Training and topic relevant: development justified

Overall, interest for the training was palpable. Carving half of workday for the workshop from busy schedules for two dozen people is no small feat with a short timeline. An optimistic estimate was to have 20 participants for this second training experiment and altogether 29 people signed up for the workshop.

That alone was a great success. But it was a small miracle that despite the flu season, then surprise of a nation-wide public transport strike, and finally a winter storm coinciding with the experiment day, on the workshop morning 23 of the 29 participants turned up in person.

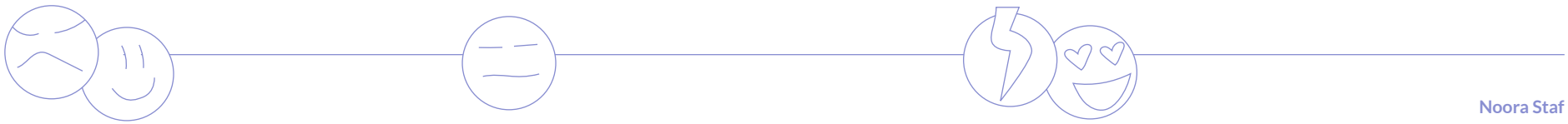
What can be judged from the feedback regarding what more the participants would like to learn, there is demand for foresight knowledge and for guidance on its practice. These can be considered to indicate interest on both training and the topic of foresight.

Training integrations

Returning to research conducted on the use of the base material Sitra Futures Frequency, there are suggestions for connecting the workshop to a larger context, such as making it part of the organisation's ongoing processes. Furthermore, inclusivity and diversity among the participants is highly recommended. Affecting power structures should be taken into consideration to make sure participants are able to express themselves free of prejudice. (Halonen et al. 2022, 56.) These considerations were not a focus of the development process, but should be better accounted for in its future development.

Table 12. Possible training development after the second experiment

Driving insights	Analysis	Possible development	
Group work was experienced the most useful part of the training and also the most challenging part, with more clarity asked for.	The usefulness of group work could be a result of changing the workflow, or the preference of this training group.	**Clarifying group work tasks**	Learning goals can be clarified. Task worksheets could be further templatised as A2 size canvases and possibly partially pre-filled.
All groups got through all the assignments but the participants noted that there wasn't enough time.	Sense of challenge may result from tasks were now connected to business operations and work tasks. This may pressure work more comprehensively.	**Extending training lenght**	The simplest solution is to add more time to the training to not compromise on learning goals and business context.
The survey showed that all the respondents were not pleased with the results they helped to create.	The training idea focused on intangible results: developing futures thinking, understanding the foresight process, and creating networks.	**Developing training results**	Role of results should be clarified. Creating results, such as scenarios, that could be directly used after the workshop, require initial scoping process, and adjusting the training format.
Trends continue to interest the participants. Challenges relating to trend collection and their analysis for the scenarios were noted.	Training tasks currently rely on the trend task. The quality of this part affects the entire workflow and is thus critical to training success.	**Support for trend materials**	Facilitators could provide feedback on collected trends. This requires foresight experience. Option is to utilise ready trend lists; however this limits the participants learnings.
There is need for more foresight information and guidance. In one feedback the expertise of the lecture was noted as a key factor.	Having lecturers with foresight experience differs from Sitra FF workshops that anyone may lead.	**Impact of trainer expertise**	Group work will benefit from more guidance. Facilitators could be sourced from training participants or from company's innovation functions. This requires facilitator training.
The challenging assumptions discussion was lively. The story-sharing section at the end could benefitfrom more reflection time.	The discussion sections are relevant as there the participants share thoughts and see what other the groups have worked with.	**Limiting training group size**	Having under 20 participants and less than four practice group would give more time per each group or participant in the discussion, presentation and reflection sections.



4.5 Perceptions on the §use of foresight

4.5.1 Training survey: Foresight use

In addition of gaining feedback on the training, on of the two themes of the training surveys was the use of foresight in general. The survey asked the participants' perceptions of what kind of projects or tasks the respondents feel they could use foresight in and what are its main benefits.

Survey respondents

Altogether 27 of the 41 training participants responded to the training survey. Design organisation (56%) and people working in a specialist role (70%) were the largest response groups (Figure 36).

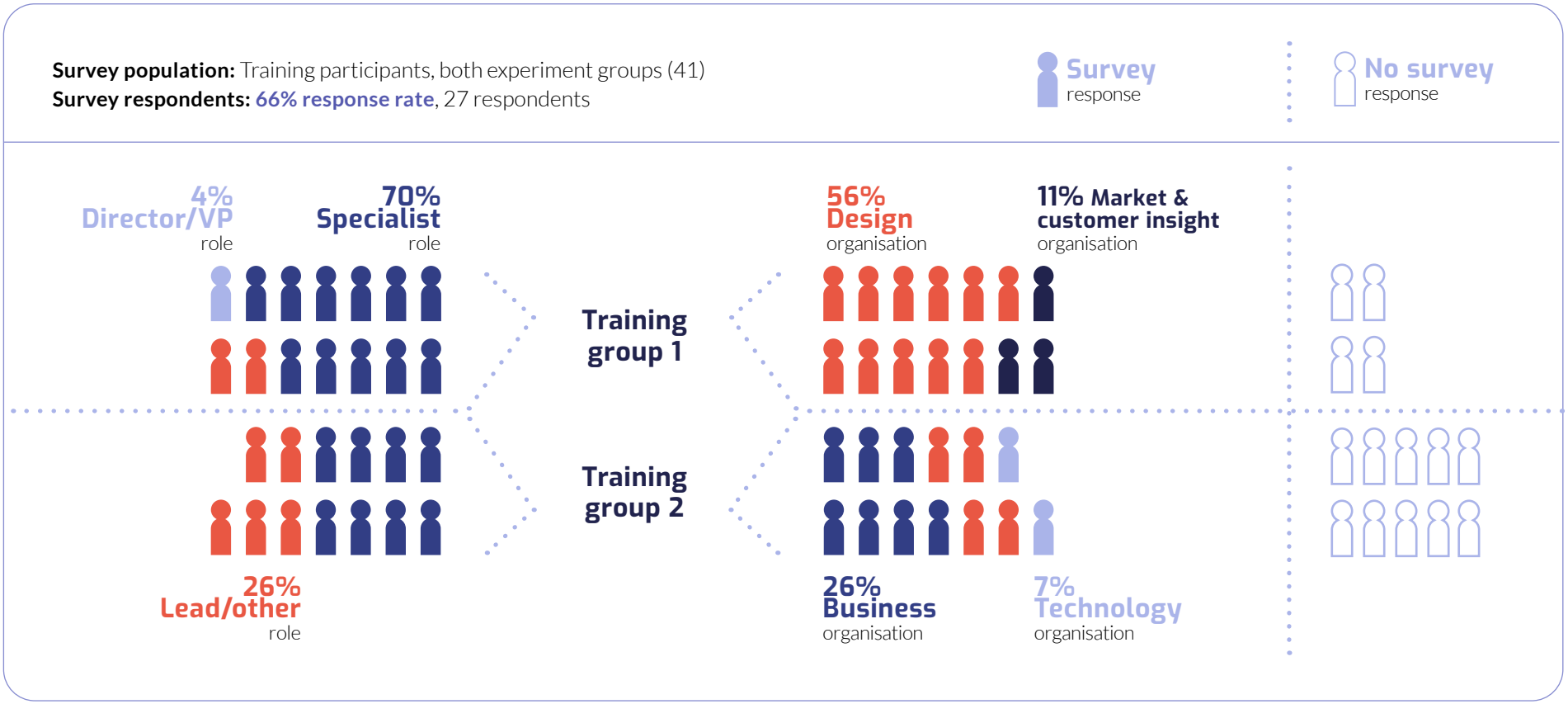


Figure 36. Training surveys: overview of survey population and respondents

Self-reflection on foresight skills

The respondents evaluated their own skills and experience in foresight. Approximately one in four (26%) had not utilised foresight in their work before, and two-thirds (66%) had, with most of them sometimes or rarely (Figure 38). The respondents from the design organisation, who were the largest respondent group, had slightly more foresight experience comparing to respondents from other home organisations, such as business and technology.

The respondents also described their knowledge and skills in foresight on three statements (Figure 37). Respondents agreed having abilities in imagining different options for the future more often, than abilites to influence the future with their present choices or to promote futures thinking in their organisation.

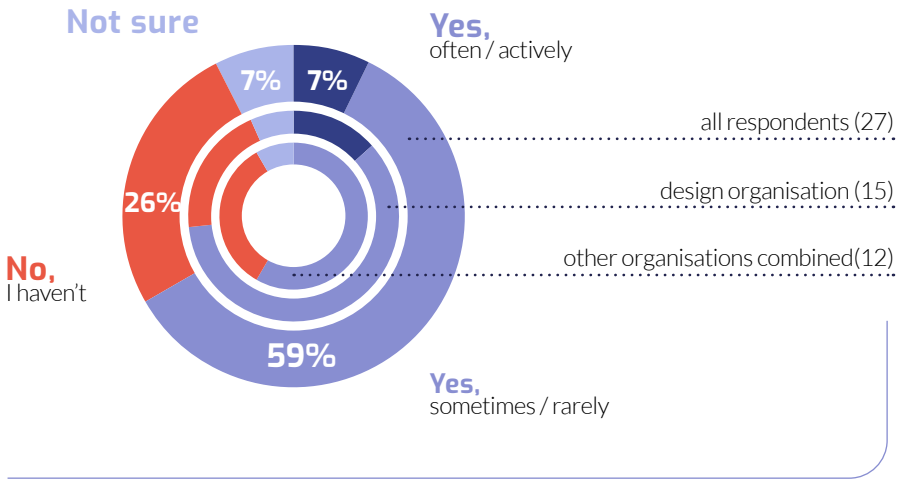


Figure 38. Training survey: Prior utilisation of foresight (n=27)

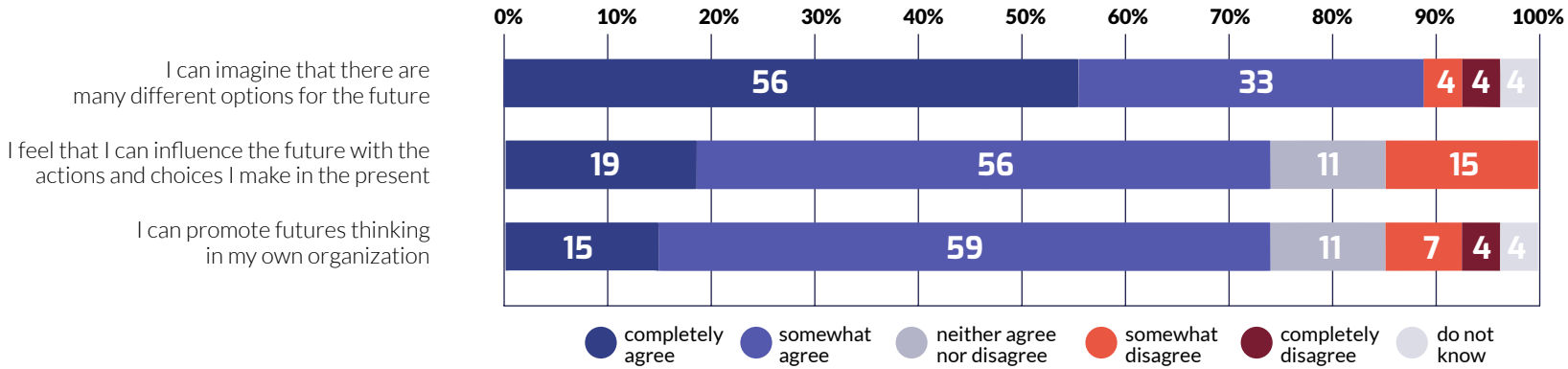


Figure 37. Training survey: Participants' skills and knowledge in futures thinking (n= 27)

Projects and tasks related to foresight

A key objective of the survey was to understand the applicability of foresight among workers from different skill backgrounds to discover who might be the ideal training participants. After the training, the participants were asked in what kind of projects or tasks they could use futures thinking or foresight. The free-form responses were simplified and clustered by functions and objectives, such as business development, and by tasks. Figure 39 illustrates the analysis findings.

Innovation, and product and service development was seen most often as the use for foresight, which may be linked to the respondent backgrounds. This was followed by **direction, strategy and planning.** Altogether, a wide range of uses for foresight appeared, staritng from a response of "any type of project". In regards to specific tasks **setting goals and creating vision** appeared most frequently. Response samples are on the right, some translated from Finnish to English.

"In various development projects, e.g. to support the goal-setting." – *Business, Specialist*

"Strategy processes and concept development / identification of new business opportunities".
– *Market & Customer Insight, Specialist*

"Anticipating what kind of world we will live in, for example, ten years from now and what kind of expertise our organization will need then. Or what kind of skills I need myself." – *Business, Lead*

"In particular to consider the long development arch of customer base and consumer technologies. For example, to account for language support of services already during design is the kind of anticipative work that ensures how ability of the services to serve future customers as well." – *Design, Specialist*

Figure 39. Training survey: Projects and tasks related to foresight (n=27)

Main uses and benefits of futures thinking

To further understand the value of foresight from the training participant's point of view, the survey asked what, if any, they consider as the main use or benefit of futures thinking. The responses were analysed, and the uses and benefits mentioned were clustered to four common objectives of foresight: monitoring the operating environment, gaining options and perspective, shared future-building and driving business value. The analysis is illustrated in Figure 40. Response samples are below; some translated from Finnish to English.

We understand even better the effects of megatrends and trend drivers on business.
– Business, Specialist

Creating/developing long-term and long-lasting services is easier if you understand what technology can later offer. – Business, Specialist

Innovate ahead of the competition, competitive edge. – Design, Specialist

To get scalability in what we do when we understand that there are many options. Likewise, I hope this helps to minimize risks.
– Business, Specialist

Shared common understanding in the organization / management.
– Market & Customer Insight, Specialist

We can create the future we want ourselves and not just passively wait for things to happen.
– Design, Specialist

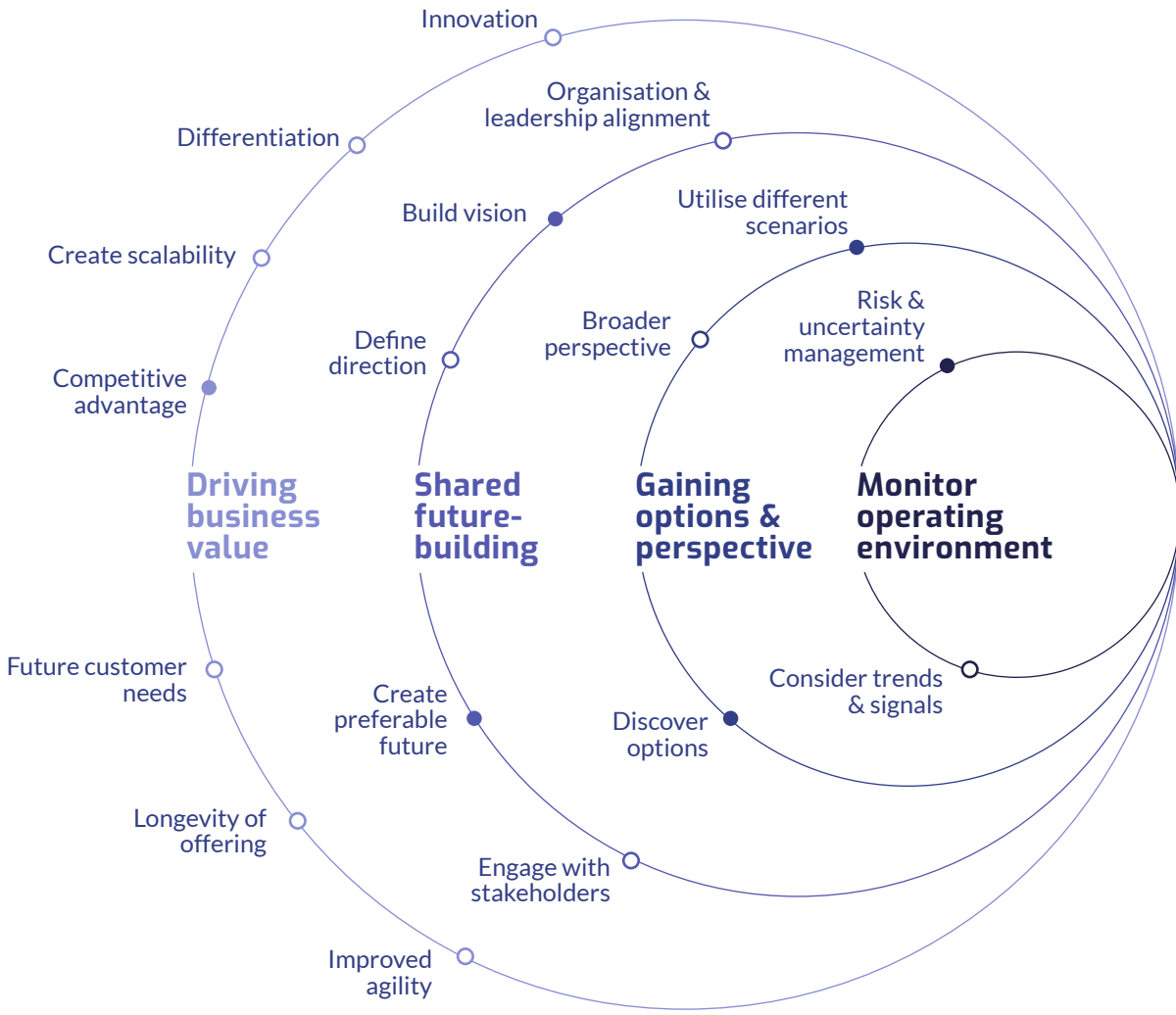


Figure 40. Training survey: Main uses and benefits of futures thinking (n=27)

4.5.2 Follow-up survey: group 1

In addition to the training survey, a follow-up survey was created. The themes and objectives of the follow-up survey are presented in Figure 42. The rationale for survey methodology and the analysis methods are identical to training survey and are explained on chapter 4.3.3.

The survey was distributed to the training participants 10 weeks after the training. Due to the research timetable, it was only sent to the first training group. The survey format is summarised in Figure 41 and the survey questions can be found in Appendix 2.

The number of responses (seven) on this survey (Table 13) was quite low, and thus there is limited use for its analysis or generalisation of the results. It can however provide a benchmark for future follow-up surveys or interviews. Some insights can be discovered from the open-ended questions concerning the changes and challenges related to foresight, and how to improve the training program are presented on the following page.

Table 13. Follow-up survey respondents

Survey group: Training participants (18)
Distribution: Feb 20 - Mar 5, 2024

Survey respondents:
39% response rate, 7 respondents
Home organisation:
71% (5) design
29% (2) market & customer insight
Work role:
100% (7) specialist

Follow-up survey format

Format: Microsoft Forms

Follow-up survey questions:
3 multiple choice questions
7 open-ended questions

Figure 41. Follow-up survey format

Theme	Objective
Training use and development Changes after the training Work roles or function recommended for training More training or support	Understand who the training is suitable for and what it may result to: how participants have applied learnings, and what changes have been identified among the participants and in their organisation after the training, and who they would recommend the training to.
Foresight development Use of foresight Challenges in utilising foresight	Understand the current application and future plans for foresight, and identified challenges related to the use of futures thinking or foresight.

Figure 42. Follow-up survey themes and objectives

Changes experienced after the training

In the open-ended questions, on **what kinds of changes the participants had recognised in their thinking about the future after the training,** the respondents mentioned noticing thinking broader and further. There was also a general increase in attention towards foresight and the future. A particular topic that was trending in the responses was consideration of alternative future paths and scenarios (four out of seven respondents).

> *"Broader thinking. Patience to pause at the brink of futures, and not just to plunge into one of them."*
> *- Market & customer insight, Specialist*
>
> *"The future contains many alternative paths and possibilities, and even by planning well you cannot ensure that your own vision of the future will come true. That's why flexible plans are needed." – Design, Specialist*

Regarding a multiple-choice question on **what had happened after the training**, three respondents had started to follow foresight newlsetters and foresight topics or experts in the media. There had also been more future-related discussion at work and one respondent had joined another foresight training.

On the organisational level, a change that was mentioned was that the training has helped to establish a shared language on foresight. However, most respondents did not identify changes in the organisation after the training.

Challenges in foresight use

Regarding **obstacles that hinder the utilisation of futures thinking or foresight in their work,** the respondents recognised both organisational and personal challenges. On the organisational side, the respondents mentioned lack of established practice or routines in applying foresight in their work. Another frequent topic was low understanding or abilities in foresight and long-term future-oriented work among people who influence direction, planning, or resources. On the personal side, more learning is needed.

"Everyone in the team / people who decide on resources don't have an understanding on the importance of foresight and therefore there's not enough attention to it."
– Design, Specialist

"It's easy to forget as I only heard and got familiar with the topic in one workshop, so it would require more attention to better utilise it."
– Design, Specialist

Who to train, what more to learn, what next

Regarding **who the respondents would recommend the foresight training to**, some would recommend to people working in product and service development. Some would recommend it to all types of specialists, managers, team leads, and heads of departments and functions. Regarding **what additional training or support would be needed,** more information on how to apply foresight in the organisation's business context was mentioned, and a clear working model and toolkit was asked for.

In terms of **how the respondents plan to utilise foresight in the future,** keeping future-related themes on their team's agenda was mentioned. There were respondents that saw foresight as an integral or growing part of their work.

"Surely it would be good for nearly every specialist to attend the training, as long as the content is brought close to the specialist's own expertise or business function."
- Market & customer insight, Specialist

4.6 Summary of the design process

The experimentation process draws to a close. Learnings from the process and their meaning for the final result are reflected.

The project idea was to build a foresight training program for workers outside leadership or the field of foresight, working in a large organisation. At the start of the process, Futures Frequency (Sitra 2023) - a three-hour workshop method on futures thinking by the Finnish Innovation Fund, Sitra - was selected as a base point to begin the experimentation process.

Two experiments of the training were conducted with a case company in Helsinki, Finland. For the first experiment the Sitra FF training contents were analysed, and new lecture sections were added on foresight in a B2C company. 18 participants attended the first pilot training in December 2023.

For the second experiment the training outline was considerably changed based on the first experiment's learnings. New supporting resources and lecture contents with business context were included. A one-hour webinar and homework for the participants were added. The original group work sections, which were identified as the most critical component of the training, were removed and new practice workflow was created with new materials, assignments, and learning goals. The second pilot training took place in February 2024 in two parts: a live online webinar with 26 participants and an in-person workshop with 23 participants.

Based on the training survey, respondents from the second training experienced that the training strengthened their futuring abilities more than respondents from the first experiment. Feedback about the lack of context or scope of the first training did not repeat in the second training. Also, in contrast to the first experiment where the development of the personal mindset was experienced as the most useful part, in the second experiment it was the group work.

In that sense, the development work of adding more internal materials, business context and scope, and creating new materials and new workflow for group work paid off as these appeared positively in the results, and possibly raised the value of the training as a whole. While the exercises were perceived as easy to understand, there were also challenges that offer areas for development, such as the addressing the role of the results created in the training and the participants' concerns on applying their learnings and foresight practice in routine work.

The experiments initially indicate that the training develops the participants' futuring mindset and abilities. To improve the training further, the key ideas are to add lecture and supporting materials with information related to using foresight in the practical work setting, to review the type of foresight methods introduced in the group work sections so that they support this, and to clarify and possibly templatise the practice assignments. The training could improve by adding more time, facilitation, feedback, and reflection.

Overall, at both experiments the training was considered useful. There was a marked interest for this training on foresight, which motivates to continue with its development and use. The following chapter presents the design process result, the foresight training prorgam, which incorporates learnings from the design process.

5

Results

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5.1 Foresight training program

Responding to current challenges in foresight, the overarching goal of this thesis was to increase the impact of foresight by making it accessible and understandable to new people. As a result, a foresight training program was developed and experimented with a large company. This chapter presents the results: the Minimum Viable Product of a foresight training program. It is a result of an analytical and creative process by the author, incorporating insights from the literature study and the design process, presented with a strategic design perpective. The design result is summarised utilising the business model canvas (Strategyzer 2024) in Figure 43. Key areas of the training program are explored on the following pages.

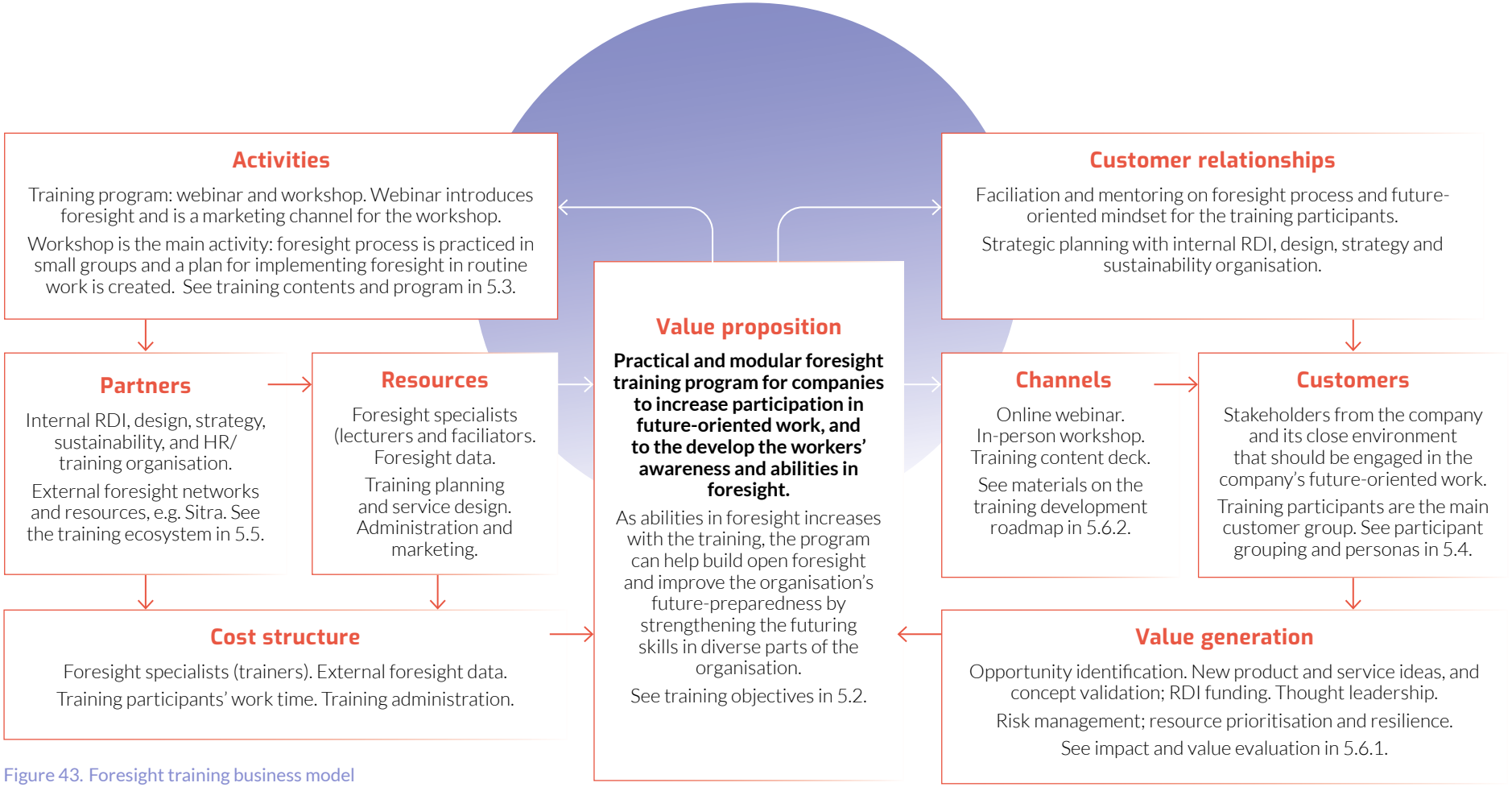


Figure 43. Foresight training business model

5.2 Training objectives

The training program needs defined goals, and Figure 44 describes a process for setting objectives. Determining relevant objectives and locating resources for the training begins with an audit of foresight capabilities. For this, foresight maturity models can offer a framework (see chapter 2.4.4).

Two types of objectives should be associated with the training, which here are referred as corporate and learning objectives. The corporate objectives refer to overall objectives and functions of foresight (chapter 2.1.2). Learning objectives describe the competence development on the worker-level (chapter 3.2.3). Figure 45 outlines the recommended and supporting objectives for a participative foresight training program for workers with different skill backgrounds, along with possible objectives to consider after succesful implementation and use of training, and once foresight abilities and maturity have increased in the organisation.

Figure 44. Process for determining training objectives

	Recommended objectives	Supporting objectives	Possible further along
2 Corporate objectives	Opportunity identification, idea creation and validation. Innovation catalysis. Defining vision and direction on project- and team-level. Building future-oriented culture and open foresight.	Strategy formulation for projects and teams. Utilising and developing sustainability goals. Developing human-centered strategy. Competence planning.	Anticipatory intelligence, mapping operating environment and risks. Determining large-scale priorities, directing R&D, resources, or funding. Thought leadership.
3 Learning objectives	Envisioning many futures and the preferable future. Systemic & critical thinking. Applying and adapting foresight methods to routine work tasks.	Building resilience and agency towards the future. Increasing collaboration and networking. Personal competence planning.	Creative use of foresight methods and development of new futuring tools. Increasing autonomy and work motivation.

Figure 45. Corporate and learning objectives for the training

5.3 Training format and outline

5.3.1 Content modules

A distinguishing feature of the training is its modularity. The training contents are organised in five modules (Table 14). Idea is that the training can work as a stand-alone program, or its modules can be integrated to the organisations' strategy, sustainability, design, innovation, or other future-oriented trainings. Modules 1-2 develop the futuring mindset of systemic, critical, and creative thinking. Modules 3-4 introduce foresight data and develop understanding on the foresight process using templetised tasks and tools. Module 5 develops the foresight organisation, and the participants plan how to implement foresight in their respective teams.

Each time the training is organised, it should be customised for the training group. It is recommended to select topics from each module. The modules and topics are outlined in the content map on Figure 47 on the following page, incorporating the idea of a training information map (Carlier 2015, 100). Utilising foresight training content hierarchies (Ollila & Hujala 2020, 403; Poussa et al 2021, 10) and experiences from training experiments, the map visualises the author's view of foresight training contents and their meaning to the training objectives.

New topics developed after the training experiments are "Planning & implementation" (module 4), "Foresight organisation" (5), and "Adapting foresight practice" (5), which guide the participants in applying foresight skills in routine tasks, and groups work together on an action plan to apply foresight in their work. This will also benefit the host organisation by learning the teams' needs on foresight for realigning the training and open foresight initiatives. Another new topic, "Foresight activities & updates" (module 5) is a space to introduce current foresight initiatives and materials.

Module 1: Systemic understanding
Module 2: Critical creativity
Module 3: Foresight process
Module 4: Foresight toolkit & data
Module 5. Foresight organisation

Table 14. Training content modules

5.3.2 Instruction & facilitation

The instruction strategies include lectures and group work to build understanding, evaluation to guide skill development, and discussions to build shared understanding, to learn from peers and to reflect on the learnings (Figure 46). As a new instructional strategy of evaluation is introduced, where feedback and assesment is provided for the participants to refine their use of foresight. Facilitators guide each group, supporting the participants' work and collaboration in learning the foresight process key elements, and quality criteria. The facilitators and lecturers provide feedback for the groups and summarise how to improve the process.

The selection of instruction strategy for each topic should be done in the planning phase based on the trainers' and facilitors' capabilities' and the participants' needs for either information (lecture) or practice (group work) or alignment of thoughts (discussion). A mix of instructional strategies are recommended, switching between instructional strategies every 20-30 minutes (Wan 2013, 37).

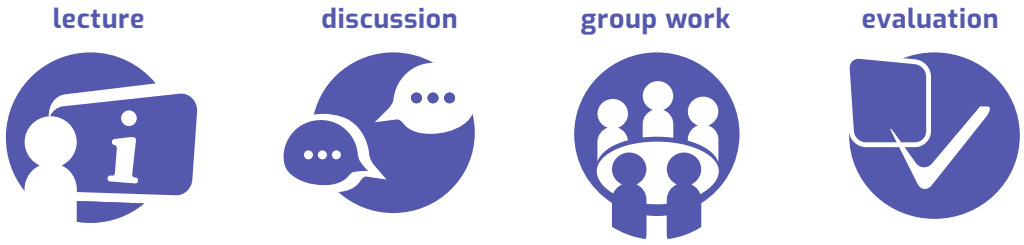


Figure 46. Training instructional strategies

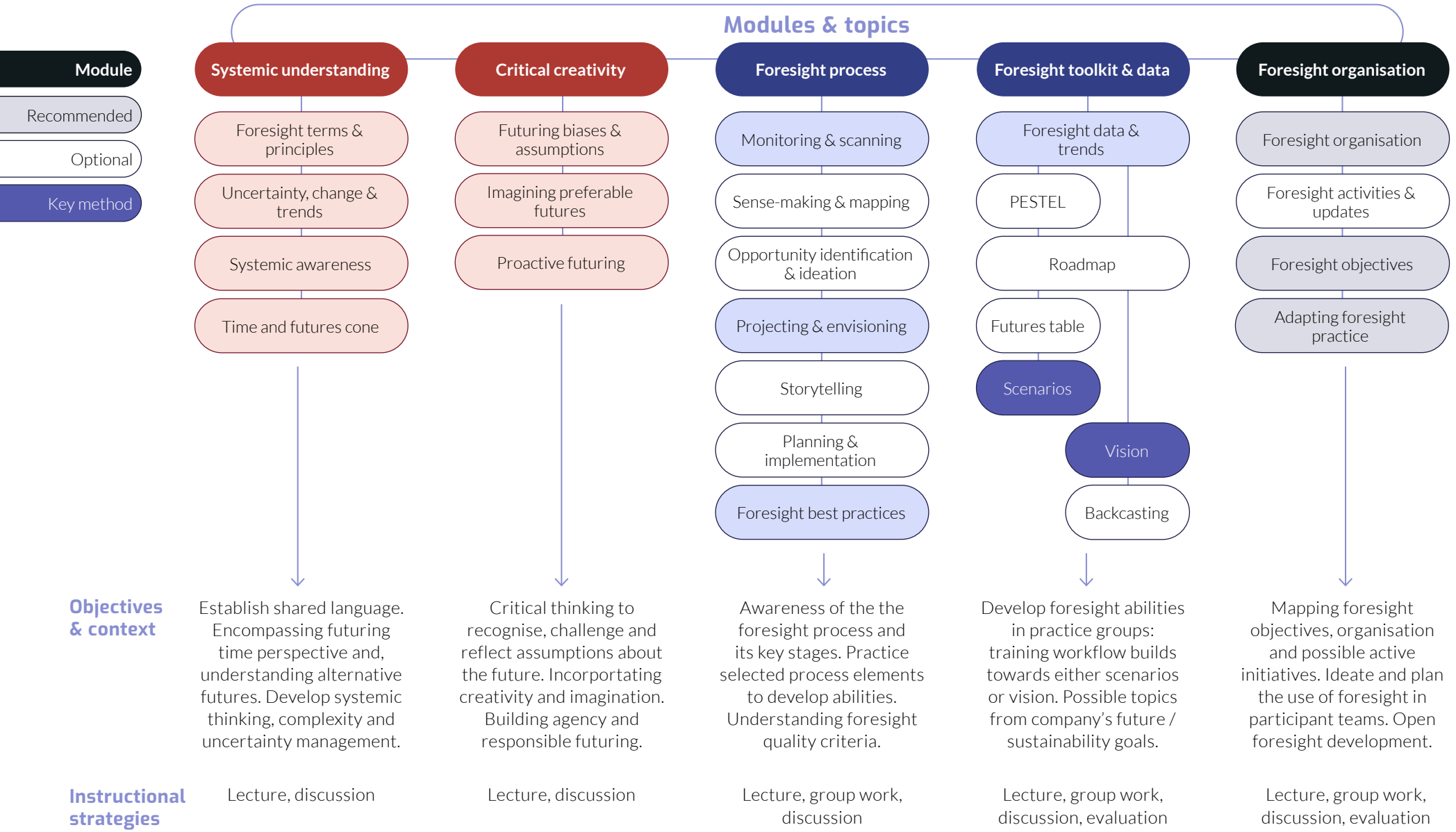


Figure 47. Training MVP content map

5.3.3 Training program

The modular format of the training allows for diverse uses, and integrations with other trainings and activities. A suggestion for a stand-alone training program is presented here and it is comprised of two elements: webinar and workshop.

The webinar can be organised on demand, or it can be scheduled on repeating rotation, for example once per quarter. The online format allows flexibility for maximum number of participants. However, to promote discussion and questions, limiting the group size is advisable. The webinar program and its objectives (Figure 48) focus on increasing awareness in foresight, introducing the futuring mindset and the workshop.

The main part of the training program is the workshop. **The workshop** program and its objective (Figure 49) focus on further developing the futuring mindset and building abilities through practice. The used foresight methods and tasks can be customised based on the group's needs, which is discussed on the following page. The training may use a pre-defined topic, for example based on the organisation's key future-oriented goals. Having a defined topic relevant to the organisation will provide a relatable and clear context for the training activities.

In the final sections of the workshop, the learned mindset, process, and tools are reflected, and the work evaluated. Participants work in small groups to ideate suggestions on how to use of futures thinking and foresight methods in their teams and in the organisation. A follow-up plan for the group is outlined in the "Adapting foresight practice" topic.

Figure 48. Webinar program

Duration: 45-90 minutes
Format: Online webinar
Training group: 20-40 people
Trainers: 1-2 lecturers, 1 host
Objectives:
1. Increase awareness of futures thinking and foresight
2. Marketing the training and foresight-related activities

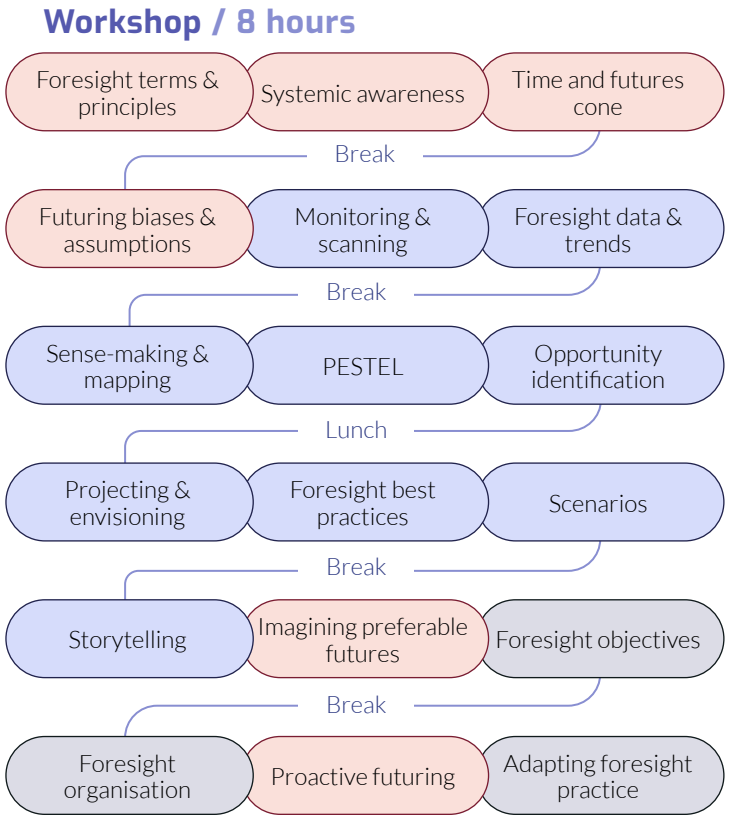


Figure 49. Workshop program

Duration: 6 hours + breaks
Format: In-person workshop
Training group: 10-20 people
Practice groups: 3-6 people with maximum of 4 groups recommended
Trainers: 1-2 lecturers, 1 facilitator per practice group
Space: one large room, a large table and flipboard per practice group
Objectives:
1. Build the participants' futures thinking mindset, and develop analytical and creative thinking skills for systemic and long-term planning
2. Understand stages of the foresight process and practice selected methods of the foresight toolkit
3. Outline how to develop and spread the use of futures thinking and foresight methods in the organisation

5.3.4 Customising the program

The training structure is modular and flexible to customisation to respond to the myriad of options regarding the purpose and practice of foresight. This also provides options for various integrations. While the training can work as a stand-alone program, the modules of the program can be integrated to the organisations' strategy, sustainability, design, innovation, or other future-oriented trainings. Building from established foresight processes and tools, various materials and learning activities can be integrated to the training to create a unique and relevant learning path.

Customisation should be done in the planning phase, linked to the training goals, including the company's and participants' need. The customisation can be directed by the organisation's strategic or operative objectives (for example innovation, risk management, opportunity mapping, competence planning). It can be driven by certain foresight methods or materials that the teams prefer to introduce (for example scenario, vision, trend reports), a key theme (for example sustainability, urbanisation, technologies), or a type of thinking or skill to be developed (for example creativity, systemic thinking, divergence, convergence). Ideas for the training customisation are outlined in Table 15.

Themes & context	Theme should be planned based on organisation and participant needs. Relevant themes can be outlined from the organisations' key future-oriented goals, such as the ESG / CSR goals or UN SDGs.
Time & scope	The training should expand the participants thinking. Consider what year in future to focus on and how many futures should be created.
Skills: creative	For creative skills, the learning path can focus on challenging assumptions and imagining the future. The participants can create a vision or alternative scenarios that challenges perception of the future. Target year: 15-50 years in the future.
Skills: systemic	For systemic skills, the learning path can focus on understanding change and complex systems. The participants can collect and analyse trends, create a scenarios and a roadmap that support the decision-making processes. Target year: 10-20 years in the future.
Results	If the participants are looking to develop results that can be used after the training, an option is to use the training program as a basis for a foresight workshop. This can be e.g. for future-proofing a product or service concept by creating scenarios and future customer personas, or to outline a vision for project. For this, modules 2-4 of the training contents can provide a framework.

Table 15. Customising the training program

5.4 Training groups

The training is designed for people with some or no experience in foresight. The participant can be from any part or level of the organisation or from the company's external stakeholders. The webinar is designed as an information session on futures thinking and is suitable for any person in the organisation; it has the lowest barrier of entry.
The workshop is designed for individuals who completed the webinar, or are interested in improving their knowledge and skills in foresight, and to collaborate on developing future-oriented work in the organisation. Partipation in the webinar is recommended pre-requisite for the workshop.

5.4.1 Creating training groups

Department or team leads should be included in the training planning as their overview of the organisation can hep locate teams and workers who will find the training useful and timely. Their input can help identify relevant themes, challenges, and desired outcomes, which can outline the training topics, tasks and materials. Another aspect to consider in planning training groups is the mix of partipants. Examples of training groups and their impact on the training:

People from the same department or workers and stakeholders with a shared goal or projects: This type of training group may find that the training benefits team alignment on future-related work, and that it expands their the planning horizon. The participants are likely to associate the training activities and results with their current project, so more focus on planning the training results is needed in the planning phase.

People with similar skill background that work on different projects; or people of different skill backgrounds, or from different organisations, with shared interest topic(s): This group may find that the training provides cross-functional collaboration, increases diversity of voices in future-related work, provides strategic alignment on a future-related project, and expands the planning horizon. The group work section of the training should be facilitated by determining topics for the tasks in advance.

5.4.2 Participants

Participants can be from any part or level of the organisation. Participation should be inclusive and voluntary. To refine the understanding on who the training program is most useful for, focus on the participant background and role may help, as the ability to utilise what is learned about foresight in the training is likely to be connected to how foresight links to the individual's work.

Roles, tasks, and projects that benefit from the use of futures thinking was a topic in the surveys of this research. The findings from the surveys and the theoretical framework form the basis for outlining recommendations on who the training is most useful for. Utilising the persona canvas (Lewrick 2022, 195), the personas on the following pages (Figures 50 and 51) represent possible and recommended training participants. The training is not exclusive to these personas. The purpose of the personas is to inform and inspire training organisers to identify and develop their own personas for training partipants. The persona development should account for both internal and external stakeholders.

Alex
Product designer, 27 years

Influences

Management and leadership: design (team) lead and director.

Collagues and project collaborators.

Company goals, vision, and values.

Business and design trends.

Trends

Generative AI.

Resource efficiency and sustainability.

Design for all.

Optimisation-oriented work methods.

Flat organisations, work autonomy and remote work.

Applications for training and foresight

Challenging assumptions and broadening thinking to produce unique concepts. Trend and phenomena-based ideation and segmentation.

Future scenarios and user personas for concept validation. Technology roadmaps and sustainability evaluation for extending the product life-cycle and circularity.

Applying systemic perspective to detect relevant partnerships.

Developing long-term goal and vision for a product concept, project, or team.

Resiliency development.
Personal competence planning.

Jobs to be done

Discovering and defining customer or user problems. Field research, data collection and analysis. Assessing product materials, structure, and construction.

Creating product sketches, blueprints, and user personas. Product prototyping and concept validation.

Codesign, facilitating workshops with stakeholders and users. Multidisciplinary collaboration for product concepts. Reporting to design lead or manager, or function lead.

Frustrations

Constantly changing circumstances (emerging competitors, technologies, and customer needs) create uncertainty on the design work.

Short planning and implementation cycles, where leadership focuses on quick results over long-term development, and lack of radical innovation are demotivating for a creative mind. Limited time for training and learning new skills.

Personal concerns for climate change and resource depletion.

Motivations

Identifying critical trends and opportunities to spark ideation. Creating an innovative product that improves the company's competitive edge and personal compensation.

Anticipating customer needs and relevant technologies for idea validation and green-lit design projects.

Increasing internal networks across different domains to gain support for own projects.

Upskilling in foresight can secure future job opportunites.

Figure 50. Training user persona: product designer

Andrea
Business development lead, 45 years

Influences

Management and leadership:
VP of business development.

Collagues and direct reports.

Customers and suppliers.

Company goals, vision, and values.

Bonus and commissions.

Trends

Market disruptions and volatility.

Customer centricity.

Omnichannel sales and marketing.

Applications for training and foresight

Trends and future scenarios for business case validation and value stream mapping.

Future outlooks for establishing thought leadership and developing customer and stakeholder engagement.

Developing long-term goal and vision for a business development program and team.

Resiliency development.
Personal competence planning.

Jobs to be done

Business idea validation and business plan development.

Business area forecasts. Monitoring and reporting business development.

Competitor and market analysis.

Leading a business development team.

Frustrations

Medium-term goals drive individual and team's planning. Short-term yield is expected by the leadership.

Bonuses are tied on exceeding business development goals. No incentives for training and learning new skills.

Changing supply chains and customer needs.

Motivations

Interest for understanding trends that can create new business opportunities, which improves job performance.

Anticipating market changes and customer need development help outlining goals and strategy.

Upskilling in foresight can secure future job opportunites or provide a promotion.

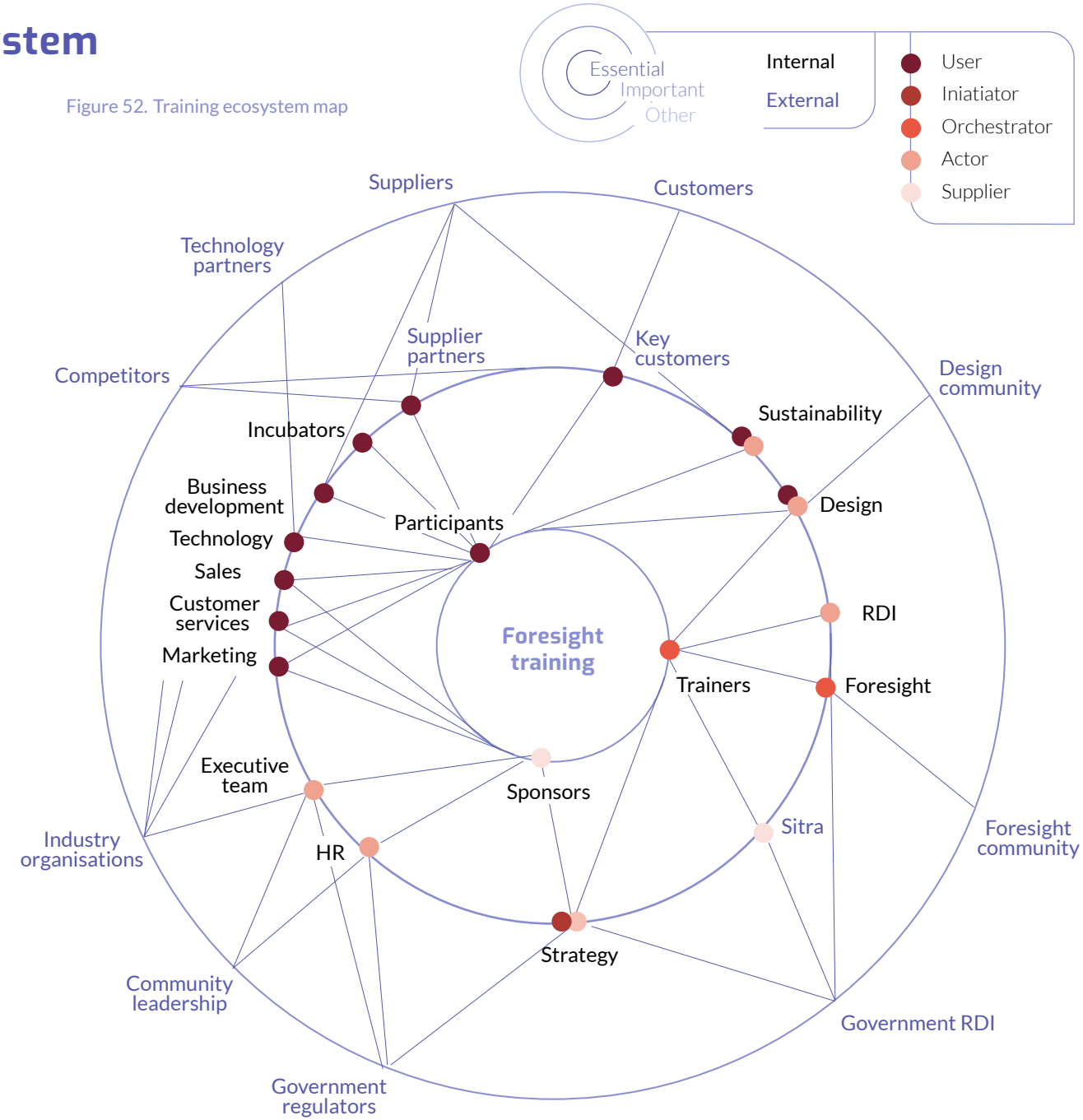
Figure 51. Training user persona: business development lead

5.5 Stakeholders and ecosystem

The key stakeholders and resources should be identified and engaged early on early in the training planning. Utilising an ecosystem map (Lewrick 2022, 67; Stickdorn et al. 2022, 59-61), Figure 52 illustrates the stakeholders of the foresight training for one possible scenario, where the training would be iniated by the company's strategy department, and orchestrated by the foresight department. Essential stakeholders appear in the center of the map; sponsors, trainers and participants. Both internal and external parties are important to the ecosystem.

Influence, value strems (funding, people and materials), and value gain (knowledge and tangible outputs) travel both ways in the ecosystem (Figure 53). For example, the trainers would gain expertise and materials from the foresight and RDI organisation. And the value gain would return to the foresight and RDI organisation as feedback and outputs from the trainings.

Figure 52. Training ecosystem map



Value streams

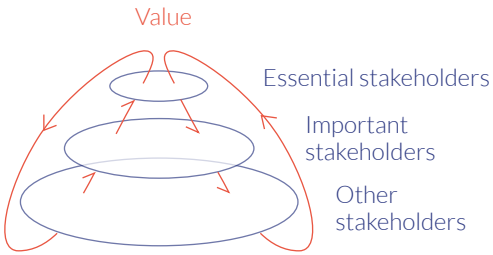


Figure 53. Training value streams

5.6 Evaluation and scaling

5.6.1 Impact evaluation

Training program impact should be evaluated, and one way is to measure its value, and balance it against the costs (Kupias & Koski 2012, 176). The complex and systemic nature of futures thinking challenge the evaluation, and impact of foresight lacks a general evaluation framework (Halonen et al. 2021, 18). Applied methods have viewed foresight workshop impact from three perspectives - individual, organisation, and society (Halonen et al. 2021, 22) - and the author's perspective mirrors this.

Impact evaluation should build on the defined training objectives. Some objectives may provide numeric metrics, for example if the objective is opportunity identification, then for example the number of new product ideas could be relevant for evaluation. When objectives are related to intangible qualities such as wellbeing or resilience, the measurement could utilise interviews or job satisfaction surveys. An example mapping is illustrated in Figure 54. It includes eight alternative objectives for the organisational impact of the training, from which three chosen objectives represent the core value range, and determine the impact metrics.

5.6.2 Roadmap

When impact evaluation supports continued investment for training development, a roadmap should be outlined. Minimum Viable Product is a design framework, where activities can be prioritised to what must, should, and could be implemented (Toiminen et. al, 2018 169). Concluding this chapter, on the following page (Figure 55), a possible roadmap is presented, with the must, should, and could activities. The prioritisation is affected by estimated maturity or complexity of each activity (pushing it forward on the roadmap), and importance to concept success or stakeholders (pulling it earlier on the roadmap).

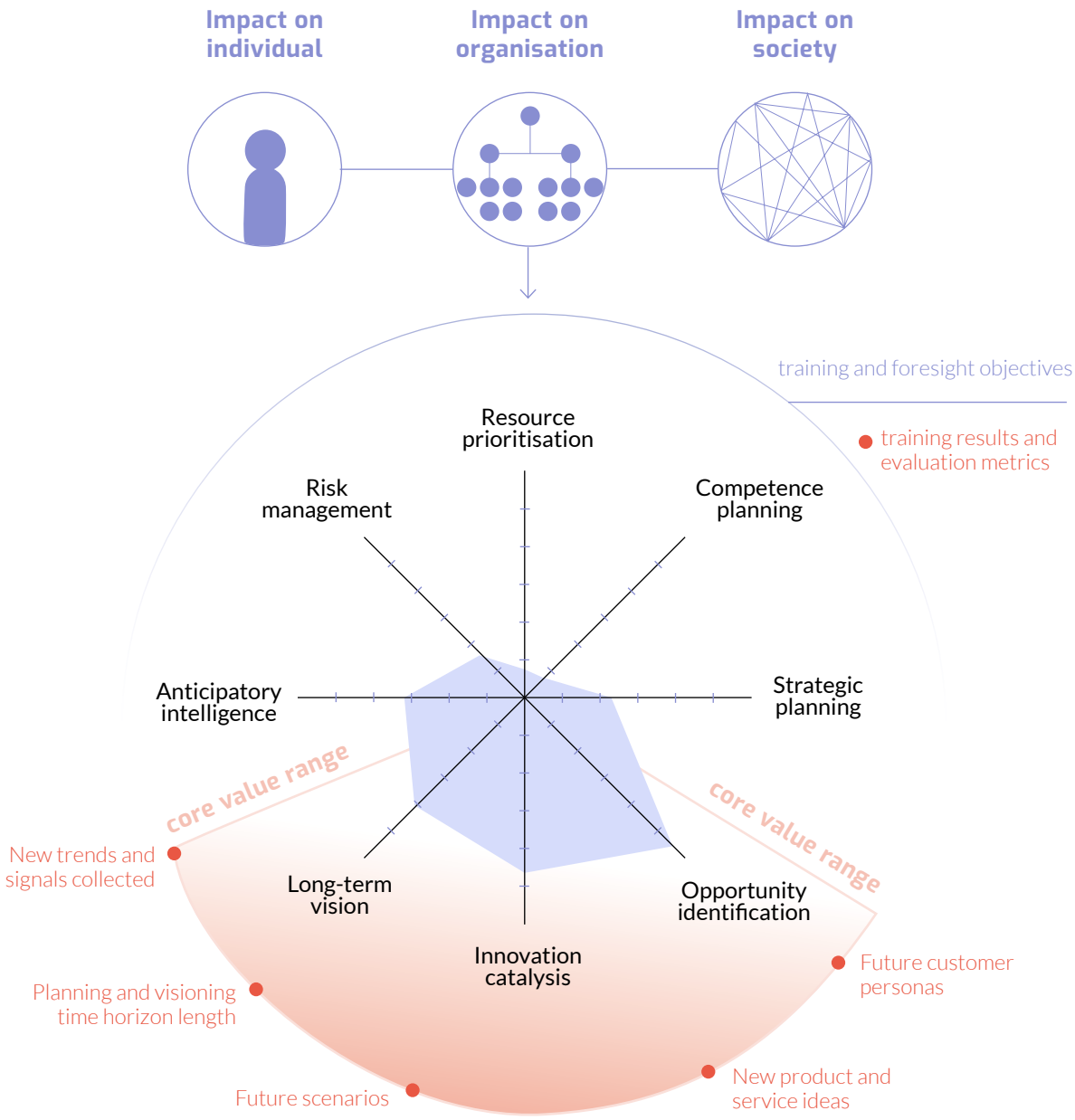


Figure 54. Training impact evaluation matrix

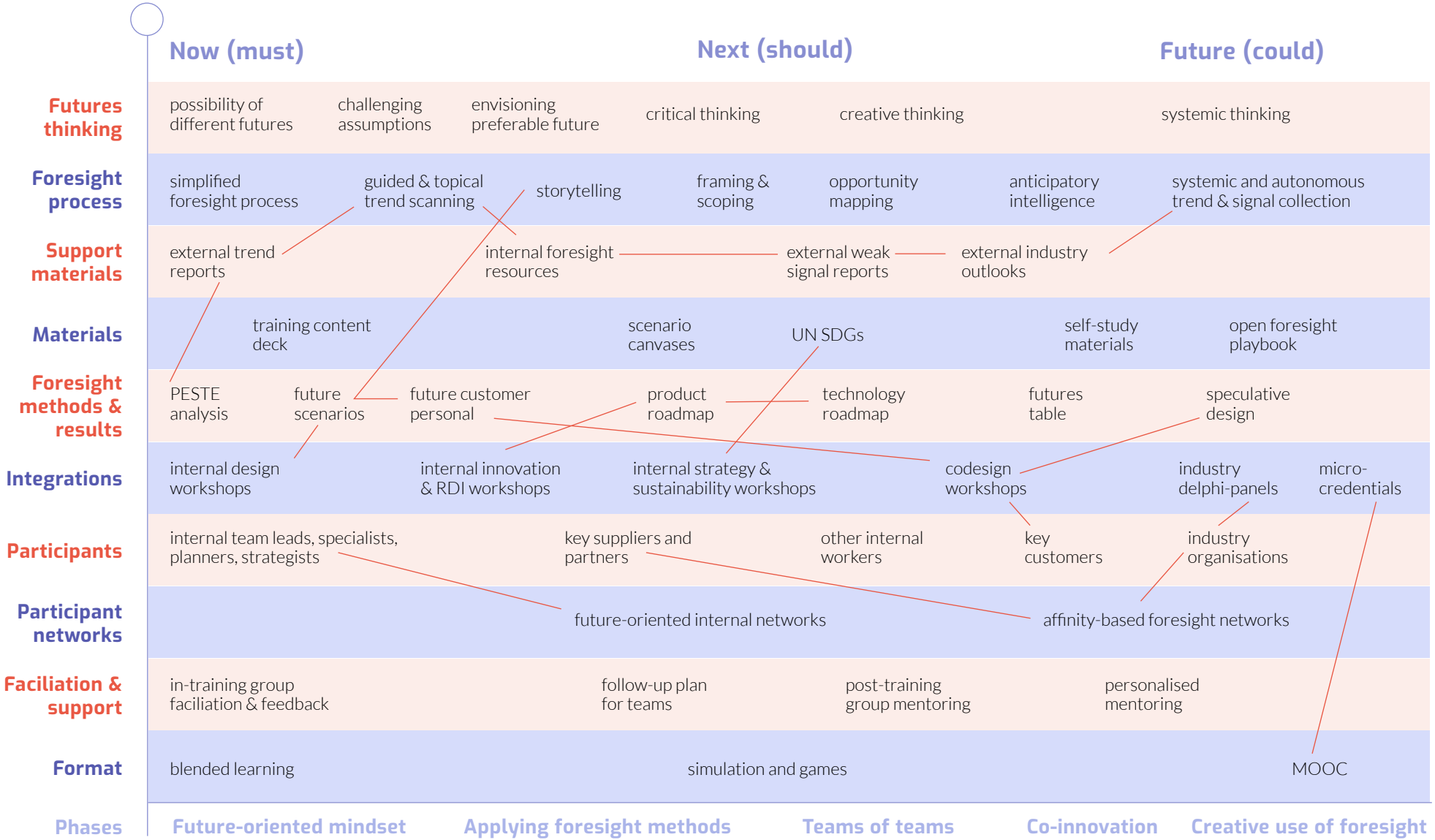


Figure 55. Possible foresight training program roadmap

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6

Conclusions

6.1 Summary of findings

This thesis was ignited by an idea to increase the application and impact of foresight. In reviewing recent research, the problematic of foresight being siloed into a marginal function was identified (Ahvenharju et al. 2020, 5) and the importance of broader collaboration in futuring work was recognised (Koskinen 2019, 61). Bringing foresight activities closer to routine tasks, and having the entire organisation participate was found as a recommended development idea (Heinonen, 2019, 64; Virtanen 2023, 17). For this, the concept of open foresight provides a framework.

Open foresight is a participative approach, described as an open-ended process that looks at many environments, and involves both internal and external stakeholders (Daheim & Uerz 2006, 15). The idea of designing a foresight training program was selected as the thesis topic and a large Finnish B2C company ("case company") commissioned the project. To accelerate the training development, relevant existing training materials were searched. An open-access future workshop method, Futures Frequency by the Finnish Innovation Fund Sitra, was selected as a format to begin experimentation with. The Futures Frequency contents (Sitra 2023), its facilitator's guide (Poussa et. al 2021) and impact study (Halonen et al. 2022) provided information, structure, and a benchmark for the process.

The development phase of the training was done in collaboration with the case company, utilising a design process of experimentation-driven innovation. The goal of the training was to increase awareness and abilities in futures thinking and foresight among workers of different skill backgrounds, having some or no experience in foresight. Two experiments of the training were conducted with altogether 41 participants working mostly in a specialist role in the case company. The training experience, perceptions on the use and benefits of foresight, and the impact and challenges after the training were evaluated with surveys, distributed to the training participants.

During the development process new training materials were created and the training format was extended. Group work was determined as the key element, and after the first training experiment new tasks and learning goals were developed. In addition to introducing the futures thinking mindset, in the second experiment the focus was on the foresight process, trends and scenarios. The training tasks and lecture materials were customised with information relevant to the business, as importance of having a more specific topics and context was indicated by the first experiment's survey responses. The results of the second training survey showed improvement on the respondents' abilities to work towards a future worth striving for.

After the development and experimentation phase, a Minimum Viable Product (MVP) of the training was designed by the author. The MVP, presented in chapter 5, is a result of an analytical and creative process, incorporating insights from the experiments, the surveys, and literature on the topics of foresight and training in organisations.

The MVP utilises the design approach and offers a systemic viewpoint to the training. It provides a framework for a foresight training program for companies that want to develop participative and open foresight, increasing futuring abilities among employees working outside the field of foresight, and involving external stakeholders to the process. The results provide suggestions for training objectives, content modules, and a two-part program. It includes examples for the training customisation, and a perspective on discovering ideal training participants as well as on developing the training ecosystem, impact evaluation, and future roadmap.

On the following pages, the thesis returns its objectives, as conclusions on the research questions are presented. The topic, process, and resulting implications are reflected, and suggestions for future research are outlined.

6.2 Conclusions

6.2.1 Question 1

What kind of training program can develop awareness and abilities in foresight among workers operating outside the field of foresight?

A training program that develops awareness and abilities in foresight should incorporate key ideas on both successful foresight practice and training.

The training program should have clear objectives. These are defined by the training organisation, participants, or trainers (Kupias & Koski 2012, 12). An audit of the current foresight functions and goals should be made to determine the core objectives and expected value of the training (chapter 5.2). The objectives should refer to the competence gap that the training should address: the difference between the current knowledge and expected knowledge or skills (Wan 2013, 23). The level of current foresight knowledge among the employees to be trained can be evaluated at both the start and end of the training. A training program is sustainable when the investment objectives are matched, and the learning goals align with the organisation's overall goals (Wan 2013, 103).

Futures knowledge should be connected to everyday work (Pouru et al. 2019, 90). Considering that adult learners are goal-oriented, bring their current skills to the training, and experience most impactful learnings when they can integrate new skills to their daily routines (Carliner 2015, 8), establishing connection to the business operations of the training host should be part of the training planning.

Foresight requires systemic, critical, and creative thinking, awareness of complexity, and an ability to envision multiple futures (Ollila & Hujala 2020, 403). For a training to develop skills that require analysis, synthesis, and evaluation, it should utilise collaborative instructional strategies; knowledge development develops with lectures; discussion helps to build shared understanding and comprehension (Wan 2013, 44). A workshop with a mix of group work, lectures, and discussion is thus advisable. Open foresight should have sincerely participative and accessible format, which can mean an online component (Miemis et al. 2012, 94). This can be provided with a webinar, and possibly with online canvases or a foresight playbook further in the training roadmap.

In the big picture, the question about the training program is not only about the objectives, instructional strategies, or contents of the program. Research on developing organisational futures knowledge recommended to see foresight as a continuous and dynamic process, and in that process broad networks should be engaged (Pouru et al. 2019, 90).

Regarding the dynamic process, the designed training roadmap (5.6.2) outlines the continuous path for training development, including what processes, materials, facilitation, and integrations should be introduced. Regarding the networks, the follow-up survey (chapter 4.5.2) showed that understanding of foresight and support fo long term planning among decision-makers play a role in utilisation of foresight after the training. This indicates that leadership support is a key element for developing abilities in foresight. The design result mapped diverse stakeholders and the ecosystem for the training (chapter 5.5) where support and resources can be discovered.

6.2.2 Question 2

What work tasks and projects can benefit from the use of foresight and futures thinking?

The purpose of discovering the work tasks and projects that can benefit from the use of foresight and futures thinking is to identify the relevant participants for the foresight training. It also helps to understand the strategic and operative motivations for organisations to invest in the training development.

In terms of identifying the benefits, the survey of this study asked the participants of the training experiments what they consider as the main use or benefit of futures thinking (chapter 4.5.1). Frequent topics on the survey responses were risk and uncertainty management, discovering options, utilisation of different scenarios, building vision, creating preferable future, and developing competitive advantage.

In addition, the surveys asked the training participants in what kind of projects or tasks they could use futures thinking or foresight (chapter 4.5.1). The respondents found projects and tasks related to innovation and product or service development most frequently as the use for foresight, followed by direction, strategy, and planning. Overall, a wide range of projects and tasks appeared, also including a response of "any type of project". The connection between each respondent's home organisation (or department) and the project or task described in their response was not presented in the analysis, but it is noteworthy that 56% of the survey respondents worked in the case company's design organisation, 37% in a business-related organisation, and 7% in technology organisation.

Returning to literature, a commonly referred research by Patrick Becker (2003, 1- 2) suggests foresight has five main functions: future-oriented information and intelligence; creation of direction and guidelines; priority assessment for strategy, research, and funding; strategy planning and implementation; and innovation stimuli and support. Similar functions were discovered in the surveys conducted in this thesis. However, it could be considered that the five above mentioned functions are quite general categories, and the reader can reflect how many jobs include tasks where priorities are assessed, and strategies planned. Perhaps foresight is a job for anyone. Recent research does suggest that foresight should not be outsourced or siloed, but a mindset for everyone in the organisation to learn (Ahvenharju et al. 2020, 59).

Ideally, should every worker get involved with foresight? Ultimately this may come down to resources. Companies that upskill their workers in foresight or plan opening their foresight process for wider participation most likely need to prioritise it to certain roles and tasks that need and benefit from it the most. In the design result of this research, two personas for training participants are presented (chapter 5.4.2). The personas are products of a creative process, informed by the research. They should be considered as two possible and recommended training participants, but not as two personas the training should be exclusive to. It is advisable for future training organisers to develop personas for the trainings they plan to host, and in that consider both internal and external stakeholders.

6.3 Implications and going forward

6.3.1 Implications for foresight reseach and practice

Participants and stakeholders to open foresight

Research on Sitra Futures Frequency workshop method suggested to connect foresight workshop to the organisation's context and to gain leadership support (Halonen et al. 2022, 56). The surveys of this thesis supports those recommendations. Identifying relevant stakeholders for open foresight is a research area that needs development, and this thesis particularly looked at who should be the key stakeholders beyond top leadership.

In the scope of open foresight, and in foresight workshops and trainings, the background or skills of the participants is often a passing note. The recommendations for participants are general, such as "adults working in a specialists or development role" as is in the case of Sitra's Futures Frequency (Poussa et al. 2021, 4). This is understandable as the idea with open foresight and many of foresight workshop formats is to engage a broad spectrum of people in the futuring process, so offering limitations might not be advisable.

However, the author argues that guidance on that topic is relevant. As this thesis wanted to help build open foresight in companies, specifically large companies, it means thinking about organisations with hundreds or thousands of employees. It is not possible for any large company (or even small ones) to train every worker. Despite the importance of foresight, all training and process investments are today critically evaluated. The two personas designed for the foresight training (chapter 5.4.2) attempt to bring more substance to the discussion on participation in open foresight. More personas should be developed to build effective open foresight that engages not only a broad spectrum of people, but a diverse group of relevant stakeholders.

Strategic design approach

The personas designed for the foresight training (chapter 5.4.2), the content map of the training (5.3., Figure 47), the ecosystem map (5.5), the impact matrix (5.6, Figure 54), and the training roadmap (5.6.2), are created based on the research findings. Moreover, they are results of design thinking methods and a creative process, made with a purpose of making the concept of open foresight and foresight training more tangible, and thus easier for companies to take on.

It is up to the readers to determine if the results of this thesis introduce something new and helpful, or if they are old news repackaged in a new visual mappings and infographics. Training developers, foresight specialists, and strategic designers will hopefully find these insightful as they are, or source to critique and build more robust concepts.

General perceptions on foresight

The surveys in this research took inspiration and direct questions from Sitra Futures Frequency research (Halonen et al. 2022, 65-69). This allowed comparisons between foresight workshops and participants' perceptions of foresight, and created more data on this overall topic. The comparison showed similar trend in the responses (chapter 4.4.3), with mostly positive experiences from the training, such as new ideas. The survey framework presented here (Appedix 1 and 2), and by Sitra, can support future training organisers in developing an evaluation framework.

6.3.2 Suggestions for future research

Open access foresight data and canvases

Foresight is part facts and part imagination (Hiltunen 2019, 11), and while imagination is free and abundant, facts are rarely free. This research has a lot to thank for Sitra, and their diverse open-access materials, such as the workshop format, trend and research reports, games, canavases, and countless free webinars the author attended for curiosity and personal development. Quality foresight relies on data sources and data analysis tools, and all efforts to build open-access materials would benefit the field of foresight and the collective future-preparedness.

Many of the of the foresight terms lack definitions and makes this challenging topic feel even more obscure. Clarity and simplification would be helpful. One way to approach this could be canvases, and these can certainly be found, such as quick scenarios (Koskelo 2020, 279) and Sitra's diverse library online. More could be published.

Open foresigt objectives and evaluation

The path from workshops and trainings such as this to a fully functional open foresight, and foresight culture needs more research. The early stages of the process - including setting objectives for the training, auditing foresight in the organisation ahead of the training, and surveys for establishing the level of futures literary - would benefit from refined methods and a more detailed documentation on their use. A more developed impact and evaluation system could be presented.

Qualitative research

Both the training experience and open foresight could benefit from a design approach, and etnographic methods. This requires dedicated resources, identified hypotheses, and testing planning. Methods such as user journey mapping, empathy mapping, and observations of the participants before, during or after the training are suggested. Interviews could provide a new layer of learning on the subject, and may be more accessible to some groups than surveys. Interviews may study the organisation's leadership for their motivation on future-oriented work before the training, the training organisation's strategies and upskilling objectives, or the participants need for support on foresight in their daily work after the training.

Wider survey populations

More survey data would be useful on both the need and use of foresight. However, how the respondent understands foresight might provide a challenge, for example if the survey population has both people who have heard of foresight before and those who are unfamiliar with foresight. Surveys at a longer time intervals could be useful.

Training concept development

The training content map (5.3.1) and training program (5.3.3) were designed based on this research and remain untested. Workshop and training organisers may utilise these as they are, customise them based on the organisation's objectives, and enrich the plans with their perspective.

6.4 Evaluation and reflection

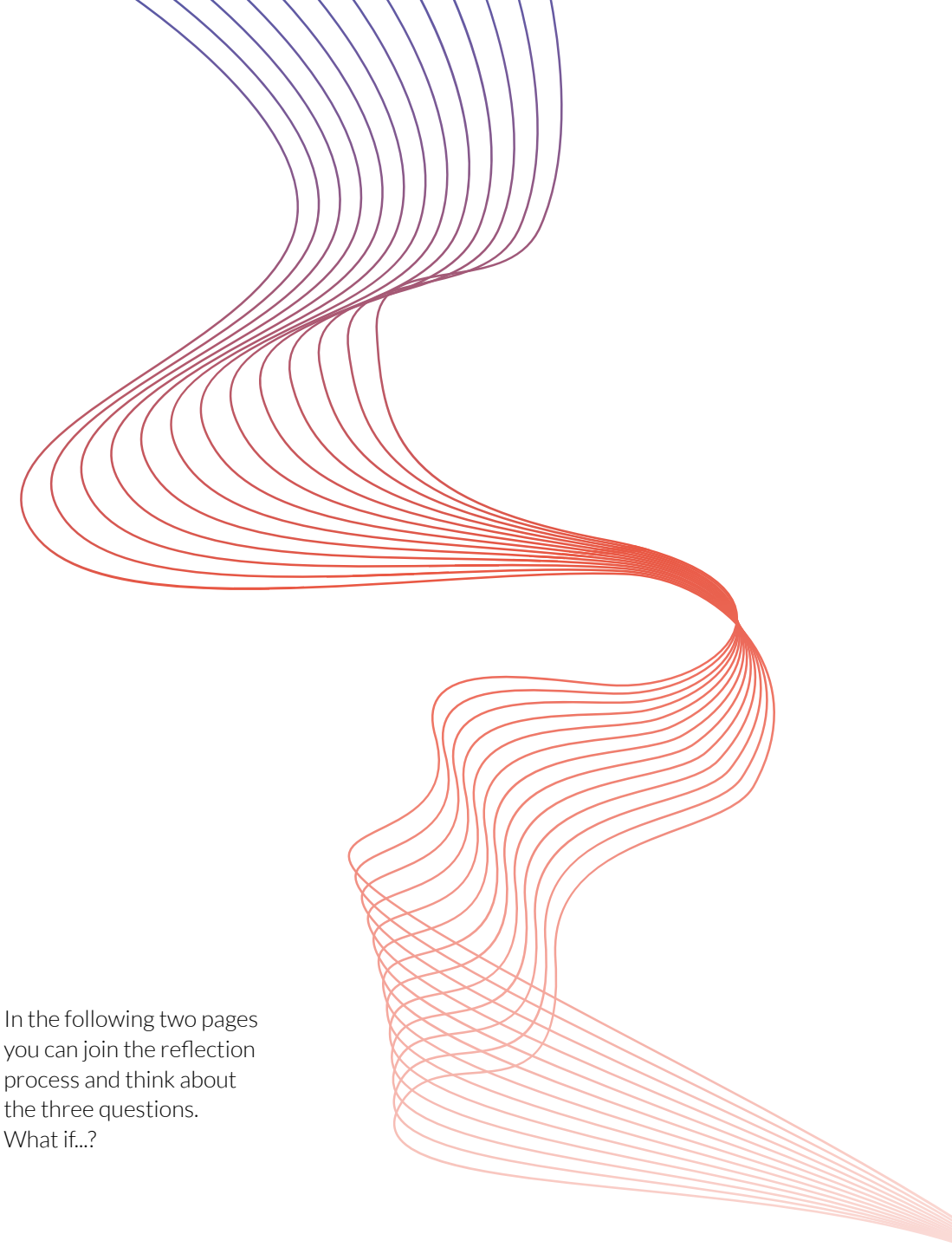
6.4.1 Research evaluation

The research methodology can be evaluated from the perspective of reliabiliy and validity. Validity is provided by reviewing what was outlined as the research subject in the beginning and what was delivered in the end. A driving factor in the process with multiple parties - author, case company, and educational institution - was to maintain the set timeline by completing every part of the project as planned and scheduled. This was achieved.

A factor of reliability is whether the research can be replicated. During the process, the focus was on extensive documentation and transparent reporting. The report presented here is as comprehensive as possible, considering the resources available and confidentiality limitations. As the research includes a case study with one company there are limitations in generalisation of the results.

The project turned out to be larger than planned and it was not always possible to set clear limitations on firstly what to included in the project and secondly what to present in the report. For example, the role of lecturing and facilitation skills in the training experience, or the influence of the style and format of the training materials in development of the participants' mindset were interesting topics, and the author put considerable thought on them during the trainings and their planning. But as the project has set time limits, these were excluded from the research scope. Their effect to the results are indetermined.

Regarding research ethics and methodology, it is to be noted that the author was not a passive researcher but an active conductor in the project as the lead lecturer and facilitator of the training experiments. The project received compensation from the case company. While the process and results are as unbiased as possible, role of the commisioner is a factor to be aware of.



In the following two pages you can join the reflection process and think about the three questions.
What if...?

6.4.2 Reflection and what if

what if

What if there were no CEOs?

From a traditional viewpoint, systems like foresight, design, and strategy are dependent on what expectations and direction is set for them by the top leadership. In that traditional mindset, the leaders, such as CEOs and founders, identify the vision – the north star - and steer planning, operations, and resource use towards their vision.

Before starting this project I asked myself how can organisations improve their future-preparedness? A logical response to that is "let's go to where the decisions are made". And indeed, that is exactly what I did. However, I didn't look for decision-makers at the top of the organisational chart. I looked for those everyday, routine decisions that happen at each and every work station. This follows the post-modern paradigm of interactive and shared leadership, which by the way is designed to understand complexity, to react to change with agility, and to build resilience (Paananen & Kork 2023, 225). Sounds rather similar to the purpose of foresight, doesn't it?

It is one thing for companies and leaders to be willing to share power, and it's another thing to make it happen. Has the paradigm shift of shared leadership been more academic than practical? What stands in the way of fully realising open strategy and open foresight, for example? This project was inspired by these challenges and hoped to provide a bit of practical perspective for open foresight development. That work is yet to be completed. Further research can help draw clear paths for companies to make open innovation, open foresight, and shared leadership a reality. Before that happens, if you envisioned a world without CEOs, what would that look like?

What if everybody was a teacher and a learner?

Who has the role of educating the world? Companies already offer and sponsor various trainings for their employees to upskill in valuable and emerging domains. This research didn't focus on the edu-sector, but I cannot avoid noticing the massive industry around training. New technologies, developing consumer needs, and sustainability challenges create demand for new skills in the job market (World Economic Forum 2023, 20).

Traditionally teaching the skills of tomorrow has been the task of education, which in Finland is predominantly public. Even if educational institutions were fast to react with new courses and degree programs for the ever-evolving needs, the educational cycles take years. Who should fill the competence gaps: is it the universities or shall employers become more active educators?

This research would not have been possible without extensive library on foresight that is freely accessible. Among one of the prominent sources has been Sitra. Even though the training that was developed in this project turned out different from the Futures Frequency (Sitra 2023) material I started with, a lot of resources would be have been wasted by starting from scratch. This project also relied on finding a big company that was willing and agile enough to take on a foresight development project: their support and collaboration was instrumental in the development. The role that companies have in educating the workforce and the value of open access foresight materials was demonstrated to me during the process.

Open foresight and shared leadership discussed before offer a participative approach where one idea is that everyone in the organisation can "teach" others by bringing their unique knowledge and perspective to the table. If there are more teachers, will there be more learning? What is our capacity to take new information and learn new skills? What if everybody thought of themselves as both a teacher and a learner?

What if you invested on creativity and the human factor?

Foresight builds on the recognition of our limits and an aspiration to build a preferable future. Futures thinking often comes with an agenda of sustainability, and when you look at megatrends (Sitra 2024), the eroding carrying capacity of nature is a challenge to be addressed. It is also the reason I chose the topic of foresight for my thesis, as I crave to work with future-proof solutions in our eroding, finite world. But there are resources with currently infinite supply: human capital.

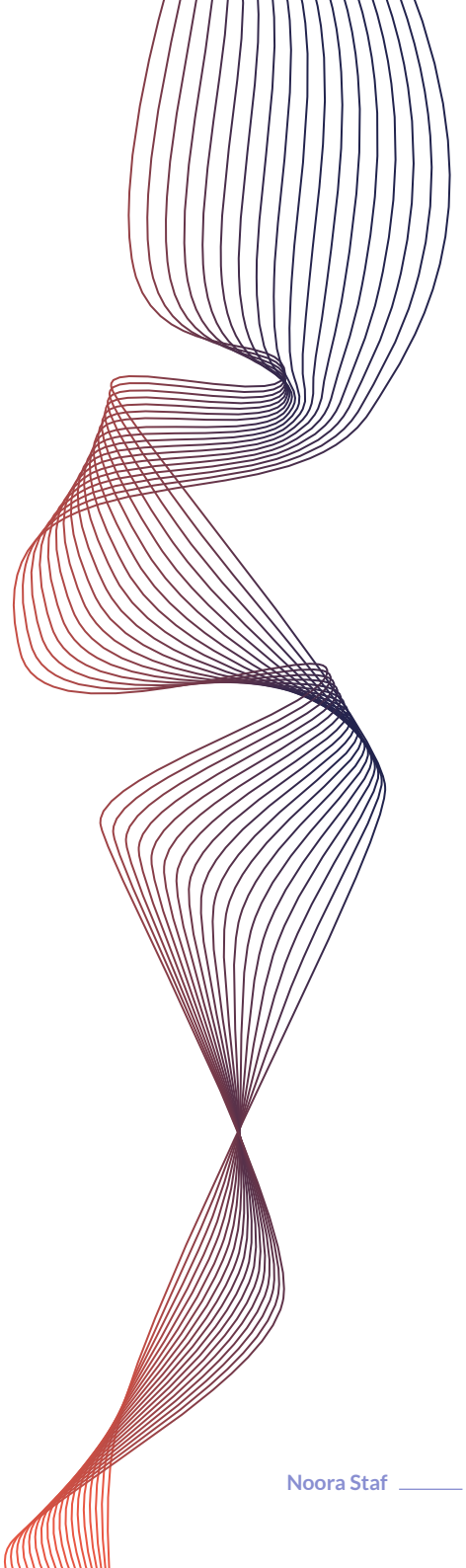
What does this mean to research? The academic research process has set forms and conventions, and it's easy to lose yourself in the process. Knowing this, I decided to never ignore my intuition, drive, and creativity. I came to this thesis with a long professional history in marketing, strategy, AI, and training. Whenever in doubt, I could fall back on my sense of how people learn and how they work in organisations. I was familiar with the common objectives and processes that drive business to either succeed or fail. I have an eye for drafting pitch decks and training materials. The intuition and experience opened the door for this dream project, and I could rely on them when it came down to delivering the final results.

This is what nobody wants to hear, as many people come to thesis projects with little experience. And let me be clear, it might be better that way. Experience alone provides no references and data points to rely on. Experience can be cryptonite for science and its validity. It can undermine research and design quality if you fail to examine biases, identify problems and assumptions, set hypotheses, and plan tests. Experience is not required for great research, but embracing the human factor might be.

While I'm diligent , I'm also rebellious. I use a predominantly strategic lens as my viewpoint since it comes to me most naturally. Some people describe my style as whimsical. I am always curious and I dream of big things. What is the human quality that comes to you naturally and you rely on the most? What if we were asked to lean on our innate, human abilities?

The human factor is formidable. Designers certainly have it. The creative mind is constructive in its ability to build complex systems that stand on their own against all odds. It is reductive in its raw power to isolate diamond from dust. If we eliminate things like creativity and intuition from our work, are we any better than generative AI? No offence to AI and its makers, who hold great promise.

The human factor has gotten us this far, and it will help us to get forward. I've used my human factor to make the best out of this project in every domain. If the results will stand out, I would like to attribute it to that, and to all the fellow humans who have stood with me during the project.



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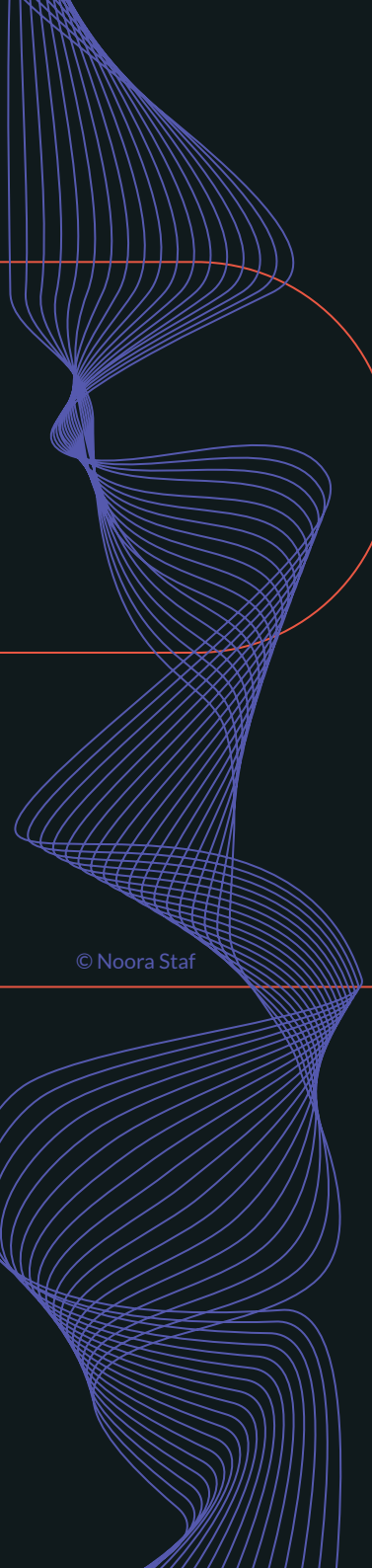

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- Noora Staf

The future depends on what you do today.
- Mahatma Gandhi

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Image sources

Images 1, 2, 3, 6, and 7. Case company. 2023. Published with permission of the case company.

Image 1. Training workshop in December
Image 2. Training 1 opening lecture
Image 3. Training 1"what if" questions board
Image 6. Training 1 behavior map
Image 7. Training 1 future content presentations

Images 14, 16, 18 and 20. Case company. 2024, Published with permission of the case company.

Image 14. Training 2 workshop opening lecture
Image 16. Training 2 discussion on challenging assumptions
Image 18. Training 2 scenario development
Image 20. Training 2 lecture recap slide excerpts

Appendix 1: Training survey questions

*Required questions

Your home organisation / background: *

- ☐ Business
- ☐ Design
- ☐ Strategy
- ☐ Technology
- ☐ Other"

Your work role: *

- ☐ Specialist
- ☐ Lead
- ☐ People manager
- ☐ Director / VP
- ☐ Other"

Have you utilised foresight or futures thinking in your work? *

- ☐ Yes, often / actively
- ☐ Yes, sometimes / rarely
- ☐ No, I haven't
- ☐ I'm not sure

If yes, in what ways (e.g. types of projects or methods)?

How would you describe your knowledge and skills in futures thinking? *

	completely agree	somewhat agree	neither agree nor disagree	somewhat disagree	completely disagree	do not know
I can imagine that there are many different options for the future.	◯	◯	◯	◯	◯	◯
I feel that I can influence the future with the actions and choices I make in the present.	◯	◯	◯	◯	◯	◯
I can promote futures thinking in my own organization.	◯	◯	◯	◯	◯	◯

In what kind of projects or tasks do you feel you could use futures thinking or foresight? *

What, if any, do you consider as the main use or benefit of futures thinking?

What was your personal training experience? *

	completely agree	somewhat agree	neither agree nor disagree	somewhat disagree	completely disagree	do not know
The exercises were easy to understand.	◯	◯	◯	◯	◯	◯
I was able to voice my opinion about the future in the group discussions.	◯	◯	◯	◯	◯	◯
I was pleased with the results I helped to create in the training.	◯	◯	◯	◯	◯	◯
The training changed my own way of thinking about the future.	◯	◯	◯	◯	◯	◯
The training strengthened my ability to work towards a future that's worth striving for.	◯	◯	◯	◯	◯	◯
I got new ideas from the training.	◯	◯	◯	◯	◯	◯
I found the material useful.	◯	◯	◯	◯	◯	◯
I found the training useful.	◯	◯	◯	◯	◯	◯

What was the most important or useful thing / part of the training for you? Why? *

What was the most challenging part of the training? *

What would you like to learn more about?

Any other feedback? Muuta palautetta?

Appendix 2: Follow-up survey questions

*Required questions

Your home organisation / background: *

- ☐ Business
- ☐ Design
- ☐ Strategy
- ☐ Technology
- ☐ Other"

Your work role: *

- ☐ Specialist
- ☐ Lead
- ☐ People manager
- ☐ Director / VP
- ☐ Other"

After the training, what kind of changes have you recognised in your thinking about the future? *

In what kind of projects or tasks have you used futures thinking or foresight after the training, and how? *

If you haven't used futures thinking or foresight, please write "No"

What kind of obstacles or challenges do you recognize in utilising futures thinking or foresight in your work? *

What has happened since the training? Select all the options that apply. *

- ☐ I discuss about the future with colleagues more often than before
- ☐ I have started following foresight topics or experts in the media / social media or subscribed to a foresight newsletter
- ☐ I have participated in another futures thinking or foresight training
- ☐ A foresight method used in the training has been utilised or is planned to be utilised in my work community
- ☐ I have been in contact with other people in my organisation that are familiar with foresight
- ☐ I haven't noticed any changes
- ☐ Other

What kind of effect or changes have you identified among the training participants or in your organisation after the training? *

What type of work roles or functions / departments would recommend the futures thinking & foresight training to? *

Do you plan to utilise futures thinking or foresight in the future? If yes, how? *

What kind of support or additional training you would like to have on foresight?

Space for other thoughts.

thank you

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Thank you for reading. This thesis was written for a shared, sustainable, and equitable future. It's not something to wait, but to chase.
Let's build the future of our dreams together.