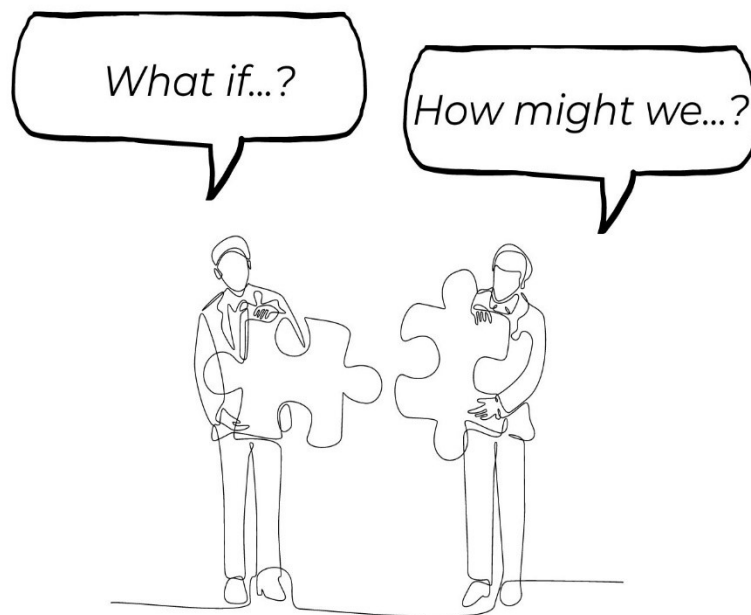


Future-proofed Professionals of Design

- Integrating Futures Studies with Design Practice



Johanna Varanka
Master's thesis
Service Design
University of Lapland
Fall 2024

ABSTRACT

University of Lapland

Faculty: Faculty of Art and Design

The title of the thesis: Future-proofed Professionals of Design - Integrating Futures Studies with Design Practice

Author: Johanna Varanka

Degree, program: Master of Arts, Service Design

Type of work: Master's thesis

Number of pages and appendices: 88+1

Year: 2024

Our current operating environment, characterized by volatility, uncertainty, complexity, and ambiguity, also influences the expectations placed on Design professionals, who must approach and solve increasingly challenging problems while working with increasingly diverse participant groups. The aim of this study is to deepen the understanding of the context in which design professionals operate in and to identify the capabilities and skills required of them in response to the ongoing changes and growing complexity of the operating environment. This research combines the fields of Design and Futures studies, highlighting recent developments and emphasises themes such as systems thinking, sustainability, and transformation, reflecting their significance for the evolving expertise and role of designers.

This qualitative basic research follows an interpretivist and constructivist research philosophy, where understanding and interpretation is constructed and deepened through social interaction between the researcher and the participants. The research data was gathered through semi-structured interviews with eleven experts working in the fields of Futures studies and Design education and practice. The data was analysed using thematic content analysis.

The findings illustrate how the increasing complexity and changes in the operating environment and in the role of Design professionals impose new demands on their skills and capabilities, which extend beyond skills of traditional design expertise. The conclusions suggest that Futures studies, particularly Anticipation and Futures literacy, can help Design professionals develop new competencies in systemic and holistic thinking. This, in turn, enables a more ethical and sustainable approach to design, while fostering participatory and multidisciplinary approach. Developing these capabilities allows Design professionals to navigate the complex and multiple futures, taking meaningful, proactive steps toward desired outcomes and unlocking opportunities to create socially, ecologically, and economically future-proof design.

Keywords: Transition Design, Futures Studies, Anticipation, Futures Literacy, Systems Thinking, Sustainability, Transformation

TIIVISTELMÄ

Lapin yliopisto

Tiedekunta: Taiteiden tiedekunta

Työn nimi: Future-proofed Professionals of Design - Integrating Futures Studies with Design Practice

Tekijä: Johanna Varanka

Koulutusohjelma: Taiteiden maisteri, palvelumuotoilun monialainen maisteriohjelma

Työn laji: Pro gradu -tutkielma

Sivumäärä, liitteiden lukumäärä: 88+1

Vuosi: 2024

Nykyistä toimintaympäristöämme kuvaavat epävakaisuus, epävarmuus, monimutkaisuus ja epäselvyys heijastuvat myös siihen, kuinka moninaisissa rooleissa toimivien muotoilun ammattilaisten odotetaan lähestyvän ja ratkaisevan yhä haastavampi ongelmia yhdessä yhä monimuotoisemman osallistujajoukon kanssa. Tämän tutkimuksen tarkoituksena on lisätä ymmärrystä kontekstista, jossa muotoilun ammattilaiset toimivat ja ymmärtää millaisia kyvykkyyksiä ja taitoja heiltä vaaditaan vastauksena toimintaympäristömme jatkuvaan muutokseen ja lisääntyvään kompleksisuuteen. Tutkimus yhdistää muotoilun ja tulevaisuudentutkimuksen tieteenaloja ja viimeaikaisia kehityskulkuja painottaen erityisesti systeemiajattelun, kestävyysajattelun ja transformaation teemoja ja peilaten niiden merkitystä muuttuneessa toimintaympäristössä muotoilijoiden ammattitaidolle ja muuttuneelle roolille.

Laadullinen perustutkimus noudattaa interpretivististä ja konstruktivistista tutkimusfilosofiaa, jossa ymmärrys ja tulkinta syntyvät ja syvenevät sosiaalisessa vuorovaikutuksessa tutkijan ja tutkittavien välillä. Tutkimuksen aineisto on kerätty haastatellen yhtätoista tulevaisuudentutkimuksen ja muotoilun opetuksen ja käytännön parissa työskentelevää asiantuntijaa ja aineisto on analysoitu hyödyntäen temaattista sisällönanalyysia.

Tutkimustulokset kuvaavat, kuinka jatkuvasti lisääntyvä kompleksisuus ja muutokset toimintaympäristössä ja muotoilun ammattilaisten roolissa asettavat uusia, pelkän muotoiluosaaminen ylittäviä vaatimuksia myös muotoilun ammattilaisten osaamiselle ja kyvyille. Tutkimuksen johtopäätöksinä esitetäänkin, että tulevaisuudentutkimuksen teemat, erityisesti antisipaatio ja tulevaisuuslukutaito, voivat auttaa muotoilun ammattilaisia hankkimaan uusia kyvykkyyksiä systeemiseen ja kokonaisvaltaiseen ajatteluun. Tämä mahdollistaa eettisemmän ja kestävä lähestymistavan muotoiluun sekä osallistavan ja monitieteisen lähestymistavan omaksumisen. Hallitsemalla nämä kyvyt muotoilun ammattilaiset voivat navigoida monimutkaisuuden ja useiden mahdollisten tulevaisuuksien maailmassa ja ottaa merkityksellisiä, ennakkoivia askeleita haluttujen lopputulosten saavuttamiseksi avaten näin mahdollisuuksia luoda sosiaalisesti, ekologisesti ja taloudellisesti tulevaisuuskestävämpää muotoilua.

Avainsanat: siirtymämuotoilu, tulevaisuudentutkimus, antisipaatio, tulevaisuuslukutaito, systeemiajattelu, kestävyysajattelu, transformaatio

LIST OF FIGURES

FIGURE 1. THE ICEBERG MODEL	12
FIGURE 2. SYSTEMIC DESIGN FRAMEWORK AND PRINCIPLES	13
FIGURE 3. THE FUTURES CONE	16
FIGURE 4. EVOLUTION OF FUTURES STUDIES	18
FIGURE 5. APPROACHES OF FORESIGHT	20
FIGURE 6. STRUCTURE AND INTERCONNECTIONS OF THE FIVE DIMENSIONS OF FUTURES CONSCIOUSNESS	23
FIGURE 7. TRANSFORMATIONAL FUTURES LEARNING FRAMEWORK	24
FIGURE 8. EMERGING MAP OF DESIGN FUTURES.....	27
FIGURE 9. THREE LENSES FOR INTEGRATING FUTURES STUDIES WITH DESIGN	28
FIGURE 10. FRAMEWORK FOR FUTURES DESIGN	29
FIGURE 11. TRANSITION DESIGN FRAMEWORK.....	33
FIGURE 12. THE TRANSITION DESIGN PHASED APPROACH	34
FIGURE 13. THEORETICAL FRAMEWORK OF THE STUDY.....	36
FIGURE 14. RESEARCH ONION: RESEARCH DESIGN OF THE STUDY	39
FIGURE 15. ILLUSTRATION OF THE STRUCTURE OF CHAPTER 6	45
FIGURE 16. CURRENT LANDSCAPE OF ORGANISATIONS	51
FIGURE 17. SKILLS AND ABILITIES OF DESIGN PROFESSIONALS.....	56
FIGURE 18. INTEGRATION OF FUTURES STUDIES AND DESIGN PRACTICE IN EMPIRICAL DATA	69
FIGURE 19. LEVELS OF PERSPECTIVE AND CORRESPONDING ACTION MODES OF PEOPLE	74
FIGURE 20. FRAMEWORK FOR FUTURE-PROOFING DESIGN PROFESSIONALS	82

TABLE OF CONTENTS

ABSTRACT

TIIVISTELMÄ

LIST OF FIGURES

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	BACKGROUND AND MOTIVATION FOR THE RESEARCH.....	1
1.2	RESEARCH QUESTIONS AND AIMS.....	4
1.3	FRAMING THE RESEARCH.....	5
1.4	STRUCTURE OF THE THESIS	6
2	BRIEF INTRODUCTION TO EVOLVING DESIGN DISCIPLINE	8
2.1	EVOLUTION OF THE DESIGN DISCIPLINE	8
2.2	THE CHANGING ROLE OF THE DESIGN PROFESSIONALS	10
2.3	SYSTEMS THINKING AND SYSTEMIC DESIGN	11
3	BRIEF INTRODUCTION TO FUTURES STUDIES	15
3.1	THE UNDERLYING ASSUMPTIONS OF FUTURES THINKING	15
3.2	EVOLUTION OF FUTURES STUDIES AND APPROACHES WITHIN THE FIELD	17
3.3	FUTURES CAPABILITIES OF INDIVIDUALS: ANTICIPATION AND FUTURES LITERACY.....	21
4	THEORETHICAL FRAMEWORK: INTEGRATING FUTURES STUDIES WITH DESIGN.....	26
4.1	LENS 1: BUSINESS AND STRATEGY	28
4.2	LENS 2: ARTS AND EXPLORATIONS	30
4.3	LENS 3: SYSTEMIC AND HOLISTIC APPROACHES.....	31
4.4	SUMMARY AND RESEARCH GAP	35
5	RESEARCH DESIGN, DATA AND METHODS	38
5.1	RESEARCH PHILOSOPHY	39
5.2	RESEARCH STRATEGY AND METHODOLOGY.....	40
5.3	DATA COLLECTION AND ANALYSIS.....	41
5.4	ETHICAL CONSIDERATIONS AND LIMITATIONS	43
6	FINDINGS.....	45
6.1	CURRENT LANDSCAPE OF ORGANISATIONS TODAY	46
6.2	THE ROLE OF DESIGN AND DESIGN PROFESSIONALS IN THE ORGANISATIONS	51
6.3	SKILLS AND ABILITIES OF DESIGN PROFESSIONALS.....	55
6.3.1	<i>Softer side of design professionalism: values, mindset and posture.....</i>	<i>56</i>
6.3.2	<i>The professional skills: Taking action and learning by doing</i>	<i>61</i>
6.4	EDUCATING THE FUTURE DESIGN PROFESSIONALS.....	66
6.5	THE INTERSECTION OF FUTURES STUDIES AND DESIGN PRACTICE IN DATA.....	68
7	DISCUSSION.....	72
7.1	WHAT KIND OF SKILLS DO DESIGN PROFESSIONALS NEED IN CONSTANTLY CHANGING AND COMPLEX OPERATING ENVIRONMENT?	72
7.2	HOW COULD INTEGRATING FUTURE STUDIES TO DESIGN STUDIES SUPPORT DESIGNERS TO DEVELOP THE SKILLS THAT ARE NEEDED?.....	76
7.2.1	<i>Three Lenses of Integrating Futures Studies into Desing Practise</i>	<i>77</i>

7.2.2 Future-proofing Design professionals' skillset: Anticipation and Futures Literacy.....	79
7.2.3 Barriers to integrating Futures Studies with Design practice	83
8 CONCLUSIONS	84
REFERENCES	
APPENDICES	
APPENDIX 1: INTERVIEW FRAMEWORK	

1 INTRODUCTION

In the news, we get daily reminders of the indifference and short-sightedness of us humans in pursuit of economic growth that quite often guides our thinking and actions. Despite knowing that, as a society, we are constantly overstepping our planetary boundaries, our efforts still lack the necessary momentum to turn our thinking and action into sustainable. Planetary boundaries is a framework and a concept that describes nine planetary boundaries within which humanity can continue, develop and thrive for generations to come (*Planetary Boundaries*, 2023). The Earth Overshoot Day, the date during the year, when we have used our natural resources in a way that is sustainable and what Earth can regenerate, was the 1st of August in 2024. But not all countries have an overshoot day. The wealthiest of the nations also consume the most of nature's resources. In Finland, we have used our share already by the 12th of April in 2024. (Earth Overshoot Day, 2024.) This means, that in Finland, we would need almost four Earths for not leaving a debt behind for future generations. Since we only have one, a lot of things need to change radically.

Following this debate, as well as being a part of the needed transformation myself as a person, mother, employee and future Design professional, I wanted to dive in to the topic of Futures and Design in my research. Also, I want to play a part in creating more understanding, and eventually solutions, around the topic.

1.1 Background and Motivation for the Research

My personal interest in Futures studies has grown throughout my Master's studies while getting acquainted with themes of change in design from different perspectives (see, e.g., Valtonen, 2020). In professional life, I have had to chance to participate in and lead different types of development projects and I have gained firsthand experience of how hard leading change, let alone transformation, actually is. But even more importantly, I have seen how much we currently need it. During the Spring 2024, I had the opportunity to participate on open University course in university of Turku, Getting to know Futures studies, and I felt like I found the missing piece to develop my expertise even further. Or more accurately, give me even wider perspective into approaching challenges with the thinking and tools that Design has already given me. For me, coming originally from yet another discipline, Business and administrations, it was easy to see the similarities between these two fields and I felt that they could benefit from each other. After getting acquainted with the basics of Futures studies and having recognised the potential of the combination, I was a little surprised how little they seem to overlap in theories and practise of Design. At the same time, diving headfirst into another discipline felt quite overwhelming and I started to search for approaches in the intersection of Design and Futures studies to help me in this journey of Future-proofing my skills in being a part of designing inclusive and sustainable futures.

As marketing communication targeting the job markets and consumers show, current discussion in organisations concerning sustainability is slowly increasing. As a part of the European Green Deal, a growth strategy that protects the climate and aims at making EU climate neutral by 2050 (*The European Green Deal*, n.d.), European Sustainability Reporting Standards, ESRS, are forcing organisations to address sustainability issues also in their reporting (Directorate-General for Financial Stability, 2023). But progress is slow and reporting requirements concern only large companies. Even though this regulation increases the attention on sustainability efforts of companies, these reporting standards are, once again, originally made to serve the financing sector and their needs (*Corporate Sustainability Reporting*, n.d.). Also, some smaller companies have seen social responsibility and sustainability as an opportunity to stand out from the crowd and turn them into competitive advantage in their marketing and operations by attracting customers with similar values. But the state of our current operating environment, that is often described with acronym VUCA (volatility, uncertainty, complexity and ambiguity (see, e.g. Berinato, 2014) affects the decision making of people as individuals and in organisations and societies. Recent news of multiple successful sustainable Finnish fashion companies shutting down operations due to plummeted sales are discouraging in perspective of profitable sustainable business (see, e.g., Martikainen, 2023).

Undeniably, as a human kind and as individuals, we should make better choices to secure the future of this planet. But it is the complexity and systemic nature of our challenges and the conflicting interests of shareholders that makes the task hard to accomplish (see, e.g., Design Council, 2021). Complex problems can be seen as messy and ambiguous in nature, they are connected to other problems, likely to react in unpredictable and un-linear way and expected to create unintended consequences (Burns et al., 2006, p. 8). Wicked problem is a term widely used to describe these complex problems that are particularly difficult to solve and unique in their complexity, meaning that the solution cannot be transformed from a problem to another and that solution is not right or wrong, only good or bad and the effects and consequences of the solution cannot be predicted (Buchanan, 1992).

In addition to planet, also people are suffering from our short-sighted and poor choices and the effects of increasing complexity of our challenges. The growing well-being challenges in our society shadow the futures and affect the daily lives of people in the present (Dufva & Rekola, 2023). Concerningly, even young people are burdened and overwhelmed. In Finland, the results of NYT Youth Future Report (2023), which reviews young people's attitudes towards working life, their financial skills and entrepreneurship, reflect youth's general uncertainty over futures and increased concern for the strains of working life. Globally, The Future of Jobs Report (2023) of World Economic Forum states that the skills required at work are constantly changing and emphasises the need for "reskilling" and "upskilling" as the answer to keep up with the constant technological advancements and the emergence of new types of working. Across almost all sectors, organisations need to find fundamentally new ways of responding to change, if they still want to thrive in the future and it forces them to search for ways to become more forward thinking (Bühning & Liedtka, 2018).

Future is common for all (see, e.g., Masini, 2006) and need for inclusion and participation extends beyond the decision-making in the present. Now, more than ever, it is important to recognise who has the power to determine what are the possible and desirable futures. Encouraging us all to think about who's vision of future we currently pursue and who's voice is excluded, SITRA (2024) has initiated a pilot program exploring ways to engage people in participatory futures thinking and democratising futures. They call this concept as 'Power to define futures' (Tulevaisuusvalta) and offer a tool for everyone to examine the power to define futures and the choices associated with it (Poussa, 2024). When the turbulence and uncertainty in our operating environment increases, instead of letting the threat narrow down our thinking and limit our actions, it is important to stay positive and hopeful and see what already has been accomplished and solved (Koskelo, 2021). Opening up one's mind to see options, and pursue the desired ones, is a powerful tool in transformation. The way future is understood is changing in almost all domains and people are increasingly 'using futures' to find better ways to achieve sustainability, inclusiveness, prosperity, well-being and peace (Miller, 2018c, p. 3).

What are the implications of the above-described state of matters to design profession and design professionals? In his definition of design, "To design is to devise courses of action aimed at changing existing situations into preferred ones", Simon (1996, p. 111) is stating the inherent connection between design, change and futures relevant to this study. The use of futures thinking and methodology has found its way to the domain of design. Some approaches, such as *Transition design* (Irwin, 2018; Irwin et al., 2015; Kossoff et al., 2015; Sides et al., 2022; Tonkinwise, 2015), *Design futures* (Angheloiu et al., 2017), *Futures design* (Koskelo, 2021; Ojasalo et al., 2015), *Foresight by design* (Buehring & Bishop, 2020; Buehring & Liedtka, 2018) and *Speculative design* (Dunne & Raby, 2013, 2024) are explicitly stating so, whereas others, such as *Transformation design* (Burns et al., 2006) and *Systemic design* (Design Council, 2021; Ryan, 2014) are using the ideas and terms of futures studies as part of the approaches.

As Hupkes & Hedman (2022) suggest, we should be able to shift towards non-anthropocentric thinking in Design to find answers to sustainability crisis demanding profound change. Learning to speculate the future temporalities, while remaining relevant to present ones, is one of the key success factors in it, albeit its difficulty. (Hupkes & Hedman, 2022.) The motivation behind this study is to explore, what can we, as design professionals, do in order to help in this much needed transformation? What kind of skills and attitude do we need to be able to be the change agents navigating in the turmoil of complexity, increasing expectations and perishing Earth? What kind of new thinking skills should we learn and practice and what kind of understanding should we seek and nourish? This aim supports also changing the narrative about what designers do and what kind of challenges they can face up against, as requested in Systemic design approach by Design Council (2021).

Given the transdisciplinary nature of challenges we face today and following in the footsteps of Simons quote above, Valtonen (2020) has studied how the field of design has recently approached the concept of change. New areas of design, such as service design, design thinking,

speculative design, transition design and social design, have also evolved in what constitutes a desirable outcome of design. Still, the understanding of how to use design in creating change is quite fragmented. (Valtonen, 2020.) It is still widely agreed on that to achieve these fundamental changes, creative and participatory methods are needed to imagine and engage with alternatives (Ketonen-Oksi & Vigren, 2024). The question has expanded from *what* we design to *how* we design, *for whom* and *why* (Sanders & Stappers, 2008). This question deserves more attention and further research and ties it to the public request of adding more voices into deciding what futures to pursue.

Masini (1982) describes vision-oriented futurist, listeners, those who can capture the seeds of change as the ones that do not fit into the existing social character in its totality, as ones often on the outlines of the logic of that specific system, as ones, who do not perceive only with their rational capabilities but also with their intuitive, imaginative capacities. This description could easily be mirrored with great success with the demands the current state of organisations poses for Design professionals working in projects with experts from different domains. As change is something both fields, Design and Futures studies inherently include, strive to understand and actively pursue, driving and pursuing positive change and transformation is something design professionals should be skilled at. As Masini (2006, p. 1163) states, “The ability to nurture the seeds of change and develop visions is even more important than the capacity for future analysis “. Thus, highlighting the open and curious posture of design professionals as heralds of change and futurist. Also, designers themselves recognise the need to address futures in their profession and upskill their capabilities for futures thinking due to the need and calling to channel their creativity and work towards systemic transitions (Leppänen, 2023). Design professionals are increasingly faced with the need to address change in more transformative way. Therefore, this study takes on the views of strong sustainability and transformative attitude to change, and investigates, what it means for the needed skillset of future Design professionals. As Angheloiu, Sheldrick, Tennant and Chaudhuri (2020) point out, future practitioners today are educated for the jobs and conditions that do not yet exist. It is in the interest of this study to examine, how we as Design professionals could be better prepared for the futures of our profession and society.

1.2 Research Questions and Aims

This study contributes to increasing the understanding of the context where Design professionals operate and what kind of skills are demanded from them.

Based on the prior literature (see, e.g., Angheloiu et al., 2017; Design Council, 2021; Irwin, 2018; Valtonen, 2020; Zhang, 2023) the field of design practice and the diverse group of its practitioners are faced with increasingly challenging assignments and projects due to the turbulent, complex and volatile operating environments of our era. At the same time, money is short for development that does not necessarily provide results in the short term. On the other hand, it has been increasingly debated that, at the time of uncertainty, we need hope, broader mindset and positive futures images to be able to innovate in a transformative way

(Angheloiu et al., 2017; Koskelo, 2021). However, there is still surprisingly limited research on the integration of Futures studies and Futures thinking to Design education.

The research questions of this study are:

What kind of skills do design professionals need in constantly changing and complex operating environment?

How could integrating Future studies to Design studies support design professionals to develop the skills that are needed?

In addition to answering the above-mentioned research questions, the aim of the study is to understand the context, where Design professionals operate in and create more understanding and discussion on the topic by giving voice to different stakeholders in the intersection of Design and Futures studies. As prior literature paints an alarming picture of the increasing complexity of the operating environment for future Design professionals, as a researcher, who is also part of the subject and context to be researched, and as an effort to avoid confirmation bias (see, e.g., Nickerson, 1998) the research will also include examining the descriptions, narratives and perspectives on current landscape of organisations. As a part of creating understanding around the context, this study will also discuss how current education of Design professionals is correlating with what is expected of them in the organisations. In addition to previous, this study aims at advancing the understanding of how integrating Futures studies to Design practice could support design professionals to develop the needed mindset and skills to respond to the challenges presented to them.

As the purpose of this study is to describe and understand the phenomenon in its context and the researchers understanding is created and shaped as a result of social interaction with the interviewees and subjective interpretation and learning experience throughout the research journey, this study follows the research philosophy of interpretivism and social constructivism (Anttila, 1996; Merriam & Tisdell, 2016). This study aims for increasing understanding as basic qualitative research (Merriam & Tisdell, 2016) approaching the research through abductive reasoning and the interplay of empirical data and prior literature (Anttila, 1996; Paavola et al., 2006). Empirical data for this study is gathered in semi-structured interviews with experts working in the fields of Design, Futures studies and education and analysed through thematic content analysis (see, e.g., Braun & Clarke, 2006). More detailed description of the research design and ethical considerations related to it will be presented in Chapter 5 of this study.

1.3 Framing the research

This study concentrates on perspectives in the intersection of the fields of Design and Futures studies. As both fields of study already draw from other disciplines in their concepts and research methods (Cross, 2006; Kuosa, 2011) and the academical literature and foundations for context are vast, certain limitations in the scope of the literature review of this study must be made.

Even though the education of design professionals is discussed and relevant to the context of this study, it is not in the scope of this study to define in detail or describe the current state of design education. This subject will be addressed only briefly through the discussion of what kind of skill design professionals need and how they could be developed (see e.g. Fleischmann, 2022; Nelson, 2020). Similarly, different theories of learning and teaching are not in the scope of the study, even though they are relevant to the discussion of acquiring new skills and touch upon within the context of futures thinking (see, e.g., Pouru-Mikkola & Wilenius, 2021).

One of the central themes of this research is change, that happens all around us, but it is not in the scope of this study to discuss different theories of personal, organisational and societal change in depth. In this study, change in all forms is taken as inherent part of reality and it encompasses all forms of change from incremental to transformational. Understanding change is inherently included in approaches of the theoretical framework of this study (see, e.g., Irwin, 2018; Koskelo, 2021) and concepts of change, transformation and transition (see, e.g., Stephan, 2017) are being used in parallel within this study, although their different connotations have been accounted for. This study accepts that change in all forms is happening, it is needed and we all need skills to approach it with curiosity and openness instead of trying to preserve the status quo.

In addition to accepting change as inherent to our operating environment, the same must be done with systemic structures. Systems theory, that is used across different disciplines, from biology to cybernetics (Kim, 1999), is also relevant in Design and Futures studies. Instead of systems theories, this study emphasises the need for individual's capacity for systems thinking (Kim, 1999; Monat & Gannon, 2015) and the concept will be briefly introduced in connection with systemic design in chapter 2.4, although it is a relevant concept to Futures studies as well.

1.4 Structure of the thesis

First chapter of this thesis introduces the background and motivation for this research, presents the research questions and aims as well as discusses the limitation of the scope of the research by framing the study.

Next chapters 2, 3 and 4 discuss the current academic conversation of the fields of Design and Futures studies with the emphasis on highlighting how current state of our surrounding society and environment, as well as development paths that can be identified, affect the research and practices of these fields of study. The review starts in Chapter 2 by introducing briefly how Design discipline and the concepts essential to this study have evolved during recent decades. In Chapter 3, a summary of the basic assumptions of Futures studies and the selected approaches and concepts necessary to this research are explicated. Chapter 4 presents the emerging field of Design futures and the theoretical framework of this study.

Chapter 5 presents the research design and data collection and analysis methods. This chapter presents the selected research philosophy and strategy, describes in detail the data collection method and selection of the participants, describes the processing and analysis of the empirical data as well as comments on the ethical consideration and limitations of this study.

Chapter 6 introduces the interviewees and present the findings of this study. Findings are presented in five sub-chapters, each describing in detail the different aspects of synthesised interpretations made from empirical data analysis. In chapter 6.1 the landscape of organisations today is discussed. Chapter 6.2 describes the role of the Design professionals in the organisations. Chapter 6.3 presents the findings of the skills and abilities of Design professionals, Chapter 6.4 discusses notions on the education of Design professionals and Chapter 6.5 provides a glimpse to the discussion of how the interviewees see the integration of the fields of Design and Futures studies.

Chapter 7 discusses the empirical findings in dialog with theoretical framework of this study by answering the research questions and Chapter 8 concludes this study by presenting a brief summary of the research, theoretical contributions of this study, practical implications and recommendations and suggestions for further research.

2 BRIEF INTRODUCTION TO EVOLVING DESIGN DISCIPLINE

This chapter introduces briefly how the field of Design studies has evolved during the years, what kind of topics have risen into the centre of the attention in the literature recently and what kind of implications do those topics have for the role of Design professionals in the organisations. At the end of this chapter, one of the more recent approaches of design in responding to the challenges of our operating environment, Systemic design will be introduced.

2.1 Evolution of the Design discipline

Design, that historically originates from the activity of crafting forms and objects has never been static as a practice (Burns et al., 2006). Along the way, *the object of design* has transitioned from products towards the customers, then to services and intangibles and onwards to holistic user-experiences. Additionally, the focus of interest has turned from the outcome of the process to the processes of design itself. (Burns et al., 2006; Valtonen, 2020.)

In the 1960's and 70's the Scandinavian approach of participatory design started to gain attention with the idea of opening the design process to the people who actually were to use its results (Burns et al., 2006) and where the designer has a critical role in giving form to the ideas created together (Sanders & Stappers, 2008, p. 12). This approach of participatory design, underlining the importance of co-design and collective creativity, highlights the active role of users in the design process (Manzini, 2015; Salmi & Mattelmäki, 2021; Sanders & Stappers, 2008). In participatory or co-design processes, solutions are created through cooperation of increasingly diverse group of participants and only some of them have the professional training, methods and toolset of a designer. In the 1970's and 80's rapid technological advancements gave rise to user interface (UI) design, an approach that fuses graphic design with user-requirement methods used in software development. This recognition of the importance of customers and users has led to broader use of user-centred design as the dominant model of 1990's and 2000's (Burns et al., 2006; Sanders & Stappers, 2008). The early 2000's brought on two major questions under consideration: *where* design skills are being applied and *who* are the ones actually applying them (Burns et al., 2006; Sanders & Stappers, 2008). When Vargo & Lusch (2004) introduced the paradigm-sifting article of Service-dominant logic of markets, the corresponding approach of design, Service design, originating from 1980's and 1990's, gained even more momentum with its ideas of improving and innovating services and customer experience through applying design principles and frameworks (Burns et al., 2006; Sanders & Stappers, 2008). Also Design thinking was popularized in the late 2000' by Design agency IDEO. It adds to traditional design theory by emphasizing being user-driven, designing with heterogenous participants instead of designing for them, as well as adding a toolkit to facilitate this co-design in practice. The cross-section of desirability (human), viability (business) and feasibility (technology) is where the innovation prospers. (Brown & Katz, 2009; Bühring & Liedtka, 2018, p. 139.) These two approaches, Service Design and Design Thinking,

brought design even closer to the lives of customers and everyday practices of organisations accompanied by tools and mindset to make them more transparent and usable for everyone.

As the changes in the competitive environment have increased, customer-centric thinking has found its way to board rooms and strategy development in organisations, making way for design thinking and methods to be applied more widely than before. The topics, such as the return on investment (ROI) of design, design maturity of organisations and the strategic importance of design in service organisations have been popular topics lately. (Koivisto et al., 2019.) Nowadays, design has expanded into multidisciplinary collaboration, integrating technology, business, and society to foster innovative solutions. Design practices have spread far beyond traditional disciplines of designing (Lloyd, 2017) and design is increasingly seen positioned as an organisational activity that can lead to continuous innovation and competitiveness with the further potential to enhance multidisciplinary stakeholders to align, learn and change together (Bühring & Liedtka, 2018).

Countering or complementing the discussion of design as an asset for gaining competitive advantage in business and technology, also deeper meanings for using design are emerging. As a response to the changing world and the changing role of designers in it, also Social design has gained increasing momentum in design research during the last two decades (Chen et al., 2016). Similarly, different approaches of sustainable design have evolved from thinking about materials of the design object into addressing environmental and social issues and responsible design thinking for sustainable development (Baldassarre et al., 2024). Transformation design, that “builds on traditional design skills to address social and economic issues”, uses design process as a gateway to collaboration between different disciplines and stakeholders (Burns et al., 2006, p. 6). Coulson et al. (2018) suggest that design, as a collaborative practice, offers a way of envisioning shared futures, that can guide collective action, provide tools and ideology for developing and testing solutions as well as knowledge and practice for creating change. Transformation Design, as well as other multidisciplinary and participatory approaches seem to rely on the foundational perspective that the human’s ability to co-create is central to solving global problems on local level (Coulson et al., 2018; Manzini, 2015). But it is important to note that mere adoption of design methods, without adopting the underlying ethical and sustainable considerations guiding their use, cannot provide us with transformative outcomes we desire and greater reflexivity in using design approaches is needed (Vink & Koskela-Huotari, 2022).

As this current era is characterised by constant change and increasing complexity, in recent developments in design research and practice, ethical and moral considerations seem to be essentially included in the evaluation of what can and should be done. These emerging design practices strive to critically imagine and foster alternative and moral relationships between the human and the world, using design objects as instruments for reflecting, interpreting and representing. (Zhang, 2023.) Lloyd (2017) states, that in addition to research in a “pure” form, design is a field that links disciplines, audiences and technologies in a critical but productive way, actively taking part in shaping the future by its practice, at all levels of increasingly fragmented world.

Zhang (2023) divides the non-affirmative design approaches, which are still in their infancy, under the umbrellas of, 1) Social design, with their cognitive interest being in the practices and 2) Ethical design, with emancipatory cognitive interests. In this classification, Design Fiction, Design Futures, Discursive Design and Speculative Design fall into the category of Ethical design whereas Transition Design, Sustainable Design, Social design, Service Design, Participatory Design, Co-Design and Critical Design are classified as Social Design practices. (Zhang, 2023.) Even if these approaches are often mingled with each other with overlapping concepts and methods, this classification gives an interesting perspective to the emphasis, objectives and worldviews of these different approaches. This study draws from both categories of this classification, because both, action and new and critical thinking, are needed in order to approach the challenges of the operating environment of today and pursue better future for all.

2.2 The Changing role of the Design Professionals

One of the grounding principles of design practice is the idea of learning by doing and combining thinking and making while designing desirable outcomes (see, e.g., Cross, 2006). Nelson & Stolterman (2012) describe this merging of theory and practice, design wisdom, as a combination of reasoning, observation, reflection, imagination, activity and actual doing. According to Manzini (2015), design can be seen again as the result of combining three human abilities: critical thinking, creativity and practical sense. Combining these three abilities makes it possible to imagine something that does not yet exist, but which, by taking the right steps, could be (Manzini, 2015).

This puts also the designers in a new and evolving role of a coach, facilitator and an enabler instead of the sole expert, artist, hero and gatekeeper (Burns et al., 2006; Manzini, 2015; Sanders & Stappers, 2008; Valtonen, 2020). In addition to facilitating the process and enabling people that participate, the role of a designer is often an embedded one. For example, Salmi & Mattelmäki, (2021) see the organisational change as emergent and subtle, happening in interaction between people in the co-design processes. The designer has a role as a facilitator, but also undergoes change as a result. Designer is not an objective observer of events, but is also part of the change that emerges in the process. (Salmi & Mattelmäki, 2021.) This embedded agency of the designer requires a careful consideration of the bias, attitude, motivation and history of oneself, since that is what we all as human-beings carry with us.

In addition to opportunities, this new role of designers that is in transformation, presents also some challenges. Burns et al. (2006) state that it might feel challenging for the designers to lose some of the personal creative authorship, what naturally follows from using participatory methods and inviting different stakeholders to actively participate in the design process and decision making. Diverse contributors are influencing what is “good design” and what designs are worth developing further. Also, in this new role, the goal of the designers is to shape behaviour, not form, which requires a totally different skillset. Similarly, transformation is never done, so the designer is actively creating the conditions for the ongoing and emergent change of the system, instead of defining the finished result of a project. This new approach

can be seen as a threat to put yourself out of business by teaching your clients to do what you do now. On the other hand, it can be seen as a way to connect with your clients on a much deeper level and providing them value as a design partner. (Burns et al., 2006.)

In the future, designer can help by making the tools for non-designers to express themselves creatively (Sanders & Stappers, 2008). Designers will be needed, because they hold highly developed skills, like visual thinking, finding missing information, running creative processes and the ability to make decisions in the absence of certainty, that are relevant when the scope expands and the complexity increases (Sanders & Stappers, 2008, p. 15). In addition to supporting social actors in the constant co-designing processes of daily life, expert design also functions as cultural operator, “collaborating in the creation of shared images and stories that underlie a new idea of wellbeing” (Manzini, 2015, p. 204).

Recent developments in design research and literature have reflected the ongoing transformation of the social, economic and ecological environment of today. The challenges we face today are often interlinked by nature and require an interdisciplinary approach. Our traditional way of solving problems, breaking them into manageable pieces and solving them one by one, does not work with complex problems, since they require many stakeholders with different interests to work together and change their behaviour in many different layers (Burns et al., 2006). Therefore, more research is needed on what kind of skills would support design professionals in this multidisciplinary and complex operating environment.

2.3 Systems thinking and Systemic design

Even though it is not the aim of this study to dive really deep into different disciplines and their theories, for the sake of perspective and heightened focus of this topic on literature review, it is useful to take a look into synthesised definition of systems thinking. After reviewing some key literature concerning systems thinking, Monat & Gannon, (2015, p. 24) state that systems thinking can be described as a perspective that recognises systems as “collections of components that are all interrelated and necessary, and whose *inter-relationships* are at least as important as the components themselves”. It can be seen as a perspective, a language and a set of tools. Systems thinking will be helpful when approaching complex problems, because, instead of conventional reductionistic thinking, it focuses to the relationships among the components, as well as on the components themselves. Instead of the components, relationships are often the ones dominating the performance of the system as a whole. Systems thinking can be used to approach and understand non-linear behaviours, like the often apparently illogical behaviours of individuals, organisations and even countries. (Monat & Gannon, 2015.) One of the most known models of systems thinking is “The Iceberg” model (figure 1) that studies the reality by layering perspectives of events, patterns and systemic structures and linking them to corresponding action modes of people. We often only see the tip of the iceberg, the events, thus we often let those drive our decision-making, even though events are actually the results of deeper patterns and systemic structures. (Kim, 1999.)

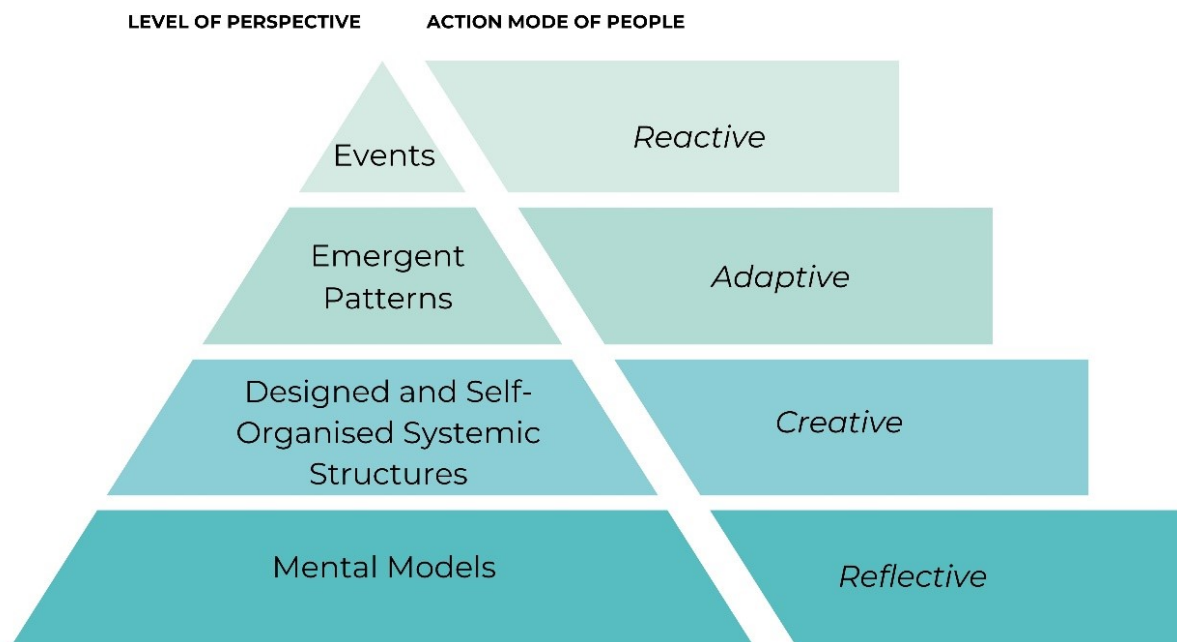


Figure 1. The Iceberg model (Adapted from Kim, 1999).

In 2021, Design Council introduced The Systemic Design Framework, which is a synthesizing and evolved framework that combines the essence of their previous contributions to design, Double Diamond and the Framework for innovation (figure2). It is meant for an approach for designers to address complex, systemic challenges that involve more than one organisation and can probably never be solved entirely. The framework adds to Double Diamond's divergent and convergent thinking phases by recognising that, when complexity increases, these phases are not linear. Even though the core premise of divergent and convergent thinking stays put, the phases are renamed as Explore, Reframe, Create and Catalyse (rather than Discover, Define, Develop, Deliver as in original Double Diamond). (Design Council, 2005, 2021.)

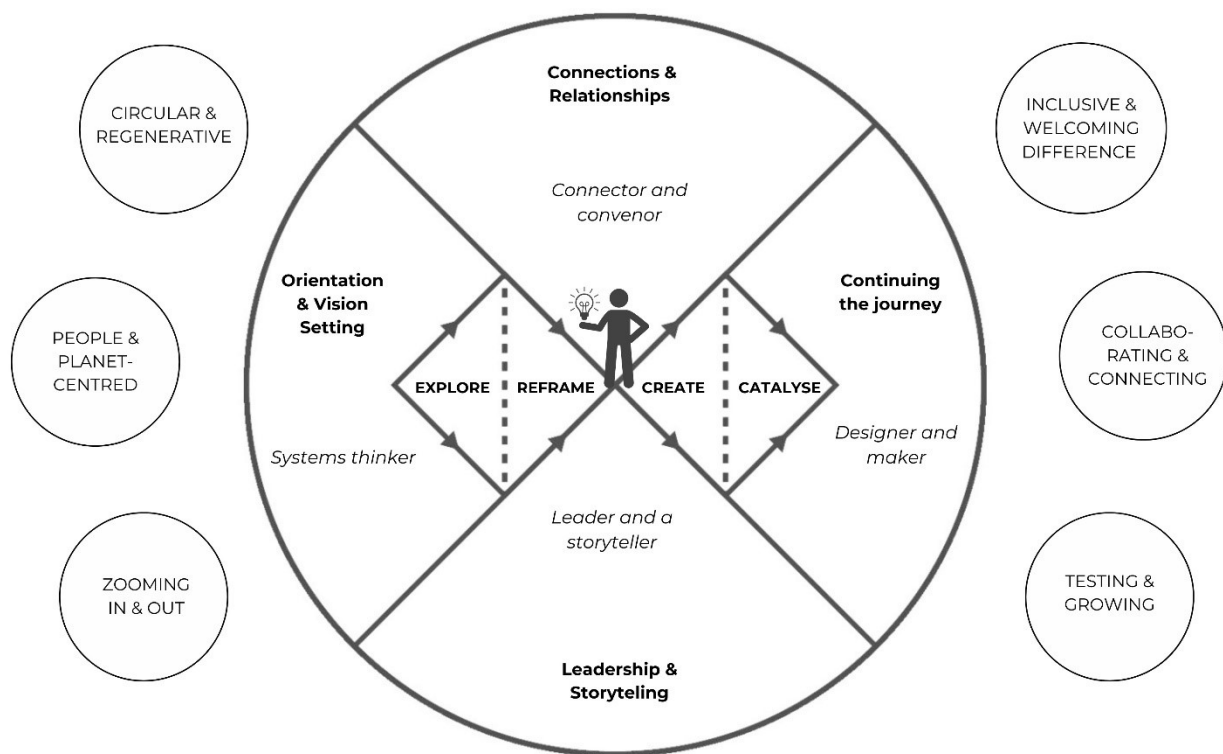


Figure 2. Systemic Design Framework and principles (Adapted forward from Design Council, 2018, CC BY 4.0).

In the framework, six principles to guide activity in Systemic Design were proposed; 1) People and planet centeredness as a value, 2) Zooming in and out, from present to the future and from micro to macro and from personal perspective to wider systems view, 3) Testing and growing ideas by making, 4) Inclusive attitude welcoming difference, 5) Collaborating and connecting and seeing a project as a part of wider movement for change and finally, 6) Circular and regenerative thinking and designing.

In order to succeed in this kind of approach, the following characteristics for Key Roles need to be fulfilled in the Design team: systems thinker, leader and a storyteller, designer and maker and connector and convenor. Systems thinker is a person with the ability to see and figure out the interconnectedness of everything in the big picture and zoom between, micro and macro and across silos. Leader and storyteller is able to tell a story about what might be possible and why that is important. They have the ability to get buy-in from all levels and be persistent in this pursuit. Designer and maker has the tools, ability and understanding to incorporate design, innovative tools and creative and technical skills to make things happen early on in the process. Connector and convenor is a person with good personal skills and relationships and who can bring people from different backgrounds to create something bigger together. These people use divergent and convergent thinking, zoom in and out constantly, are relentlessly digging down to the root causes of problems and underlying assumptions and invisible structures. They understand that the projects they work on, do not really fix the problems, but are just stepping stones along the journey towards the bigger vision that

is shared. Working on projects is about instigating movement for change. (Design Council 2021.)

In the Systemic Design framework (2021), there are also four supporting functions around the core process of exploring, reframing, creating and catalysing. These are called: orientation and vision setting, leadership and storytelling, connections and relationships and continuing the journey. These are closely linked and utilise the characteristics for a systems designer introduced previously. Especially the first one, orientation and vision setting, requires completely new type of thinking and action, that based on understanding the underlying values, power relations and goals of everyone involved. This also requires ability to build a hopeful vision that is desirable for people involved to pursue in their action. (Design Council, 2021.) Even though Systemic design framework does not clearly state using Futures thinking as one of its foundations, it implies strongly to the need to develop skills to use the images of the future in the work that is done today.

In her work, Ollenburg (2018) states that designers need anticipating competencies that go beyond design principles and involve understanding various perspectives. Even though interdisciplinary education is helpful, integrating principles from futures studies, such as the concept of multiple futures, may help designers to innovate and look beyond the usual, adding a systemic aspect to understanding and outlining the different dimensions of complexity. By dipping into Futures Studies, the designer could understand the variety of perspectives that exist by integrating the concept of multiple futures, learn to analyse and utilise future-visions of stakeholders received through participatory approaches, and, to extend, expand the repertoire of methods useful in a design processes. (Ollenburg, 2018.) Similarly, Stephan (2017) states, that if we, as designers, want to create the future, we need to turn towards the concept of transformation and to get there, we need to learn about anticipation. Anticipation is a central concept in Futures studies that binds together futures and the actions in present. The topic of developing anticipatory skills in design profession clearly deserves additional attention in design research. As the concept needs clarification and originates from Futures studies, next chapter turns the attention to briefly introducing most important basic assumption of the field of Futures studies and concept relevant to this study.

3 BRIEF INTRODUCTION TO FUTURES STUDIES

The field of Futures studies is practiced and researched under many different names, like Futures research, Futurism, Foresight, Futurology and Futures Thinking (Marien, 2010; Sardar, 2010; Voros, 2001). They have different connotations, but common to most of them is the use of plural in the name, highlighting the shared understanding that there are many potential futures that should be acknowledged, rather than single one (Voros, 2001). Terms Futures studies, Futures research and Futures thinking are used side by side in this study.

Bell, (2017, p. 73) states that “The purposes of futures studies are to discover or invent, examine and evaluate, and propose possible, probable and preferable futures.” The research objectives of futures studies can be divided under four different categories that are; 1) the creation of interesting future images, visions and scenarios, 2) ability to support planning and decision making, 3) solving the great global questions of all humankind and 4) developing applicable interdisciplinary methodology (Borg, 2003, as cited in Kuosa, 2011).

The modern futures studies base its understanding on empirical and cultural knowledge of other disciplines (Kuosu, 2011, p. 331) and futurists are often consuming and synthesising knowledge created by other scientists and scholars (Bell, 1997, as cited in Minkinen, 2020; Rubin, 2014). Miller et al. (2018, p. 51) continue by claiming that “any effort to straightjacket Futures Studies into the boundaries of a single discipline will fail to capture the diversity of the field”. Futures studies as a field is multidisciplinary by default, because it aims for holistic perspective and taking multiple perspectives, such as ecologic, social, political and economic perspective into consideration (Rubin, 2014). The methodologies vary considerably between extrapolation of trends and modelling, simulation, gaming, participatory methods, social experimentation and ethnographic futures research and, of course, the use of scenarios, to name a few (Bell, 2017, p. 239–240).

Instead of diving deep into this field of inquiry, in the next chapters, the most important underlying assumptions of Futures Studies are presented in order to create an introduction to the field of study. Some more advanced concepts, such as anticipation and futures literature, are presented for the sake of enabling discussing and integrating them in design literature in later parts of this study.

3.1 The underlying assumptions of Futures Thinking

Futures thinking and practice is not about certainties. On the contrary, Amara (1981) has suggested that there are three premises in the futures field that should be acknowledged: 1) future is not predetermined, 2) future is not predictable and 3) future outcomes can be influenced by our choices in the present. First premise refers to the pluralistic nature of potential alternative futures whereas the second one highlights that, even if there was just one future, we cannot have enough accurate information nor the capabilities to model the reality in a single point in time in the future (Amara, 1981; Voros, 2001). First two premises combined lead to the third one, which means, that we are able, and forced, to make choices and our

choices in the present will affect and shape outcomes in the future. Our choices have consequences and we have the responsibility to make them as wisely as we can. It is noteworthy, that inaction is also a choice that bears consequences. (Voros 2001.) Future is also shared, and for making educated choices aiming for the preferable futures, it is important to investigate what is possible, probable and preferable and for who (Masini, 2006). This makes it important to understand the value system and power relationships of the context of phenomenon (Amara, 1981; Masini, 2006).

Another interesting notion on the basics of futures studies touches the nature of Futures Knowledge. Due to the fact, that future has not happened yet, it is impossible to research it similarly that, for example, natural sciences research existing objects and phenomena (Miller 2018; Rubin 2014; Sardar 2010). According to Bell, (2017, p. 174), we cannot study future directly, but “we can study it indirectly by studying factual things that have a bearing on the future”. By collecting and analysing data systemically from multiple sources in the operating environment, drivers for change that present themselves through different kind of signals, can be identified. In Futures field, these drivers of change, signs and signals, such as mega-trends, weak signals and wild cards (unexpected events with drastic effects on the assumed development trajectory of phenomenon) will be interpreted and used as a fuel for insightful futures knowledge. (Koskelo, 2021; Lätti et al., 2022.)

When researching basics of futures studies, the notion of three main classes of futures, possible, probable and preferable futures becomes familiar (Bell, 2017; Masini, 1982, 2006; Rubin, 2014). Hancock & Bezold (1994) introduced us to the use and meaning of these concepts in visual form, calling it “The Futures Cone” (figure 3) and Voros (2017a, 2017b) has adapted it further.

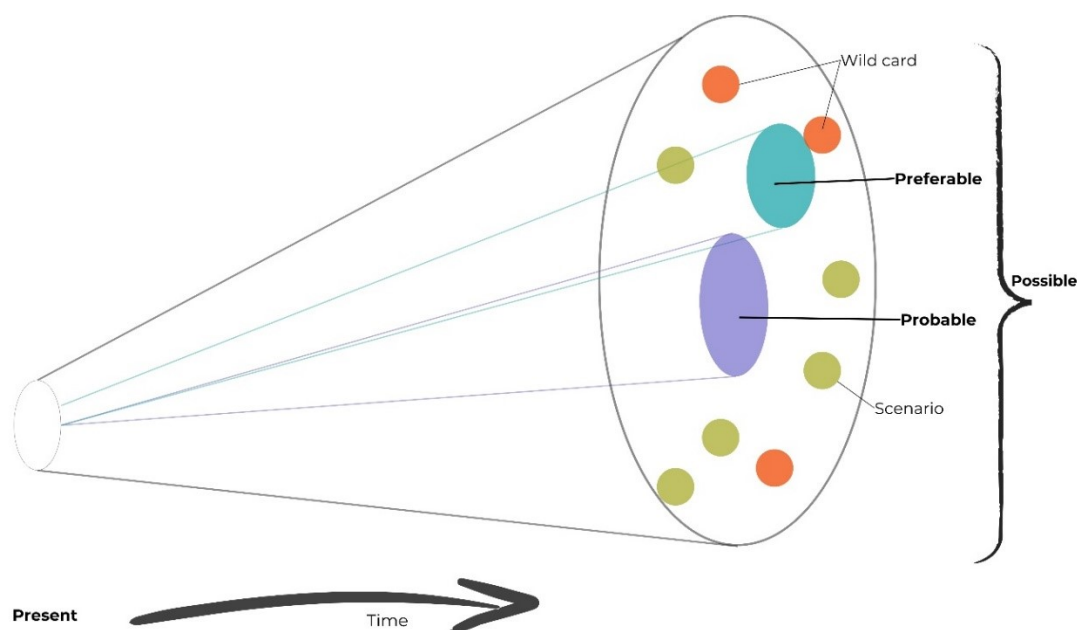


Figure 3. The Futures Cone (Adapted from Hancock & Bezold, 1994).

According to Voros (2017a, 2017b), we can use the alternative futures, visualised in Futures Cone, to better understand the different perspectives they can give us by exploring the possible, analysing the probable and shaping the preferable futures. Possible futures refer to what we think might happen, based on some futures knowledge we might possess one day. Plausible futures refer to what we think could happen, based on our current understanding on how the world works. Probable futures refer to what we think is likely to happen based on current trends.

Recent discussion on futures highlights the need to concentrate on preferable futures, which are the ones we think that should happen, but also underlining the need to understand the normative value structures and power relations and different stakeholders in our decision making (Masini, 2006; Voros, 2017a, 2017b). Idea of identifying the futures that are probable, plausible, possible and preferable, is bringing futures studies closer to of philosophical choices where values and ethical choices are evident and one must approach questions like “Desirable on what basis?” (Masini, 2006, p. 1159).

Talking about future means also talking about time as a concept, its meaning and measurement. There are many notions on time, for example, that it is unrepeatable and irrecoverable and that we, as humans, have the ability to distinguish present from past and from future (Bell, 2017, pp. 116–125). For this study, it is enough to clarify a few concepts related to time perspective: what do we mean when we talk about short-term, mid-term and long-term perspective. As (Masini, 2006, p. 1165) points out, past and present are beyond our control and future is the only temporal area over which people have the power to influence. The “immediate future”, that is usually shaped by the decision that are already made in the past, can be referred as short-term (1 to 5 years), whereas mid-term (5 to 20 years) and long-term (20-50 years) are usually shaped by the decision we make today or in the coming years (Hancock & Bezold, 1994).

3.2 Evolution of Futures Studies and approaches within the field

In the evolution of Futures studies, at least two different, but partially parallel paradigms can be identified. The first one, as a response to ever increasing need to face rapid change and not to be taken unaware by events, can be traced back to 1940s and 1950s. This started in the U.S. military research in the aftermaths of the Second World War. The focus of futures studies at that time was in the need to know where the world is going and it manifested in endeavours to anticipate events through scientific analysis of trends and indicators of change. This “prognosis” approach based on the ideas of indeterministic futures, modelling, planning, probabilities, extrapolation and the effects of external trends. Under the branch of Strategic foresight, Futures studies methods and practices have been an established as a part of business and policy-making already since then and their development peaked in the 1960s and 1970s. (Angheloiu, Sheldrick & Tennant 2020; Kuosa 2011; Masini 2006.)

Masini (2006) describes the other branch as addressing the philosophical and sociological dimensions of Futures Studies and stressing the importance of considering the long-term consequences of current politics and actions. Also Kuosa (2011) describes, that in the 1960s, Futures Studies spread outside the strategic military research and increasing interest towards long-term consequences of internationally relevant topics, like population, social movements and energy crises could be identified. This second paradigm or approach of Future studies is strongly linked to Utopias, meaning the desirable societies and can be called the “Visions” - approach due to its aspirations to “transform the present by a *vision* of the future” (Masini, 2006, p. 1162).

Recently Futures Studies are seen to be moving away from the pursuit of providing accurate probabilities and forecasts and moving towards critical hermeneutical understanding, emancipatory dialects and diversity and using abductive reasoning as an approach for knowledge creation. As figure 4 illustrates, there’s also a new paradigm emerging, that disconnects the basic assumptions from western control based technical thinking and instead, recognises paradoxes, dialectic thinking and the dynamics of systems thinking. (Kuosu 2011.)

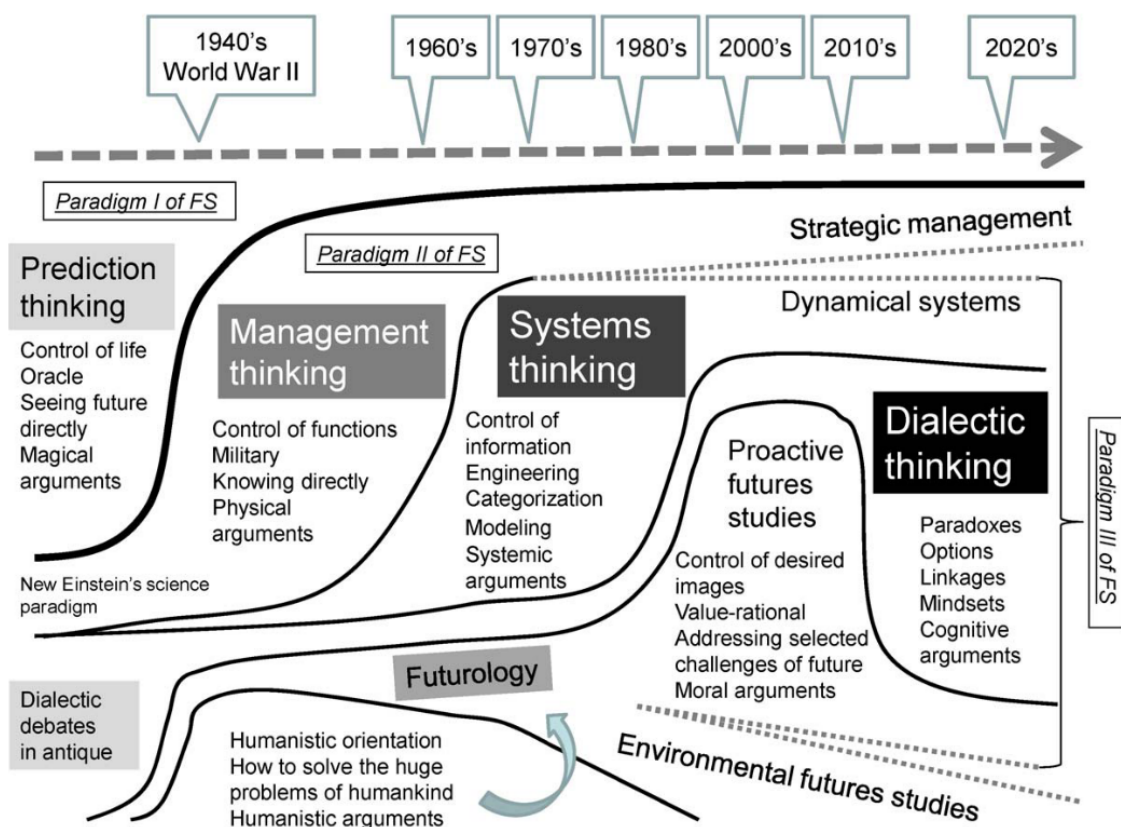


Figure 4. Evolution of Futures studies (Kuosu, 2011, p.333).

According to Kuosa (2011), from the 1980s and onwards, the field of futures studies has stabilised as a field of study and research, but it is still fragmented in its approaches. Futures

studies relation to science has been under discussion (Kuosa, 2011; Marien, 2010; Melnikovas, 2018; Minkkinen, 2020) and its multidisciplinary nature and the need to harness the learnings and ideas of complexity studies has been identified both in research and in practice (Kuosa, 2011). Different approaches to futures studies co-exist simultaneously and their ontological and epistemological assumptions differ from each other, resulting also in different methodological choices and approaches among them (Kuosa, 2011; Masini, 2006; Miller, 2018c).

Poli, (2021, p. 3) divides the approaches of futures studies into forecasting, foresight and anticipation, where “forecasting deals with data extrapolation, foresight with the visualization of possible futures, and anticipation with their translation into action”. Other classifications have been assembled as well and they add to Poli’s classification by bringing forward the critical or normative side of approaches as well as the participatory and action-oriented nature of especially recent approaches to Futures studies (Amara, 1981; Inayatullah, 2013; Masini, 1982; Minkkinen, 2020). Even though the interest of this study lies in the branch of anticipation in connection with design, a brief introduction to the ideas of foresight is also needed with their practical implications to the context of this study.

Foresight

As Masini, p. (2006, p. 1159) states “With time, it has become apparent, that foresight is important for giving us the means to choose where we want to go, in addition to showing us where we are going and how”. Foresight, which was developed as a critique for more traditional forecasting and even strategic foresight, are terms often used in parallel with Futures Studies (Angheloiu, Sheldrick, & Tennant, 2020; Poli, 2021; Sardar, 2010), but they should be treated as distinct approaches. Parkkonen & Vataja (2019) define foresight as a systematic and informed examination of future alternatives. Foresight activities are often in situated in strategic thinking or planning processes (Angheloiu et al., 2017; Koskelo, 2021; Voros, 2001) and enrich the context, where strategy is developed, planned and executed (Voros, 2001). Methodologies and techniques used are more often qualitative in nature and seek to gather data, make sense of it, and use it to explore alternative futures (Angheloiu et al., 2017). Although great deal of definitions of foresight describe it as a process, it can also be seen as a system, where “set of agents interacting together and aiming to explore and anticipate alternative futures in order to guide present action” and foresight processes are the means through which the foresight system operates (Dufva, 2015, p. 13).

Probably the most known and used methods of foresight include the use of scenarios (Ketonen-Oksi & Vigren, 2024; Voros, 2001), which can be described as “speculative images of futures and the development paths that lead to them” (Koskelo, 2021, p. 98). On the other hand, it is a widespread understanding among scholars of Futures studies, that despite their popularity and valuable input, scenarios are just one approach to a much wider toolset of foresight (Sardar, 2010; Voros, 2001).

Minkkinen et al. (2019) state that the background of the practitioners of foresight varies significantly and foresight can be linked to lot of different practices, like risk management, innovation systems, knowledge management, sociotechnical dynamics, long-range planning, radical political aspirations and cultural change, to name a few. Even though futures and foresight methods have been in use in business and policymaking for decades (Dufva, 2015), the use of foresight methods in developing systemic understanding of transitions for sustainability is fairly new area of exploration (Angheloiu et al., 2017). Also Dufva (2015) distinguishes this type of transformative foresight approach from policy-oriented foresight and capacity building foresight (corporate foresight), because it emphasises the shaping of the future instead of merely describing alternative futures.

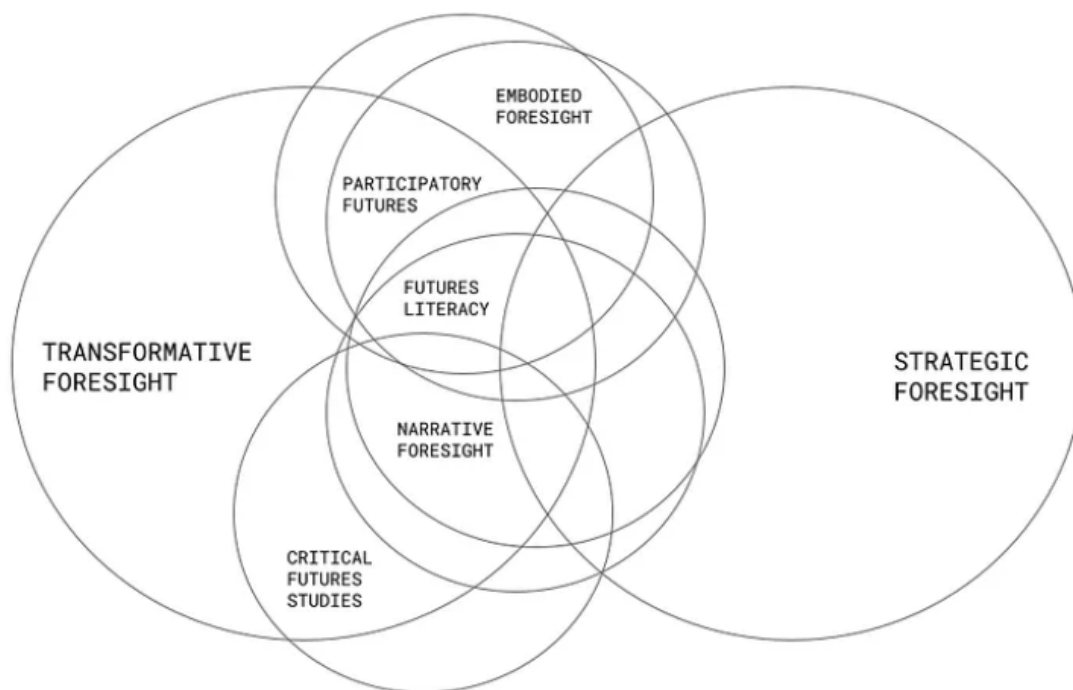


Figure 5. Approaches of Foresight (Sweeney, 2023).

Transformative Foresight focuses on generating novel paths in the present with indeterminate outcomes and its approach is complexity-oriented, critical, design-based and it relies on the concepts familiar from anticipation (Minkkinen et al. 2019). Inajatullah & Sweeney (2021, p. 29) highlight the collective and learning-based nature of Transformative foresight by stating that “It’s more than being the reflective practitioner – it is opening a space where we all learn and transform with each other. This is less the Hero’s journey than the collective caravan”. Sweeney (2023) continues to separate transformative futures and foresight from strategic foresight by its pursuit of futures images and imaginaries instead of data and forecasts, as well as focusing on mindset and practice instead of strategies, plans and policies. Figure 5 presents his mapping of the different perspectives and approaches in the field of foresight.

He suggests, that the essential factor combining transformative foresight and related approaches, like participatory futures and futures literacy, is the use of anticipatory action research and omitting the pretence of objectivity. (Sweeney, 2023.)

Similarly to the development paths of design literature, Participatory futures research is gaining increased attention in the current discussions of the Field of Futures studies as a response to changes in society that threaten democracy as we know it (Trowbridge, 2024). Participatory futures is an area of Futures studies focusing on sifting foresight practices from elite occupation to creating collective intelligence that can be shared and used by many, inviting more people to imagine the futures we want to pursue and translate these images into action and behaviour in the present (Ramos et al., 2019). These notions of shaping the futures collectively and actively takes us to the intertwined concepts of anticipation and futures literacy, which will be discussed further in next chapter.

3.3 Futures capabilities of individuals: Anticipation and Futures literacy

More recently, Masini (2006) highlights the approach of Futures thinking as a vision and focuses on desirable futures and values integrated in them. She further suggests, that visions are enabled by recognizing the seeds of latent change that lie in the past and present and that visions capture the changes and make it possible to create a future that is different from the present. In addition to recognising the importance and the transformative force of visions, Masini also calls for action, instigated by will and following choices. Building the projects, that are based on the knowledge of past and present, and are inspired by long term-visions, is the responsibility of the futurists, who are aware of the short-term, but also capable of seeing the latent seeds of change. (Masini, 2006.) This set-up of visioning, implementing and acting paints a picture of futures thinking as a learning process where futurist, in addition to learning themselves, need to help others learn as well (Inajatullah & Sweeney, 2021; Masini, 2006) and resembles to quite extend the iterative and participatory process of design.

As Masini, (2006, p. 1159) concludes, “Our future must not only be foreseen and dreamt of, but also chosen and built.” Pouru-Mikkola & Wilenius (2021) tap into the conversation by pointing out that the capability of people to think about the futures, their images of futures and assumptions are manifested in their actions in the present. Further on, the actions in the present contribute greatly to how the future begins to take shape. Recent discussion on anticipation, futures literacy and futures consciousness has brought new perspectives on this notion (Pouru-Mikkola & Wilenius, 2021).

Anticipation

How can a future, that does not actually exist, have an impact on what we do today? As Miller, (2018a, p. 2) defines: “One answer to this problem is the idea of anticipation. The future does not exist in the present, but anticipation does. The form the future takes in the present is anticipation.” Miller et al. (2018) continue by stating that “All efforts to ‘know-the-future’ in

the sense of thinking about and ‘using-the-future’ are forms of anticipation”. Miller (2018) often uses the phrase ‘using-the-future’, which refers to people engaging in anticipatory activities and highlights the fact that humans actually instrumentalise the future through anticipation. Anticipation covers all ways of knowing the “later-than-now” thus forming the discipline of anticipation (Miller et al., 2018). Anticipation focuses on the processes of how later-than-now enters reality, thus enabling the conscious use of future in the present (Miller et al., 2018). Also (Voros, 2017a) defines anticipation as a way of foresight.

Anticipatory assumptions are the building blocks for understanding futures literacy, and being futures literate means having the capacity to identify, design, target and deploy anticipatory assumptions (Miller, 2018b). This two-way street between anticipation and futures literacy takes us to the futures capabilities of individuals.

Futures Literacy and related concepts

Building on the theories of anticipation, futures literacy, which refers to an individual’s capability to consciously use the future in the present (Pouru-Mikkola & Wilenius, 2021) or as “the capability to ‘use-the-future’ for different reasons and in a variety of ways” (Miller, 2018a, p. 2). This capability-based approach states that a futures literate person has acquired the skills they need in order to decide why and how to use their imagination to bring the non-existent future into the present (Miller, 2018b). It can be said that the use of concepts in the literature of futures literacy and related topics is varied (Ahvenharju et al., 2018; Pouru-Mikkola & Wilenius, 2021), but Pouru-Mikkola & Wilenius, p. (2021, p. 2) state that they are commonly used to express “the development of the individual capacity to observe, understand, reflect, imagine, use and act upon the future”. Futures literacy as capability is reflexive, because through practice people invent and redefine the way they ‘use-the-future’ and constructive, since acting accordingly constantly builds-up the world around us (Miller, 2018b). Miller (2018b) describes, that as people become futures’ literate, their capacity to ‘use-the-futures’ develops and in addition to imagining different futures, they start to learn that there are different kind of anticipations. Understanding the power of anticipation enables new ways of seeing the present and shaping their actions (Miller, 2018b, p. 16).

Ahvenharju et al. (2018) join the discussion of individual capabilities by stating that futures researchers often aim to increase human consciousness of futures in order to guide decision-making towards more desirable futures. Nevertheless, the concept of Futures Consciousness and related concepts, like futures orientation, prospective attitude, anticipation and futures literacy, are not defined clearly enough. They suggest that Futures Consciousness encompasses also other processes than cognition, which is the one that Futures Literacy is more focused on. Based on a literature review, they introduce the model of five dimensions of Futures Consciousness, which are: 1) Time perspective, 2) Agency beliefs, 3) Openness to alternatives, 4), Systems perception and 5) Concern for others. Time perspective refers to understanding the past, present and future as well as long-term thinking. Agency beliefs highlight one’s trust in their abilities to influence the events of future. Openness to alternatives enables critical approach to what is “known” and helps to see the possibilities the change may bring

along. Systems perception discusses the interconnectedness of human on natural systems and the complexity of the consequences of our decision. Concern for others brings along the effort to make a better world for everyone. (Ahvenharju et al., 2018.) These dimensions are interconnected and form a structure that builds on its parts as presented in figure 6 (Ahvenharju et al., 2021).

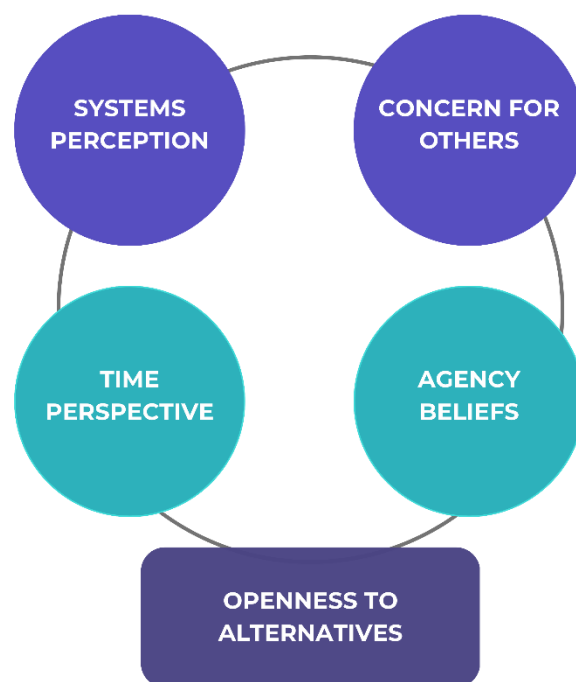


Figure 6. Structure and interconnections of the five dimensions of Futures Consciousness (Adapted from Ahvenharju et al. 2021, p.11).

Pouru-Mikkola & Wilenius (2021) add to the discussion of futures literacy by proposing a model of transformative futures learning, where theories of futures education, futures literature and transformative learning are brought together as a holistic approach to human learning and highlighting the transformative nature of futures education. Even though the aim of the model is to bring some structure into the discussion that is lacking conceptual rigour, futures thinking capabilities on an individual level, it is suggested that it might have some wider implications. The model describes the components of transformative futures learning to have 1) a cognitive dimension, 2) motivational dimension and 3) an active dimension (figure 7). Important aspects of cognitive dimension are the long time-perspective, futures exploration and ability to discern and interpret different patterns of how events take shape and understand the past, present and the nature and speed of certain type of changes. Motivational dimensions include more subjective and personal elements that influence how an individual imagines, uses and acts upon the futures. These two dimensions lay foundations to active dimension that consists of set of skills, that are aimed at empowering agency. The skills in active dimension of futures learning, such as empathy and creativity ensure the individuals

ability to be proactive change-maker in the world instead of passively waiting and reacting to event that happen.

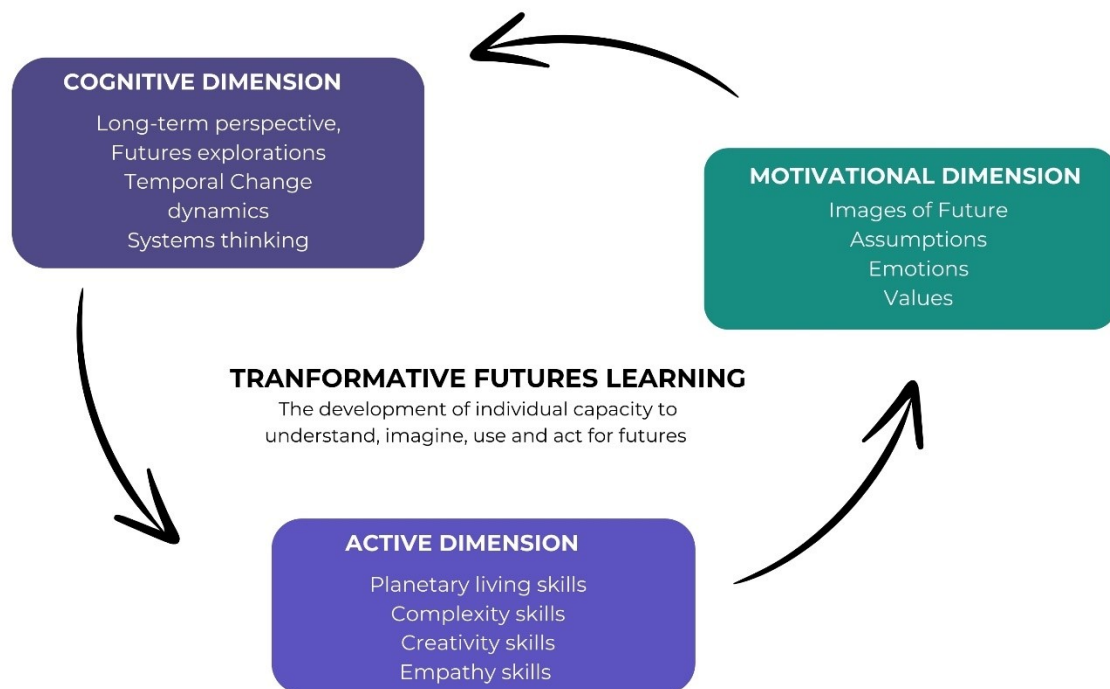


Figure 7. Transformational futures learning framework (Adapted from Pouru-Mikkola & Wilenius, 2021).

As Pouru-Mikkola & Wilenius (2021), Mortensen et al. (2021) and (Miller, 2018c) all suggest, there is a growing need to put futures literacy into practice in individual level and in organisations by helping individuals to broaden their capacity to imagine, as well as use the futures and act upon them and thus develop their dynamic capabilities. But it is not easy. Mortensen et al. (2021) have identified five potential barriers to adopting futures literacy in organisations; 1) lack of experience with the framework of futures literature, 2) lack of mental models of understanding the concept, 3) lack of measurability, 4) lack of clarity on investment and 5) organisational culture. Understanding the possible barriers gives a head start to foresight and futures practitioners in organisations to adjust accordingly and prepare to develop futures literacy in organisations. Also Benavides Rincón & Díaz-Domínguez (2022) suggest that futures literacy could be the unifying framework of futures studies by giving insight to what tools and skills futures' literate people coming from different traditions and schools of thought among futures studies could bring to an organisation. Poli (2021) expands the idea of futures literacy outside futures research practitioners by stating that vast majority of citizens should become futures literate.

Even though the academic discussion on futures literacy is still in its infancy (Ahvenharju et al., 2018; Mortensen et al., 2021; Poli, 2021), it's potential is evident. Parkkonen & Vataja (2019) name futures literacy among the most interesting approaches of foresight. The concept of futures literacy comes to tackle the problem, that "future is often used with a narrow

planning-oriented focus instead of utilizing the full individual capacity to imagine alternative futures and use the future to create novel futures, or act toward desirable futures” (Pouru & Wilenius, 2018, p. 1). As it has been established above, anticipation and futures literacy as individuals’ capabilities and the active and motivational dimensions related to transformative futures learning (Pouru-Mikkola & Wilenius, 2021) need to be researched further also outside the domain of Futures studies. Next chapter discusses how the integrations of Design and Futures studies is presented in current academic literature and what kind of implications it presents to the skills and capabilities of Design professionals and their education.

4 THEORETHICAL FRAMEWORK: INTEGRATING FUTURES STUDIES WITH DESIGN

While the purposes and methods of the different approaches of merging Design and Future studies are under discussion (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020), the topic has gained a lot interest during the last decade and they have been increasingly connected in both, theory and practice (Bühning & Liedtka, 2018; Hines & Zindato, 2016; Irwin, 2018; Ojasalo et al., 2015; S. Ollenburg, 2018; S. A. Ollenburg, 2019). Different viewpoints to the same topic, integrating Futures studies with Design, can be found in many discussions across different domains, including *Business* (Bühning & Liedtka, 2018; Koskelo & Helkala, 2021; Ojasalo et al., 2015), *Sustainability* (Battistoni et al., 2019; Gaziulusoy et al., 2019), *Systems thinking* (Design Council, 2021; Nelson, 2020; Ryan, 2014; Vink et al., 2021), *Futures studies* (Angheloiu, Sheldrick, & Tennant, 2020; Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020; S. Ollenburg, 2018; S. A. Ollenburg, 2019), *Learning and education* (Nelson, 2020; S. Ollenburg, 2018) as well as *Design* (Angheloiu et al., 2017; Irwin, 2015; Irwin et al., 2015; Kossoff et al., 2015; Light et al., 2022; Lloyd, 2019; Mejía et al., 2023).

Angheloiu, Sheldrick, Tennant & Chaudhuri (2020) describe the current relations of the fields of strategy, design and futures studies in terms of their attitude towards change and sustainability. Figure 8 illustrates this emerging map of Design futures and different approaches within the field. As Angheloiu, Sheldrick, & Tennant (2020) suggest, the current state of our operating environment and the requirements it poses, opens up a possibility to integrate these complementary approaches of design and futures.

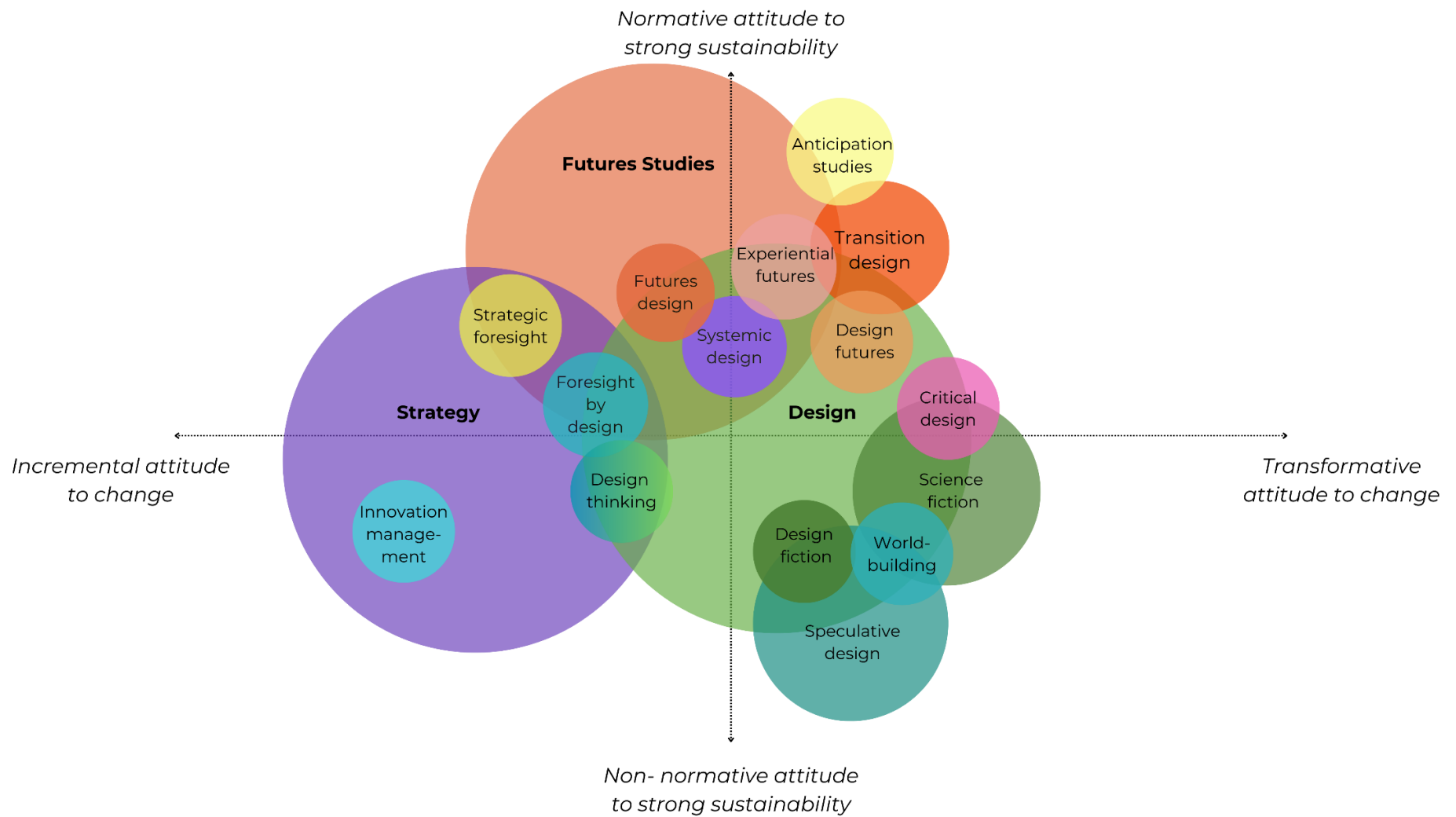


Figure 8. Emerging map of Design futures (Adapted further from Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020).

Based on the current academic conversation, there seems to be at least three lenses or starting points to integrate Future studies and Design: through business and strategy, through arts and through systemic view where the topic is approached especially from social and sustainability viewpoint (figure 9). Although this classification presents the approaches to have a distinct angle or perspective into integrating these fields, it is noteworthy that they all share a lot of basic assumptions, most importantly the notion of multiple futures (see, e.g. Voros, 2017b) and longer time-perspective (Bell, 2017) and stress the importance of participatory approaches, giving voice to different stakeholders and democratisation of decision-making (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020; Manzini, 2015; S. A. Ollenburg, 2019; Sanders & Stappers, 2008). The following sub-chapters introduce briefly these three lenses and the approaches that can be linked to them *with the emphasis of highlighting the underlying perspectives of each category* and not necessarily repeating, what is common for them and all approaches at the intersection of integrating Futures studies with Design.

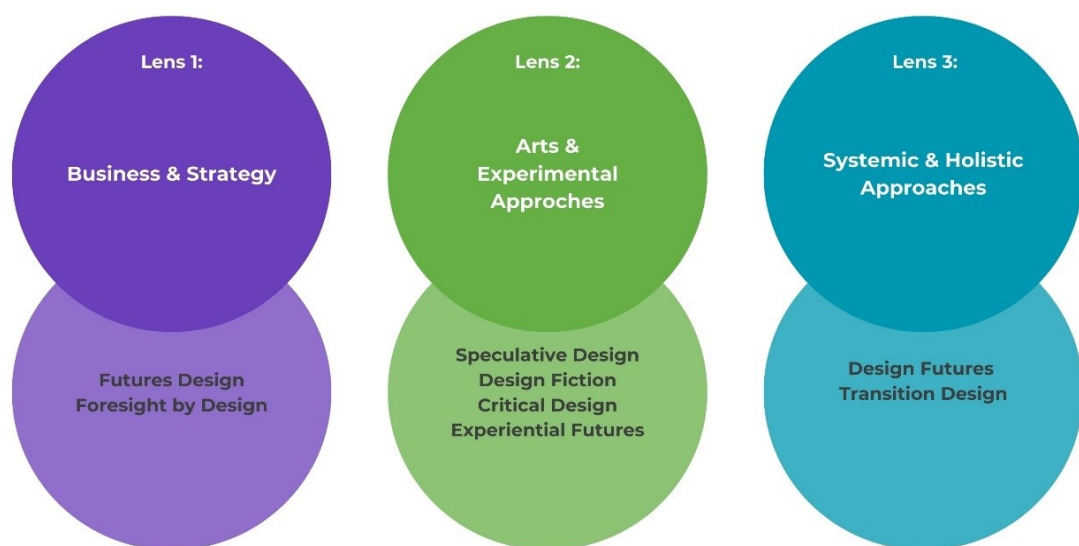


Figure 9. Three lenses for integrating Futures Studies with Design

4.1 Lens 1: Business and strategy

First perspective combines Design and Futures studies (namely Foresight) with Business studies, especially with Strategic planning. As examples of this approach, business and strategy-related aspects of Futures Design (Koskelo, 2021; Ojasalo et al., 2015) and Foresight by Design (Buehring & Bishop, 2020; Buehring & Liedtka, 2018) are briefly introduced.

Ojasalo et al. (2015) approach the intersection of service design and foresight, and the dynamic capabilities that requires from the practitioners, through the rise of service dominant logic and service innovation. They suggest that the fields of Futures Studies and Design are both future-oriented, use creative problem solving aimed at seizing new opportunities and use participatory approaches as they tackle issues in a holistic, systemic and iterative way and thus have a lot of synergies between them. (Ojasalo et al., 2015.) Koskelo (2021) has developed this thought further and calls the approach, combining foresight, design, business and human sciences, that are all rooted in systems thinking, as Futures Design. In the framework for Futures Design, Koskelo (2021) links these four perspectives and their values together to describe how and why to connect them (figure 10). According to Koskelo (2021, p.23), "Futures Design aims for bringing positive effects to benefit individuals, companies, societies and environment" by combining Futures thinking with (Service) Design in resilient approach to futures. Futures design promotes influencing the futures with participatory methods by combining high quality foresight practices and customer and human-centric design practices systematically in strategies and operations. By using Futures design, organisations can reduce the uncertainty and complexity that is related to the futures and influence the futures instead of just preparing for them. (Koskelo, 2021.)

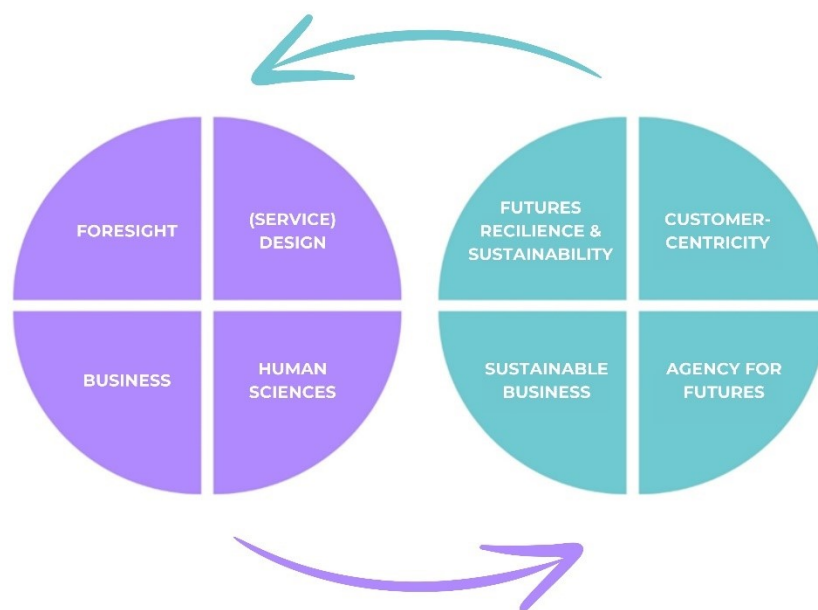


Figure 10. Framework for Futures design (Adapted from Koskelo, 2021, p.25).

With their suggestion, Bühring & Liedtka (2018) tap into the conversation of how systematic futures thinking can help organisations and practitioners with the innovation challenges and opportunities that *emerge over medium and long-term (5 to 15 years) time horizons*. Succeeding in improving the adaptability and innovation capacity of organisations requires also multidisciplinary cooperation of strategic foresight, and design. Their approach, "Foresight by De-

sign”, combines design-led and systematic futures thinking of preferable and desirable futures as a part of the process of strategic planning. The role of foresight and design in this equation is to expand the innovation and decision-making horizon of products and services beyond short-term. This approach on futures thinking offers multi-disciplinary stakeholders a common language for innovation that builds on shared vision of desirable futures by combining design thinking’s subjective and human-centred focus and toolkit with foresight’s more objectively trend-based techniques.

Both, Koskela (2021) and Bühring & Liedtka (2018), point out that some core aims of design and foresight processes are quite similar. They both aim for enlarging pool of potential opportunities to choose from, investigate and identify new needs and possibilities, define what is desirable and what is not and stimulate continuous discussion. Designers, with design thinking skills, have the possibility to enlarge the opportunity base by reframing the problem, and creating a dialogue-based inquiry process to facilitate co-creation across diverse stakeholder groups. Also, design contributes by bringing along the experiencing of new futures instead of just thinking about them, making them compelling, tangible and personal.

4.2 Lens 2: Arts and explorations

The other group of approaches also uses Design to make futures come alive, but from another, more critical angle inviting more voices into debate and discussion. These approaches, namely Speculative design (Dunne & Raby, 2013, 2024; Hupkes & Hedman, 2022), Design fiction (Bleecker, 2009; Dunne & Raby, 2013, 2024) and Critical design (Dunne & Raby, 2013, 2024), use for example art-based methods to envisioning and experiencing new futures images and scenarios. Also, Ethnographic experimental Futures (Candy & Kornet, 2019) approaches foresight from design perspective in order to make the images of the future more concrete. The goal of these type of approaches and methods is not to offer definitive answers to how the future will look, but they are used as devices for allowing the people to better understand the challenges we face and reflect them on a personal, collective and societal level (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020). Design fiction can be seen as assembled design objects “part story, part material, part ideal-articulating prop, part functional software (Bleecker, 2009), but they are not typically made with any intention of being realised (Angheloiu et al., 2017). As Dunne & Raby (2024) point out in their most recent preface to their book “Speculative Everything” (2013), Speculative design has taken many forms, with varying degrees of boldness, during the last decade. It can be seen as a starting point, from which to develop a range of different understandings on how speculative thought and design can fuse in a way that allows for meaningful engagement with the world around us. The authors wish that, after encountering projects that use speculative design, people will be left somehow different, either in their thinking, acting or in the way they use design. Speculative design sparks imagination by being a bit strange and at odds with the current reality, using aesthetics to hint, rather than show (Dunne & Raby, 2024) and as such, is a little closer to arts (Angheloiu et al., 2017).

As it has been pointed out, Speculative Design and the approaches presented in the following chapter, namely Design Futures, overlap, but also differ significantly (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020; Dunne & Raby, 2024; Koskela, 2021) and the most important distinctive factor, within the interest of this study, is the aim to instigate change in the present by using the futures.

4.3 Lens 3: Systemic and Holistic approaches

The third lens of systemic and holistic approach, presented previously in figure 9, is the most important approach with respect to the interest of this study. It takes a more social viewpoint in addressing the wicked problems and combines Futures studies and Design in approaches, such as Design Futures (Angheloiu et al., 2017; Angheloiu, Sheldrick, & Tennant, 2020; Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020) and Transition design (Irwin, 2018; Irwin et al., 2015; Kossoff et al., 2015; Sides et al., 2022). Both approaches highlight the need to address change and the ethical aspects of design, understanding the position and bias of the designer, use of participatory methods and multidisciplinary approaches as well as underline the importance of creativity as a positive force and tool of designers in making a difference, breaking the norm and questioning the underlying power structures of our society. Design Futures describes the integration of the fields on a higher level, describing and suggesting the potential benefits and unifying factors among the disciplines, whereas Transition design offers even more detailed models and frameworks for the practice of integrating these fields.

Integrating complimentary approaches of Design and Futures studies could help with the paradigm shift required in context of values, ethics and norms and support us in the transformative change needed to ease the social and environmental challenges of our time. The situation presents itself as a possibility space for Design Futures, as a disruptor of hegemonic futures and as a way to reflect our dominantly Western imaginaries (Angheloiu, Sheldrick, & Tennant, 2020). Design Futures can be framed as different ways to develop and deploy prompts, artifacts and narratives to critically examine tomorrow's societal discourse already today. Its intentions originate from pursuing preferable futures as a route to social and environmental justice. The process of imagining the future can be seen as value-laden and as social practice, which calls for layered approach that challenges and surfaces the possible bias in our thinking models. (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020.)

As Design futures approach presented above provides justification and reasons to integrate Futures studies and Design in the complex operating environment, Transition design, that will be presented next, provides designers a framework with logic that adds to designing systems-level change by bringing together knowledge and practices outside the design discipline and supporting the co-evolution of knowledge, action and self-reflection (Irwin, 2018).

A framework for approaching the futures: Transition design

“Transition Design is a proposition for a new area of design practice, study, and research that advocates design-led societal transition toward more sustainable futures.” (Irwin, 2015, p. 229). Referring to Transition design as a new area of Design is, according to Tonkinwise (2015, p. 86), risky, but a useful way of marking an ambition and thus highlights the commitment to facilitate social change toward more sustainable futures. Transition Design differentiates itself from other design practices by emphasizing the need to address interconnected ecological and social crises through pre-emptive, systemic change rather than reactive solutions. It acknowledges that Design itself is undergoing transformation and insists on a future-focused approach that takes responsibility for the impacts on society and the future. Transition Design goes beyond problem-solving to commit to structural, long-term social change, requiring a rethinking of the designer's role, knowledge, and values. This approach is iterative, addressing complex, 'wicked' problems through practical experiments and adapting strategies based on emerging outcomes. (Tonkinwise, 2015.)

Transition Design advocates for flexible and integrated approach for transdisciplinary teams working on projects and initiatives that aim for transitions (Irwin, 2018, p. 17). What makes it different from for example service design or design for social innovation, is that the approach is; 1) deeply grounded in futures-oriented visions, 2) essentially transdisciplinary, 3) highlights the need to understand the nature and dynamics of change in social systems and 4) emphasises the temporality of the solutions designed (Irwin, 2015). Irwin (2015) suggest that following the assumptions of Transition Design, designers must apply deep understanding of the interconnectedness of social, economic and natural systems and to help them, Irwin et al. (2015) propose a heuristic model, called Transition Design Framework (figure 11). Framework characterises four different, but connected and mutually influencing areas of: 1) Vision for transition, 2) Theories of Change, 3) Mindset and Posture and 4) New ways of Designing (Irwin, 2015, 2018; Irwin et al., 2015; Kossoff et al., 2015).

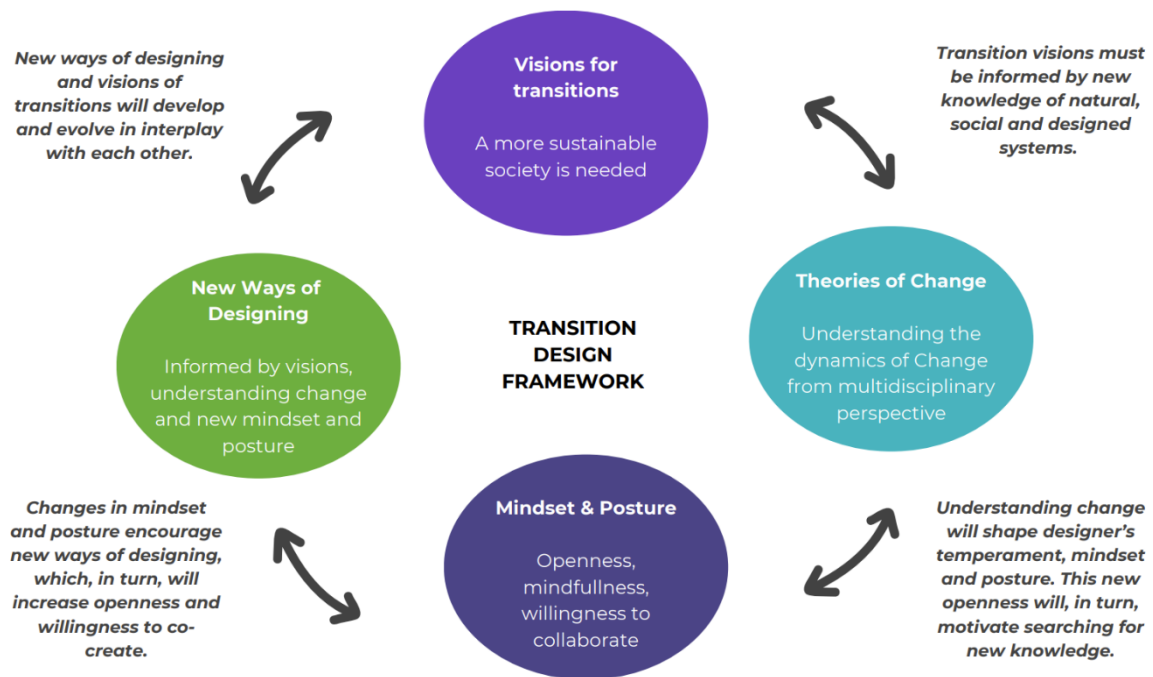


Figure 11. Transition Design framework (Adapted from Irwin et al., 2015).

As Irwin (2015) points out, most people agree on the need to transition towards more sustainable futures, but there have been only few compelling narratives about what those futures could look like. Visioning for transitions provides guidance for what we want to transition towards (Irwin, 2018) and compelling future-oriented visions, created with the help of tools and methods of design, inspire and guide projects in the present (Irwin, 2015). It is noteworthy, that transition visions remain open-ended and speculative and are not to be treated as blueprints for design (Irwin, 2015, p. 233). The concept of change is relevant, because, in Transition Design, it is accepted that change is always present in design, explicitly acknowledged or not, and transition designer have the opportunity to act as agents for change (Irwin, 2015). Bringing light to the theories of change will help understand and explain the dynamics of change within complex social and natural systems (Irwin, 2015, 2018). Mindset and Posture highlights the need for an open and collaborative attitude and self-reflection as an essential starting point for the designer (Irwin, 2018). It often goes unnoticed, that the designer's mindset and posture influences profoundly what is identified as a problem in the first place and how the problem will be framed and solved within a certain context. This requires that designers explore their own value system and the role it might play in the design process. (Irwin, 2015.) New ways of designing stem from the combination of the areas of visions, theories of change and mindset and posture (Irwin, 2018) and new approaches to design are informed by different kind of value sets and knowledge (Irwin, 2015). Pursuing the visions in the long run might mean that the solutions are intentionally short in lifespan and they may evolve and change over long periods of time. Transition designers should also have the skills, foresight

and ability to connect different kind of solutions together and look for emergent possibilities while working, making the approach highly transdisciplinary.

Irwin (2018) further suggest, that the Transition Design Framework brings together evolving practices that can be used to visualise and map complex problems, situate them in withing large contexts, while taking time and place into consideration, as well as identifying and bringing together stakeholders with conflicting interests and helping in aligning them. Transition designers can help stakeholders to co-create visions of desirable futures and identify the leverage points where design interventions can be placed in large systems of interconnected problems. The idea behind the Transition Design framework is not to give a fixed template to follow, but to offers a logic for bringing together practices relevant to designing systems level change.

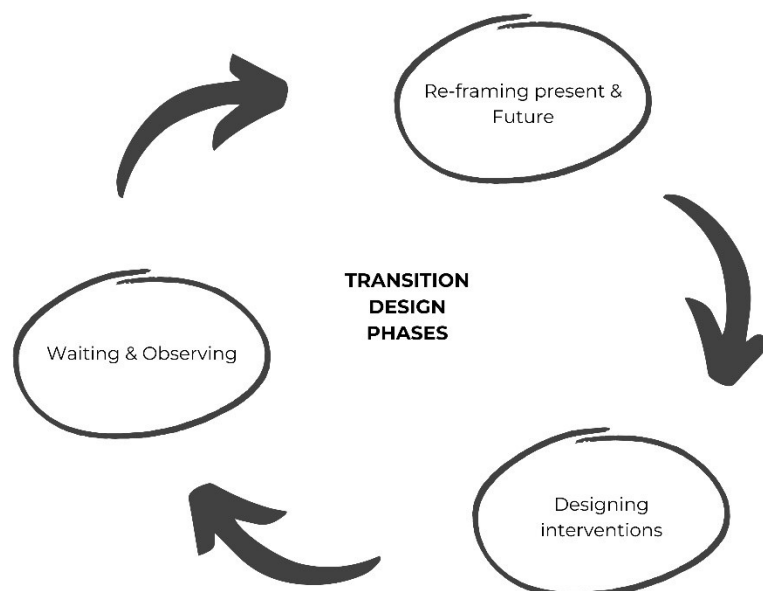


Figure 12. The Transition Design phased approach (Adapted from Irwin, 2018).

In addition to offering the Transition Design Framework introduced above, Irwin (2018) is offering a phased approach for understanding Transition Design (figure 12). Practices of the framework can be applied in three phases: Re-framing present and Future, designing interventions and observing how the systems respond. Instead of presenting a clear process, phases suggest what kind of actions should be taken into account when designing for systems-level change. “How problems are framed determines how they will be understood and acted upon” (Irwin, 2018, p. 6). Framing the problem together enables the participants to understand the complexity of the issue and competing perspectives, as well as grow appreciation to others and their expertise, allowing participants to map the problem visually. This designed artefact will be updated and validated throughout the process and used as an aid for better communication. Developing shared and desirable futures using different methods of foresight, like back-casting, participants are able to create transition pathways, consisting of projects and initiatives, to connect present actions to the vision of the future. Identifying possible

consequences and root causes at multiple levels of scale in the system and in time is crucial in designing interventions. This means, that in addition to stakeholder perspectives, the past, present and future, as well as micro- and macro-levels of systems need to be taken into account when exploring the most promising possibilities for design interventions. Linking and amplifying projects gives catalysing a systems-level change a better change. The third phase of waiting and observing the effects requires new mindset of patience, slowing down and focusing on long time-horizons, instead of searching for quick-fixes. Also understanding and appreciating the principles of living systems, like emergence, feedback and self-organisation, is needed from designers in this phase. Designers need to understand and accept that the emergent outcomes of interventions cannot be predicted, but they can be speculated. (Irwin, 2018.)

4.4 Summary and research gap

Theoretical framework of this study (figure 13) illustrates the development of approaches in the intersection of Design and Future studies and highlights concepts relevant to this research. When the perspective on time extends from short-term thinking into the (multiple) futures, complexity and interconnectedness in our operating environment increases. Also, more people get involved in designing and the skills and understanding of the design professionals need to evolve. They need to have new and different kind of skillset for thinking about and using the futures. Concepts like Anticipation and Futures literacy from Futures studies become useful here, as they help in developing and enhancing the necessary personal capabilities, such as systems thinking and recognising the posture and bias of oneself and the embedded agency in this equation. The increasing level of sustainability thinking of design is also inherently integrated to the advanced approaches integrating Design and Futures, such as Futures Design and Transition design. Similarly, ethics should be the built-in starting point for researchers and practitioners building the futures and increasing emphasis should be appointed on recognising and reflecting the underlying power dynamics and value constructions of our operating environment (Hay et al., 2023; Masini, 1982, 2006; Zhang, 2023).

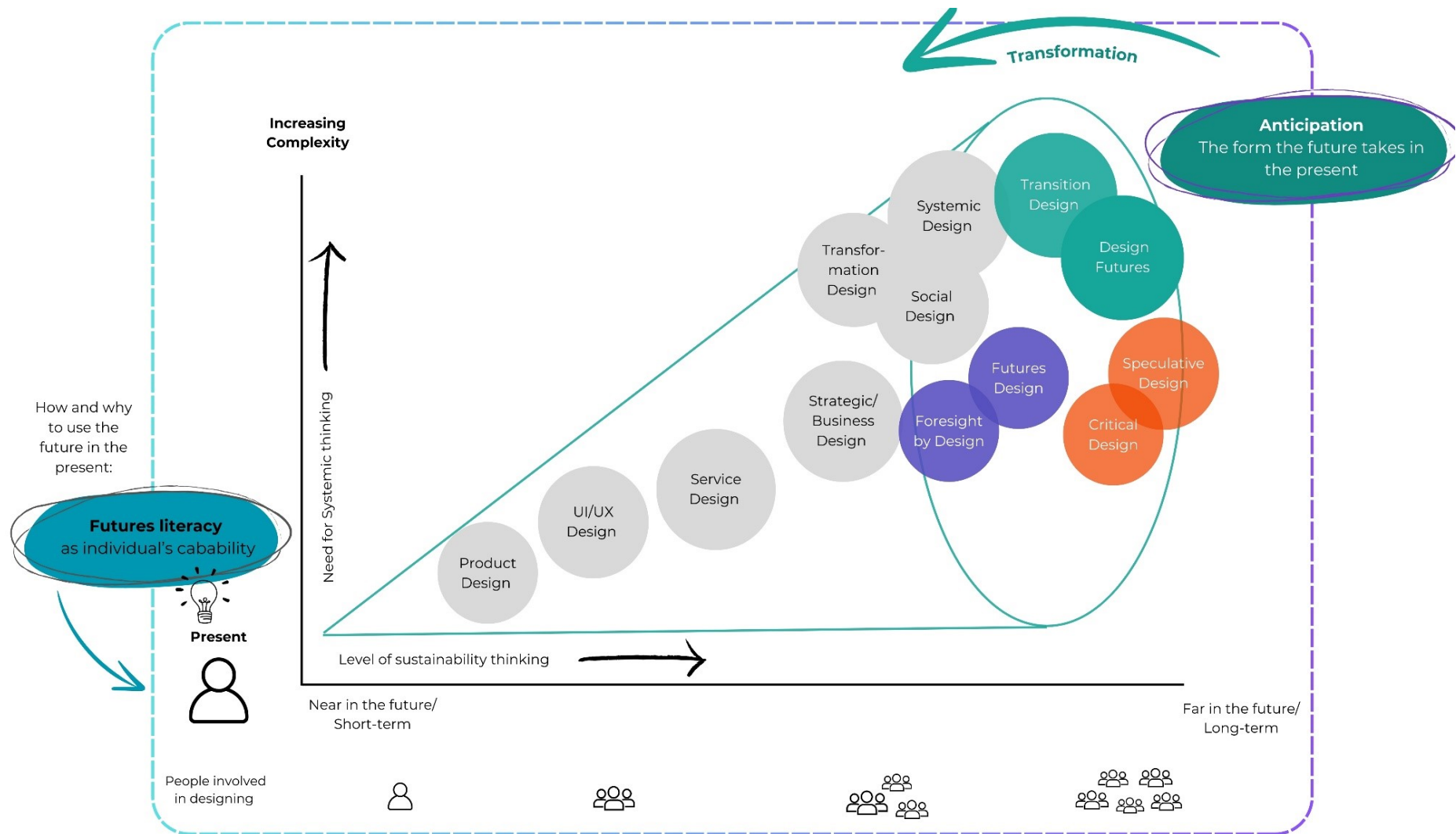


Figure 13. Theoretical framework of the study

Design education is increasingly been criticized of not providing adequate tools and skills for designers to operate in the role they might be able to achieve in constantly changing world of complex challenges and wicked problems (Nelson, 2020; S. Ollenburg, 2018). What does focusing on social and environmental transitions and integrating design with future studies mean for the design professionals and their education? Doordan (2015) raises a question, if our university-based degree-programs in current design education actually concentrate on the skills needed to face the challenges of the global condition. Calling for holistic and systemic approach, Doordan also highlights the simultaneous challenge and promise of Transition Design as a bottom-up design approach that favours place specific local initiatives, but goes beyond ad hoc co-design sessions by relying on carefully and mutually created vision of the future that combines network of local initiatives.

As Irwin (2015) suggests, individuals can engage in a process of personal transformation to change their beliefs and that process can be learned and incorporated into design practice. This poses requirements to teach designers to work with interior and invisible dimension of human experience in order for them to be able to facilitate change on social systems level. Also (Nelson, 2020) turns the attention to the skills and abilities taught to designers by stating that Design education can be seen as the process of facilitating the development of the design mind. Nelson (2020) continues to define a design mind by two conditions: Stance and Approach. Highlighting the importance of both, stance (understanding the groundings of personal lenses, filters, values, cognitive frames and belief systems) as well as approach (action stemming from intention, intention and agency). Further research is needed to advance the understanding of how design professionals could develop the skills needed to support the design mind, called for in design theory and practice of the profession. Next chapter describes the research design, data and methods that are used in this study in order to approach answering the research questions.

5 RESEARCH DESIGN, DATA AND METHODS

This chapter describes the underlying assumptions and approaches for the research design and the methods of gathering and analysing data for this study. The essential components of the research design are clarified with the help of the “Research Onion” (Saunders et al., 2019, p. 108) and presented in figure 14.

This study draws from distinct disciplines and collections of theories, mainly from Design and Futures studies. Both of these disciplines are already drawing from multiple other areas in their research and methodology and both also have somewhat confusing relationship with science (Cross, 2006, 2007; Kuosa, 2011; Marien, 2010; Melnikovas, 2018; Minkkinen, 2020). Even though this study contributes at the intersection of these fields, its research design, strategy and methods rely on the research traditions of Design. Having that established, it can be added that taking an interpretive approach on futures studies highlights the aim of understanding the multitude of futures images and providing insight, rather than forecasting and accurate prediction (Melnikovas, 2018, p. 37), which supports the choices of this study. Futurist and designers are part of the world they are trying to describe and design. Reflecting one’s own culture, position and values in many levels makes it impossible to operate from the ivory tower of “pure science” and interpretation is always done through some lens, consciously or unconsciously (Masini, 2006).

Cross, (2006, pp. 97–100) tries to clarify the relationship of design and science by dividing approaches towards it into three different interpretations: 1) scientific design, 2) design science and 3) a science of design. Scientific design refers to modern, industrialised design, that is based on scientific knowledge and that utilises a mix of intuitive and non-intuitive design methods. Design science, on the other hand, is the most controversial approach of the bunch by referring to explicitly organised, rational and systematic approach to design that is some sort of scientific activity in itself. The science of design can be seen as an approach, where the principles, practices and procedures of design are studied. This approach can be labelled as research into design or research about design (Cross, 2006; Frayling, 1993). Instead of approaching design as a science, Cross (2006, p. 100) suggests that we should approach design as a “interdisciplinary discipline”, which tries to develop domain-independent approaches to theory and research. Also, design knowledge is seen to reside in people, so it can be seen that the subject of design research touches: firstly, the development of design ability in individuals, and secondly, how that development might be best nurtured in design education. This approach is very much in the interest of this study.



Figure 14. Research onion: Research design of the study (Adapted from Saunders et al., 2019).

5.1 Research Philosophy

The aim of this research is to understand the phenomena in its context from multidisciplinary point of view. Ontology is the term used to refer to our ideas of reality and to how reality is constructed (Kyrö, 2002). The approach of this research relies on relativistic ontology, where the nature of knowledge can be seen as subjective and transactional, where reality is constructed culturally and socially, and where findings are created in the interaction process between the researcher and the interviewees (Guba & Lincoln, 1994, 2005).

Epistemological questions are interested in what knowledge is and how can we acquire it (Kyrö, 2002). The research philosophy of this study falls under the larger umbrella of Interpretivism, which is based on the assumption that there is no single observable reality, but reality is indeed subjective, multiple and socially constructed (Anttila, 1996; Merriam & Tisdell, 2016). In the interpretive approach, the goal of the researcher is to adopt an empathetic stance in order to understand the social world of people. This is done by interpreting the meanings people give to their experiences, also keeping in mind that these meanings are shaped by the individuals' historical or social perspective. (Saunders et al., 2019; Saunders & Tosey, 2012.) In this study, the researcher's understanding is created and shaped as a result of social interaction between the researcher and research subject through subjective interpretation and learning experience. It is not the intent of this study to explain, but to describe and understand.

Merriam & Tisdell, (2016, p. 9) state that “Researchers do not *find* knowledge, they construct it” and that Constructivism is a term often used similarly with Interpretivism. Anttila (1996) states that according to Constructivism, knowledge is something that the researcher puts together or constructs based on filtering what is observed through the previous knowledge, experiences and purposes. As a theory of knowledge, Social constructivism adds to previous by questioning the possibility of the objectivity and rationality of knowledge and assumes further, that reality is constructed through social interaction and language in relationships between people (Vilkka, 2021, p. 170). It is relevant to this study to describe and understand social structures and underlying values and norms behind the phenomenon, which can be interpreted by examining the descriptions of the experiences of the interviewees. It can be said, that under the assumptions of Interpretivism, this study follows also the viewpoints of Constructivism and Social Constructivism and does not see the need to necessarily treat them as separate theories of knowledge, but just approaches with different emphasis.

5.2 Research Strategy and Methodology

According to Merriam & Tisdell, (2016, p. 23), Interpretivism is often of qualitative research by nature. As Alasuutari (2011) mentions, qualitative research can, in its essential parts, be about testing hypothesis, but they also provide means to investigate the phenomenon from holistic perspective and describe and understand it profoundly. The contribution of qualitative research can be seen in its ability to spread this new and deeper understanding of the phenomena and its basics lie in interpretation and construction of reality in interaction with people (Merriam & Tisdell, 2016).

It might sometimes be challenging to label qualitative research under some certain type of qualitative research, for example phenomenological or ethnography (Merriam & Tisdell, 2016, p. 23). This kind of research can be called basic qualitative study. Basic qualitative study, such as this research, can aim for increased understanding of the phenomenon and the meanings that phenomenon has for those involved, and not necessarily on practical application of the gained knowledge (Anttila, 1996; Merriam & Tisdell, 2016, p. 24).

The methodology of Interpretivism and Constructionism is hermeneutical and dialectical in nature (Guba & Lincoln, 2005). Following the hermeneutic cycle, a concept closely linked to qualitative research, the researcher is trying to free oneself from one’s own bias and obstacles for understanding the phenomenon by going through the data over and over again, the understanding deepening with every cycle (Anttila, 1996). It is typical to inductive reasoning, a more data-oriented approach, that observations and interpretations made from data are progressed into generalisations such as concepts and theories (Kyrö, 2003), whereas deductive reasoning stems from what is already known and leads us to place our observations in a certain, pre-created framework (Anttila, 1996). In this research, data collection, data analysis and defining and refining the original theoretical framework was done simultaneously in a way, that dialog and interplay between the theory and the empirical data was emphasised. Approach to reasoning could be described as abductive. In abductive reasoning, the creation of

new theory is possible, when observing the phenomenon through guiding principle, that can be a vague, intuitive notion or it may be a highly-formulated hypothesis (Anttila, 1996; Paavola et al., 2006). In this study, this guiding principle, a hypothesis, started the process. Secondly, the original literature review and desktop study on the phenomenon laid the foundation to data collection and interview questions. The emergent themes arising from the data during the analysis instigated more precise research on the literature and thus resulted in framing of the topics to be selected to the final theoretical framework for the study. Highlighting the reflective nature of abductive reasoning, the researcher's understanding was created in these alternating phases of inductive and deductive reasoning and as an interplay of existing theory and empirical data gathered in this research.

5.3 Data Collection and Analysis

Data for this study was collected by interviewing multiple experts working in the fields of design, futures studies and education. As the aim of the study is to understand the context, where professionals of design operate in and create more understanding and discussion on the topic by giving voice to different stakeholders in the conversation, the data was collected from multiple perspectives. The interviewees were selected based on the preliminary benchmarking of educational, research-related and private institutions and companies in Finland working within design, futures studies or both. The current positions and backgrounds of the interviewees had strong connections to at least one of the topics, preferably both. The selected interviewees were asked to participate in the research, because the implementation of the research was seen to require in-depth knowledge and insight of experts, who have a broad perspective to the research topic.

After preliminary acceptance from the interviewees, they received an email with additional information about the research and its purpose and justification on why they were invited to participate. As appendix, they received a form for consenting to participate and a description of processing of personal data in the research. All though, anonymity was the primary option, many of the interviewees wished to be quoted by name in the research and other related publications. This resulted in the situation, where some of the interviewees are quoted by their name and some only by pseudonym.

In total of eleven (N=11) individual, semi-structured on-line interviews were conducted between April and May, 2024. duration of the interviews was between 45 minutes and 90 minutes and they were held in Finnish. The interviews were recorded and automatically transcribed for analysing purposes. After completing the research, all the video material of the interviews was deleted and only the anonymised and transcribed material, that cannot be linked to a person, was saved for potential future research.

Using semi-structured interviews as a method for collecting qualitative data for this study was selected because they are almost as open as in-depth interviews. A semi-structured interview proceeds by going through a list of preselected themes essential to the research and additional, supporting questions that allows the researcher to deepen the subject based on the

answers of the interviewee (Tuomi & Sarajärvi, 2018; Vilkkä, 2021, p. 76). Interview questions (Appendix 1) were treated as guidelines and broad themes, allowing the interviewees to contribute to the subject according to what they felt was important, which resulted in rich data and narratives. In this way, it was secured that any related emergent themes were not missed (Alasuutari, 2011; Tuomi & Sarajärvi, 2018). The initial interview questions were drafted based on the preliminary literature review, keeping in mind that the answers to some of the research questions could be found on the interview data (Tuomi & Sarajärvi, 2018; Vilkkä, 2021, pp. 106–109). In all of the interviews, the pre-selected themes were processed in same order, but the clarifying and supporting question were not always asked or their order might have been different. The use of supporting question depended on what the interviewee had already brought up (Tuomi & Sarajärvi, 2018), but the researcher made sure that all the themes were covered in every interview. This is typical to semi-structured interviews, where the researcher navigates the space between structured and open interview (Tuomi & Sarajärvi, 2018).

The number of the interviewees was not fixed in the beginning of the data collection process, but potential respondents were contacted during the data collection process. Even though the interviewees all gave their valuable perspective on the topic, it could be seen quite early on during the data collection process, that the data started showing saturation. Saturation means that informants do not produce completely new information relevant to the topic (Tuomi & Sarajärvi, 2018). This eventually supported the decision, that the number of interviewees (N=11) was sufficient for this study.

The video and transcribed data from the interviews were analysed continuously through the research process. The purpose of content analysis is to try to describe the data, which is describing the phenomenon, in a more condensed form and bring out the general themes (Alasuutari, 2011; Tuomi & Sarajärvi, 2018). This also helps the researcher to justify one's results and conclusions. In the first face of data analysis, all the interviews were unravelled under the corresponding themes of the interview questions in visual form (post-it) in digital workspace (Miro). This phase also acted as a way to reduce and exclude the non-relevant information out of the analysis process (Tuomi & Sarajärvi, 2018), but the use of different labels and themes was abundant in order to be inclusive and ensure the richness of the concepts. Each interviewee was given their own colour for later purposes. Clustering of emergent themes begun after completing all the interviews and transferring the answers in short to digital platform.

The post-its were first clustered in groups according to similarity in themes and ideas (Braun & Clarke, 2006; Tuomi & Sarajärvi, 2018). After forming the groups, they were named and other round of analysis with sub-themes was done similarly. Colours assigned to different respondents gave insight on whether the emergent theme was pointed out by only a few respondents or if it was more of a cumulated perspective (Vilkkä, 2021, p. 194). The process of analysis and refinement of themes was done in multiple, highly iterative phases and in interplay with literature review. The actual comments of the interviewees are used to describe the emergent themes identified from the data. All the quotes from the interview are

translated to English ensuring that the original intent and meaning has not changed. In the abstraction of the data, the linguistic expressions are translated into theoretical concepts and conclusions (Tuomi & Sarajärvi, 2018). Identification, connections and relations of the themes will be discussed in detail in Chapter 6.

5.4 Ethical considerations and limitations

While selecting the interviewees for the data collection, it was important to choose participant who could provide good and wide representation of the practitioners experienced with the research topic, thus improving the coverage and validity of the research (Vilkka, 2021, p. 194), but also provide different perspectives to same topic and providing triangulation to data (Tuomi & Sarajärvi, 2018).

The dialog with the interviewees was based on listening, respect and openness. A great deal of time was used to make sure, that the interviewees knew exactly what was expected of them, how the data was collected and how was it going to be used and stored. The participants knew of their rights to withdraw from the process at any point. Also, standard forms and procedure with the important information was created to exclude the human error of forgetting to mention something during the process. In the interview, it was the role of the researcher to make sure, that the interviewees felt safe and this was done both in verbal and non-verbal communication and by own example. By being open about own feelings, possible fears and uncertainties, as well as excitement on looking forward to hearing their thought, the researcher tried to set the atmosphere as natural and open as possible. It was made sure, that the interviewees knew about possibility to ask questions, interrupt and voice their own preferences for the topics, duration and other aspects of the interview. The use of semi-structured interviews supported the flexibility of the discussion.

Even though the atmosphere of the interviews was discussion-like, the researcher tried not to influence or lead on what was said or state one's own opinion in the middle of the interview. Instead, following the frame for the interview questions and only asking for clarifications, additions to what the interviewees brought up was the standard procedure.

Qualitative research is sensitive to researcher's subjective interpretations. As it is characteristic to qualitative data (Alasuutari, 2011), the interviews were both broad in context and rich in contents, which always poses some challenges for the analysis. The answers meandered from subject to another and there was a lot of going back to previous questions to complement what was been said earlier. Because of that, the interpretation of the researcher had a significant role in the analysis. As a (future) design professional herself, the researcher is part of the phenomenon and the context of the study. Recognising and separating one's own thinking, position, background and ideas from the data was important, but can never be fully accomplished. Different techniques were used in trying to achieve that. One of them was making a mind map of own ideas and expectation before starting the interview process in order to make researcher's own bias and expectation more visible to oneself and allowing to put them out of the focus. During analysis and writing of the manuscript, the researcher went

back to the original data several times to make sure, that the basic ideas of the interviewees had not changed during the process. Also, the approach, abductive reasoning, supported going back and forth with the data, interpretations and theory. This way the validity of the interpretations was ensured to an extent it was possible and the efforts to exclude the researcher's own bias were built in the process. A set of direct quotations of the interviewees are presented to support and demonstrate the interpretations and thus support the transparency of the findings. In the literature review, the use of peer reviewed academic journal articles was emphasised to guarantee the quality and the extent of literature and concepts used to support this research.

Ethical considerations concerning the data privacy, its handling and life cycle (Vilkka, 2021, p. 115) was prepared well beforehand and studied with care. The instructions of University of Lapland, Finnish National Board on Research Integrity TENK (Finnish National Board on Research Integrity, 2021; *University of Lapland: Tutkimuksen Tietosuoja*, n.d.) and researchers previously acquired knowledge of general Data Protection Regulation GDPR were followed. One of the most challenging questions concerning this research was the privacy protection in this research setup, where some of the interviewees wanted to be quoted by their own name and some wanted to stay anonymous. However, as the process of data gathering progressed, it became clear to the researcher that the wishes and choices of the participants could be respected without compromising the trustworthiness and transparency of the research or treating the participants unequally.

6 FINDINGS

This chapter synthesises the findings of analysing the interview data of the eleven expert interviews. It has been divided into five sections, following the main topics of the interviews (figure 15). First, expert's notions on the operating environment of organisation today and their understanding on the underlying factors contributing to this state of matters is discussed. Second part takes a look at the role of Design as an organisational practice, it's evolution and the role of people contributing to it. Third section dives into the needed skills and abilities of Design professionals. Next, the notions and understanding of the experts on the matter of educating future design professionals are discussed. The last section takes a look at then notions the experts have on combining Futures Studies with Design practice.

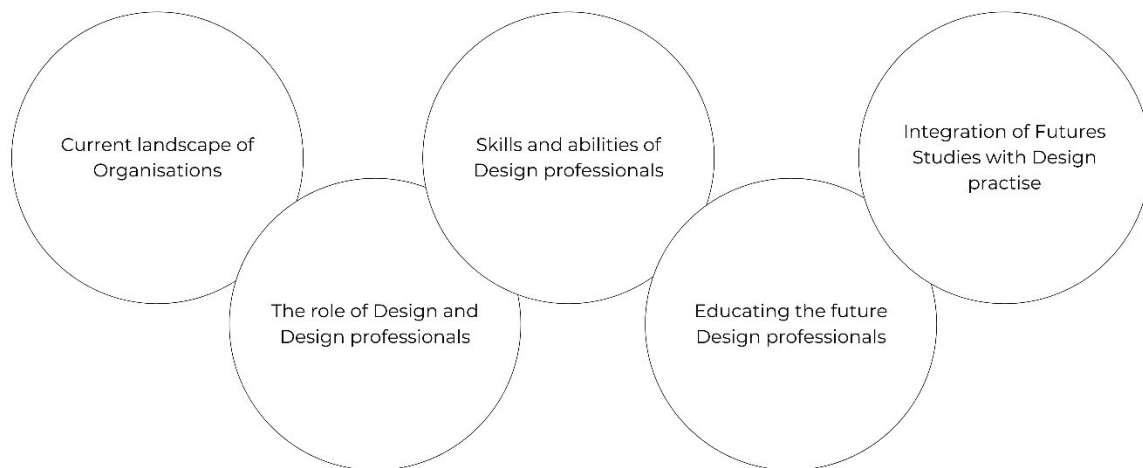


Figure 15. Illustration of the structure of Chapter 6

The experts interviewed are working in different roles in practice, research and education of Design and Futures Studies. The interviewees are: Emilia Nykänen (Head of service Design at Kuudes), Julius Oförsagd (Head of Design, CEO and Owner at Arctic Factory), Jussi Korhonen (COO and Strategic Design Lead at Arctic Factory), Jyrki Kaukomies (Service Architect and Futurist, Partner at Content Union), Katri Kallio (Lead - Futures at VTT), Krista Korpikoski (University Lecturer, Service Design Strategies and Innovations Program Coordinator at University of Lapland), Minna Koskelo (Futures Designer, CEO and Founder at 11Helsinki), Markku Wilenius (Professional Futurist, Professor, UNESCO Chair) as well as three anonymous experts working in the field of Design and education, referred as Expert 1, Expert 2 and Expert 3. In the following chapters, interviewees are referred in short, by first name or pseudonym, in connection to the quotes to support the readability and flow of the chapters.

6.1 Current landscape of organisations today

According to interviewees, big changes in the society, and general conditions show in multiple ways. Situation results into financial caution while considering investments and development projects. In other words: money is short for new development. On the other hand, the need to adapt the business quickly became evident when Covid- 19 hit us full speed. Constant change and uncertainty, war, speedy infiltration of artificial intelligence and the ever-increasing use of new technology have also resulted in fatigue and burdened people in organisations. When everything changes all the time, individuals are left with the responsibility to sort out the important signals from all the noise that surrounds them. The effects can be seen in the everyday life of organisations.

Savings mentality and overall caution was seen as one the most prominent topics describing the current atmosphere in organisations and in society. The uncertain financial situation has left organisations and entire nations into a situation where scarce resources need to be used efficiently. Competition is fierce and development projects are basically on hold, especially in companies. The interviewees tell that this situation in the markets has had direct impacts also on the funding of design and innovation related projects, and even in the evaluation criteria of the requests of the quotations: price might be valued higher than the quality. In the big picture, efforts are aimed at getting the best, most effective and concrete results out of the resources what organisations already have instead of finding and developing something completely new and innovative.

At the same time, the structures of our societies are changing and the increasing need for services for everyone is identified. The way to orchestrate this development receives a lot of critique among the interviewees for its short-sightedness. Segregation is increasing, our young generation is bearing the burden of our decisions and they are not well. The decisions we face now will have a huge effect on what kind of society our children and future generations will live in. On the public service side, socio-technical entities are getting more and more complex and require attention. Evolving technological solutions, like blockchains, AI and cryptocurrencies have a potential of increasing equality, for example by proving the means of handling your own money even if you do not have a bank account, but only when they are developed in an ethical manner.

Sudden changes in our global issues have shown that there is a need for new kind of innovation. When the Covid-19 hit us, it forced us as a humankind to think and act differently and to do it fast. Suddenly, it was apparent for a lot of different businesses and organisations, that things cannot be done in the way they used to. In a relatively short period of time, people found new ways to operate or create value in a different manner. Interviewees pinpoint that currently, its typically technology and economy that lead the innovation, and it should not be so. The speed of digitalisations is increasing and has brought on many important advances, but technology should be the vehicle, not the driver.

Technological and economic thinking is what leads the development of innovation today, but I see that it is in transition and changing... We are simply on the limit and we know that and now we don't know how to proceed to innovate and change thinking so that it would be more sustainable as a whole... But people should still be in charge. Setting the direction on what is desirable, what is alarming, what kind of solutions are needed and that they are sustainable... and if we let technology guide the way, then it doesn't necessarily lead to better futures... it's our job to make sure that this doesn't happen... -Katri

Even though technology has a great potential to help us, the way we use it now, burdens a lot of people. The ways of working have changed quite significantly and a lot can be and is done in digital environment. This has brought on challenges of being constantly available, the information is abundant and controlling of both has been left to individuals with the sidenote of “wishing for more efficiency”. Our human-brain is not equipped to work this way. Innovation needs some headroom to happen. Now, the uncertainty and urgency has driven us into a situation where we do not have the time, capabilities, courage, will or skills to take a step back and figure out what is really going on. This often results into a situation where the problem to be resolved is also taken as given. The interviewees see it as a challenge, that we do not dig deep enough before we start the development.

There was the courage to try a new way of doing things, so that's a good thing. But it was kind of decided in advance what the problem is... And then there's a terrible hurry to do something concrete. And we did it for a year. We gathered understanding, used participatory approach. That's when they realized in the organization... what's really going on. What the problem actually is about, what we actually should try to solve... For me, it was... a proof that our process works, when we just trust the design process. But it's understandable (to doubt), if you've never heard of this process before, and some consultant comes and sells it to you and you should just believe and trust in it. And at the same time someone keeps insisting that 'we should get something concrete out of this'. -Julius

The same goes for constant change and ever-increasing complexity. People feel that the change is too much: they do not have the ability or means to influence or make a difference and they are fed up, tired, unable to concentrate and end up resisting the change, new tools and technologies that were intended to help them in the first place. This type of situation, where a lot of organisations and individuals have ended up, creates a negative sense of urgency and threat, which is known to narrow down our thinking.

Uncertainty and volatility of our operating environment are certainly the challenges now... humanity has been under extreme pressure for an exceptionally long period of time, many years, and that really affects how we perceive the world and

the alternatives in general... And we know from neuroscience that, when we perceive a threat and the situation is unstable and uncertain, it really starts to narrow down our thinking... It actually makes us a bit black and white... we might feel forced to make some decisions "or this or that happens"... in this kind of pressure, when we make those decisions, they are not necessarily the best ones. - Minna

Constant turmoil and uncertainty, resulting in short time-perspective, lack of resources and abilities and fatigue of the people in organisations makes the development projects fragmented and unconnected. This results in a situation, where people working on similar topics and issues do not know about each other, and effectiveness and potential momentum to transform current state of affairs is lost. In smaller scale, this happens inside organisations, but similar notions rose when talking about local development projects trying to solve the big challenges of society.

And in society, perhaps moving from making individual, isolated actions and projects to seeing and understanding them as part of portfolios. Where we still have those projects and actions, but it's the whole that brings about long-term change around a particular theme... A commitment to a specific challenge would be made, and then we would start developing it in collaboration with various experts. -Katri

In a time, where we need more multidisciplinary cooperation than ever, organisations and the expertise in them are trapped in silo mentality. Not necessarily by choice, but somehow driven into these isolate functions or departments hurrying along and minding their own business. In public speaking, cooperation and sharing of knowledge are encouraged, but people and their performance are measured in a completely different indicators: usually in short term and in time and money. Holistic approach, that could widen the perspective on how to approach issues, or even, what is seen as the issue, needs the kind of thinking and cooperation that does not happen in silos.

It's definitely related to the capabilities people bring even to work, and I think it's like this narrow view on problems and solutions. And this kind of specialization. That is encouraged in children from a very early age, whether in hobbies or at school: ... but now we realize that the world and problems are more interconnected than ever before. So, actually, we should support the capability to understand different perspectives and to collaborate. And to be creative and critical and ethical... -Katri

Beneath all described above, lie the wicked problems, that are often the root causes for a lot of disturbances we face in our everyday life. The challenge with wicked problems is, that they cannot ever be fully solved, require a multitude of different disciplines with possibly different

aims to work together and the solutions (that are not true-or false, but better or worse) might have far reaching and unexpected consequences and cannot be tested beforehand. Also, solving very important challenges often have conflicting interest, but it is essential, that we need to address them anyway. The examples, themes and phenomenon, that can be identified from the expert interviews, were the planetary boundaries and sustainability, overemphasis of economy as a global driving force, structural changes in society, lack of communication and interaction and increasing complexity and systemic nature of problems. For example, the interviewees point out, that sustainable solutions on the product level are not enough and we must aim higher. This calls for a new type of thinking, regulation and incentives.

So, if we just, like, switch one technology for another, but we don't really look at what drives... development or what drives people's or companies' actions in a certain direction, we might end up with even worse problems. The difficult thing here is that, of course, in a way, we need more sustainable solutions at the product level, but that can also justify using them more... In the energy sector, for example, there's a lot of research on the rebound effect. Like, if you develop more efficient energy solutions, say LED lamps, it can still lead to, 'Aha, OK, we can light everything up,' which, in practice, ends up increasing energy consumption and usage. -Katri

We need a paradigm shift from focusing on economy to issues common to all of us on planet Earth. The role of economy is overemphasised and the view is currently really short term. Economy is of course an important driver, but we should take a new perspective on how the wealth will be gained. It should be done sustainably, in networks and in cooperation. Similarly, structural changes in society, like growing number of elderly people, low birth rates and finding enough people to work combined with the changes that working life is going through, requires new approaches, perspectives and innovation. It also includes working with the people, not just for them. The big decisions we make today effect the ones that come after us, so we have a huge responsibility to try to find ways to think and act with the long-term perspective.

I've said that, if boards and leadership teams have slowly begun to understand that there should always be a chair in the room for the customer, then my goal is to get a chair for the future as well. And if it doesn't include sustainability, then also a chair for the planet. - Minna

The interviewees highlighted that complexity of the systems is something that we need to accept as given and it is not going to go away or get easier. The change all around us is of systemic nature, so we need to train ourselves as individuals, as organisations and as societies to understand that and work with it. We need to dig deeper, take a holistic perspective and

we need to ask better and harder questions in order to understand what lies behind the obvious and visible: the beliefs, incentives and experiences of people and the interconnectedness of everything.

...the guiding question for this research program renewal was that... how do we develop technology within this socio-technical environment as a whole, so that we aim to maximize the good and minimize the harm... We spent a lot of time learning to ask better questions. More transformative, more holistic questions. And so that we could envision what a more systemic change might concretely mean in these themes. - Katri

Even though the challenges we face are hard to tackle, the interviewees saw it as important that we do not lose hope. On the contrary, we need positive futures images, hope and opportunities more than ever. And even more importantly, we should learn how to use them as drivers and pathways to preferable futures for all.

When things are difficult and challenging, I've often compared this situation to seafaring... when the sea conditions are really raging. What do we need to do? We look at the horizon. In the same way, I think that if we could now create those inspiring visions and, despite everything, keep our eyes on them, and consider our actions through that lens. How do we reach our vision despite what's happening?... it would give people a lot of motivation and strength to move forward in these conditions. That there is something we are building all the time, even though there is... threat. We focus so much on those threats and dystopias that we forget what we have already solved. What world-class challenges we have been able to solve. So why couldn't we do it now too... – Minna

As following figure 16 illustrates, the underlying, complex challenges and wicked problems described in the empirical data, and placed at the bottoms of the iceberg, surface in the organisations in many different ways, resulting in cautious behaviour, short-sightedness and loss of agency.

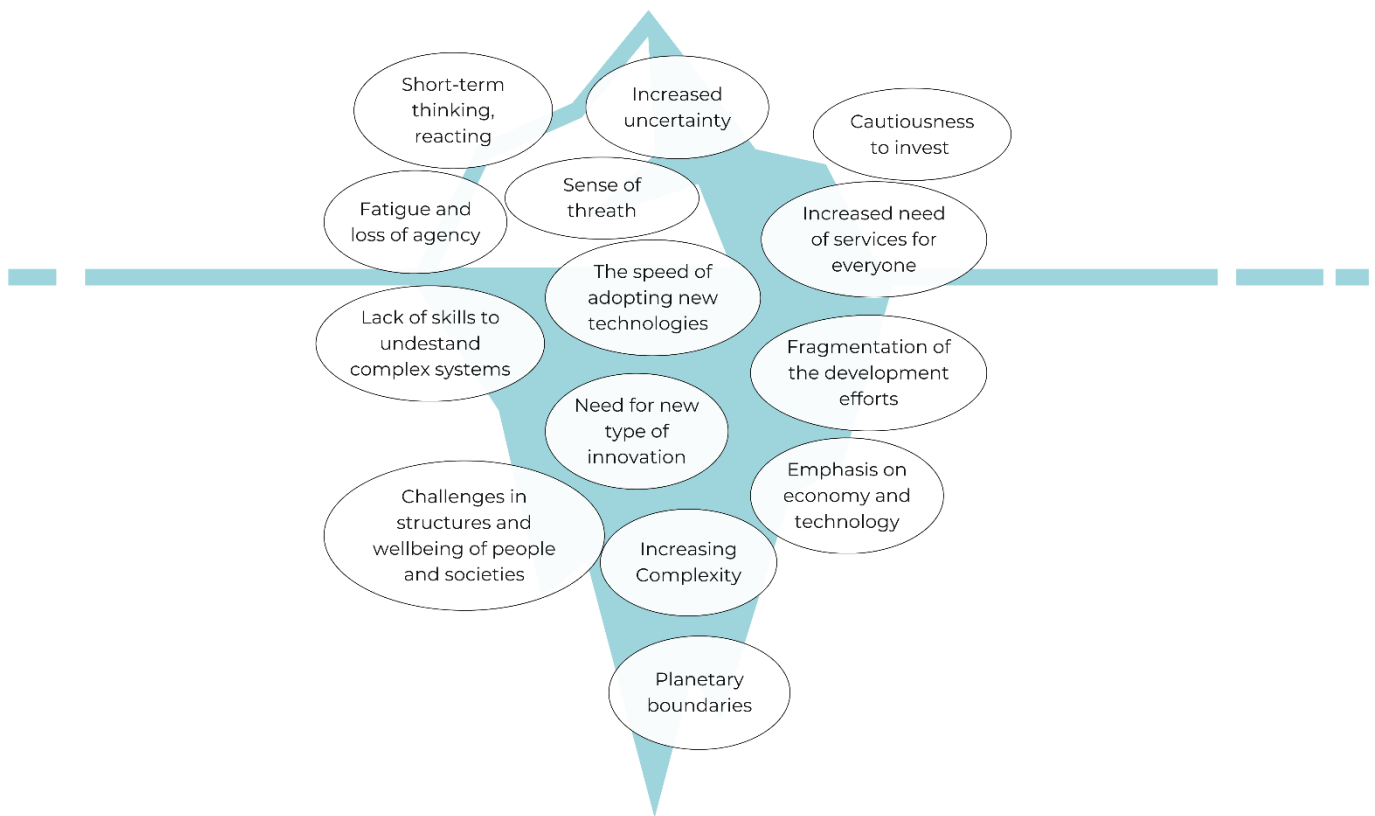


Figure 16. Current landscape of Organisations

The interviewees saw that design as a practice and design professionals already have many of the abilities and skills that are needed in making sense of the interconnected and changing world. Next chapters take a closer look at the development of design practice in organisations and identifies some important roles and functions of design and design professionals.

6.2 The Role of design and design professionals in the organisations

The experts interviewed described in great detail the role and important functions they saw for the design professionals in organisations of today. They also described from their own perspective, how the role and function of design as an organisational practice has changed during the recent decades and years.

For the interviewees, it was quite clear that design has expanded and gained increased importance as a practice and as an organisational function. They described that the field and context where design, especially service design, has been applied have widened significantly. Also, the problems which we try to solve by using design as an approach, have become more complex and the way design approaches these problems has gained depth and wider-ranging methods and tools.

Every wish was turned into an app or some new gadget... and there was always something new going on... Previously, the requests for proposals from commercial

actors were like, 'We want to make an app for this' or something like that. But now it's more like, 'How do we solve these social media challenges for children, when they get involved in these crazy challenges', or like, 'How do we prevent segregation somewhere'. - Emilia

Also, the people working in the different roles and functions of design, have diversified. The backgrounds and education of people that the interviewees see as professionals working in the field of design, is more multidisciplinary than before. It's not just the arts anymore. Also, the focus has shifted from using certain tools and methods to understanding the broad use of core competences of design and service design as an approach and skillset. In general, because of the approach, these individuals have a good understanding of what should be done and skills to do just that, no matter what the challenge is.

In general, people who have the ability to think creatively and engage with design, in my opinion, have the capacity for transformation. Like creating something new and thinking about things from different perspectives, which is really needed and really valuable... And for such people, the design process is natural; you take a problem, then you experiment and refine it. You question it... Since we can't know what a system, portfolio, course of actions, or future solution will be like, we need the ability to iteratively experiment, test, and think critically and ethically. And I think that's a skill that people interested in design inherently have. It's more important than ever, and I believe it will gain recognition, but unfortunately, it is still somewhat undervalued today, in my opinion. - Katri

The interviewees paint a picture of the journey where design professionals and function has evolved from product design to designing user interfaces, apps and digital platforms or innovating individual service products. After that, came the customer-centric approach to designing services, experiences and also co-designing with the customer. Then the adoption of design thinking and service design into business and strategy, from single projects and operations to strategic design, has brought a diverse set of people with varying design skills into the mix. Similarly, measuring and justifying the impact and return of design investment has gained more importance. The general understanding supported the perspective, that design has a function on a lot of levels: products, services and systems, project, operation and strategies, as well as individuals, organisations, communities, societies and international cooperation. The need to involve the whole planet and everyone and everything on it is gaining more and more significance in design, but also the previously mentioned topics are still present and needed approaches.

...the designer, that I've grown into... It has, for some reason, become very... strategically oriented, business-oriented. And what I mean by that is that the reason for using design is so that the organization can succeed better in its mission. And this way of thinking is actually very far from artistry or artistic creation or industrial design... Yet, when I started my studies as an industrial designer, the first

thing wasn't about 'Who is the customer?' and 'What is the need?'. Back then, we went to the workshop to make some gadget... for Nokia, for example. To figure out what kind of phone to design. Even now, we need people who can design and make those gadgets... And then we need those who draw and illustrate service paths. And we need graphic designers, we need people at different levels of design... - Julius

As for the diverse group of individual professionals of design working in different levels of organisations, communities and societies, they have a multitude of important roles besides design itself. It became clear that it is a job for the design professional to be the bridge-builder and enabler, a coordinator and a facilitator that identifies the stakeholders and brings them together. It is also the responsibility and a core-ability of the design professional to bring along the needed parties and facilitate a process where they have a say in the matters that concern them. The design professional has the role of being the builder of joint understanding and framing the issue in context as well as communicating it to others in a way that creates common understanding and purpose. The role of being the champion of the human-centred approach and the voice of the customer, is important, despite the level they work on.

...what is unique about service design. It's always about understanding the user's needs. It can solve real-world problems... even if you're a senior-level practitioner... you operate there... both on a strategic level and with users... understanding what the problem is, what the challenge is... even if I focus on leadership myself, it's also rewarding to operate at the level where the challenges present themselves. And that's where the powerful flow and momentum come from, when you realize, 'That's the thing that might change this when we get that working'. - Expert 1

For design professionals to have impact on a strategic level and in supporting change, they need to have a role in supporting the business and pursue of the desired image of the future as a partner. It is also a role of a coach and trainer that develops the competencies of individuals, teams and organisations in a way, that supports in change also after the project is finished. Amongst the turbulence and the pressure of succeeding, it is the role of design to be the promoter of the importance of creativity and innovation. Being the voice of "how might we"-approach gives rise to thinking outside the box also for others. Creativity and new approaches are needed especially in highly-regulated environments, where designerly approaches and prototyping can be essential in boosting innovation.

...people perceive value from the kind of emotional support in development work (we can give). And that we can, like, spar in methods and how to do things, so that in this complex world... 'How should I proceed, what methods should I use?

How do I bring about change?' So, that's one clear huge need form organisations and maybe a change in the role. - Jussi

Design is seen as a process-oriented practice, which has its pros and cons, and which might often clash with the more traditional development processes of organisations. Understanding that and being able to navigate the grounds of organisational silos and standards makes a huge difference in merging different ways of working and developing together. In general, it was seen important, that design has a role of being an active member in approaching the challenges of wicked problems and complexity with the holistic mindset and toolbox for working together. Also, the rapidly increasing role of the use of AI in organisations and in design rose up in the interviews. It was seen as tool that is here to stay, but we should find the right places to use it. It demands a certain level of understanding in regards of what it can and cannot be used for and the main conclusion was that designers should not pass the reins to technology, they should just utilise the possibilities it can offer and guide others to understand how to use in in an ethical manner as well.

To be able to succeed in this complex and versatile role described above, the interviewees saw it as crucial to design to have a say in all levels of organisation. The approaches can be different, depending on the context and structure of the organisation. In continuous development, design must work as a part of the team, right from the beginning, supporting, coaching and training the participants actively. For design to have impact and actual influence, they must be able to work with the ones that actually decide in the organisation, meaning the management or preferably, the executive level. Also, the other functions, like marketing, that have the same interests are important partners for design. Same goes for IT, because digital solutions are often integral part of the innovation and services and designers should work with the parties developing them right from the beginning. When innovating and developing completely new services or products, it was seen possible, that design can also be an independent function or a hub, but also in these situations, it is important to align with the aims of larger group of stakeholders.

(We need to understand that) 'OK, what are we doing? At what level? What kind of change are we making?' But still, if we want a strategic change, we can't make that change without the commitment of the organisation's leader... Getting the leaders to commit to the change process, to development, is incredibly difficult. Because they are in their own bubble, in some tower, and they think that, 'Well, I don't need to participate in that... I have much more important things to do.' And then in the development process, it ends up being for nothing. Because change doesn't happen if leaders aren't committed. Because of the stick, because of the carrot, because of the example, because of the culture, because of everything. - Julius

There was a common understanding among the interviewees that organisations are not yet mature enough to gain the full potential design could provide them, when used as a holistic approach throughout the entire organisation. Doing so would require a major cultural shift.

Even when the need to innovate and think and act differently are vastly recognised in organisations, they are still lacking in ability, skills and probably also the will or courage to pursue that on a systematic and strategic level. The current situation of world does not help, either. Looking into the future might seem as a waste of scarce resources, when organisations are struggling in their daily operations and future seems turbulent and uncertain. Organisations also might not be ready to give up on their old ways of doing and hierarchical ways of deciding what is important, even if design professionals would have strong grounds for their suggestions.

...we all should adopt a mentality that we're not just feathers in the wind, drifting from place to place. Instead, we all have the ability to change the world. Especially the people in companies who are making those decisions. And... that's why, as designers, we should definitely work with those people. - Emilia

What does this expansion in the role of design as a function and the changing role of Design professionals themselves mean for the individuals? Next chapter will dive into the skills and abilities that the experts interviewed saw as necessary for operating in this changing environment and role.

6.3 Skills and abilities of design professionals

As for the needed skills and abilities of design professionals which the interviewees recognised, the list is indeed long. Interviewees described the combinations of “soft skills” or meta skills as well as open mindset paired with strong professional design skills and multidisciplinary expertise as a strong basis for design professionals (figure 17).

Like meta-skills in a certain way. In my opinion, meta-skills are things like critical thinking, creativity, and ethics, and these are part of the design process... - Katri

It is quite hard to distinguish, which of the skills are “professional skill” or general skills, personality traits or a worldview of a person, but in this analysis, emergent themes from the interview data have been divided into two main groups. The first group includes the skills that stem from the values, posture and mindset of the design professional and the other consist of the more traditional skills that “can be taught” and learned in more traditional way. The skills and abilities in each group could easily be moved from one to another, they complement each other and are likely to develop over time and personal experience.

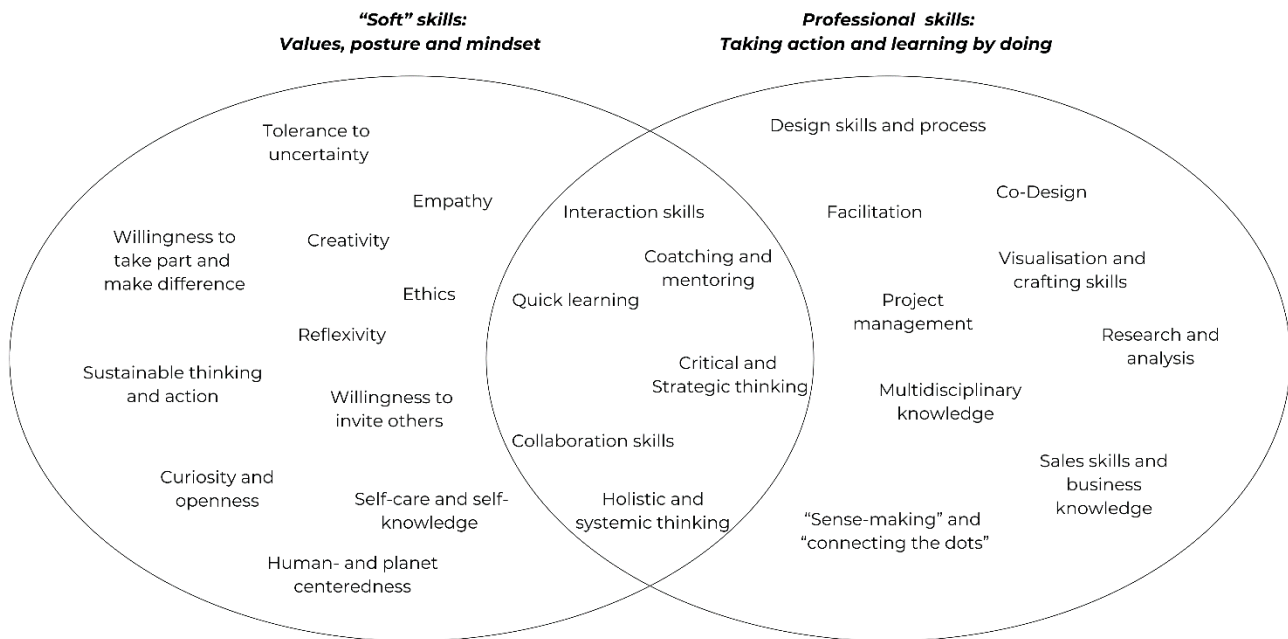


Figure 17. Skills and abilities of Design professionals

6.3.1 Softer side of design professionalism: values, mindset and posture

Clearly, big part of the skills or personal traits that were identified, can be grouped under a broad umbrella of soft skills, meta skills and person's attitude towards the surrounding world. Some of the interviewees described these sort of skills as "difficult to put into words", but really crucial for the successful outcome. In addition to these skills, a willingness to take a stance, make a difference, optimistic attitude toward change and believing that we all can participate were listed as important aspects.

Interaction skills, collaboration skills, empathy have always been needed. We wouldn't have been able to solve challenges without them, and we still need them... It might feel like everyone now has to be like an AI guru, and that also causes anxiety because you have to keep learning new things all the time. But then there's a bundle of meta-skills that we will also need, so we can also learn about AI and use it. - Minna

Empathy was recognised as one of the most essential skills for design professionals in the interviews. To be able to genuinely try to hop into someone's shoes and design from that perspective was seen as vitally important skill and ability. Empathy was strongly linked to listening to others, including them into design process and respecting different perspectives. It was mentioned that empathy is the essential building block for building a sustainable future

for all, but current mainstream operating models of modern societies, business and development often seem to pursue different goals. Balancing between the demands of financial efficiency and constant pressure for fast results and retaining the empathic approach and sensitivity to the softer side of things seems like a challenging but necessary task to design professionals.

We need to practice and train these skills within ourselves so that we don't end up merely as extensions of machines, as the machine world is increasingly around us and tends to suggest a more reduced model of human behaviour and action. Therefore, as a countermeasure, we need to focus on bringing forth something that is specifically human and particularly suited to this era. - Markku

Our design has always outcomes, but *ethical consideration* should be present right from the start in the process. *Sustainable thinking and also acting accordingly* was seen as an important skill for the design professionals. In design, it is mandatory to understand that our planet cannot bear the current level of consumption and it would be crucial to subject our needs to important ethical considerations, like if we really need something or why something should be done in the first place. Understanding that doing less harm is no longer enough, but the need to zoom out really early on in the process. The question of ethics was also linked to the deliberation of who can participate in decision- and policy-making. Designers often have a change to be the spokesperson for the ones that don't usually have a voice in the important debates, for example future generations, the non-human world and social minorities. Ethical approach was seen as a built-in requirement for modern design and design professionals. Designers bear the responsibility for the way they design and what kind of legacies their design solutions leave behind. In addition to valuing sustainability, they also need to have suitable professional skills and knowledge for the principles of sustainable design.

...the ethical aspect... it's always the fundamental question of why something is done. And of course, ethics have strongly emerged in all design and service design, because we understand now that the limits of growth have been reached and that excessive consumption must stop. ... It's hard to even imagine serious design anymore that doesn't consider the ethical perspective. - Markku

A *strong future orientation* in one's thinking is one of the key aspects of being able to think and act ethically, empathically and sustainably. This was recognised as embedded in the idea of design itself as design is always done for the future. In addition to this, the need for *skills and methods to approach this systemically* rose into focus among the interviewees. The interviewees brought out that there is not enough understanding or expertise in the organisations to systematically incorporate futures studies methodologies in their strategic planning, let alone design processes. Especially the turbulence of the last few years has given rise to the understanding to the need of incorporating foresight systematically and continually in the

strategic planning and design in organisations. But time, money and competence to do so are still standing in the way of progressing. The need has been recognised, but not enough organisations or individuals are able to get a hold of how to explore and use futures systematically.

...that the future is also created together. That's why it's very easy, smart, and extremely sensible to combine service design methods with foresight... And somehow foresight is still practised far too little... Foresight is the new service design. Just as service design was buzzing 10-15 years ago, foresight is now increasingly recognised as needed. - Emilia

Bringing the ideas and methodologies of Futures studies together with Design was seen as a fruitful ground to bring new perspectives, people and skills into the mix. The use of scenarios, foresight, futures thinking and more experimental approaches like speculative design came up, but the hope-giving and driving force of identifying different possible, plausible and preferable futures was seen important for designers and the stakeholders they work with.

...when we consider promoting foresight, scenarios is a method, but they are also a way of thinking to see more than two, and especially more than one, option... - Minna

Similarly to skills mentioned previously, it is essential to recognise and understand *bias and posture of oneself and of others*. Your standing point, history, unspoken fears and values can be layered in our thinking and we all carry those roots with us. For a design professional, that is just a starting point: we also must recognise the same aspects in the one's who we design with and for, as well as the other stakeholders involved. The design professional can rarely be an objective outsider steering the process and ensuring the outcome and execution. More often, they are active participants in the process and the outcomes affect them as well.

I definitely promote mindsight... That's where I always start at... mindsight. Understanding one's own mind. Then we can go into the future. After that comes insight and foresight. It requires this... thinking about thinking... It's just diving into one's own mind. In almost all of the organisations, this is the part, where the light bulbs light up the most, where there's an 'AHA!' moment... I always feel that this is the part where the realization happens, and that's what I've wanted to bring along... It's a very big and important part of Futures design...I promote the understanding of the human mind in Futures design. I feel that it has been neglected in Futures studies... or was missing before Futures literacy came along. - Minna

Different aspects of *creativity* were often brought up by the interviewees. They saw the need for increased creativity on personal level and as a group of people, communities and organisations. They also pointed out the need for everyday and incremental creativity: a practical and naturally emergent approach of “let’s try this” which comes naturally for us as humans, when we are not afraid to use this skill. For design professionals, it appears, for example, as an ability to use methods creatively in different situations and contexts and modify them accordingly. Another point that was highlighted is the need for transformational creativity as a way of thinking and mindset. Creativity here was seen as aiming for radical innovation by understanding the need to approach problems with completely new set of ideas, tools, experiments and people involved.

...then we need to find that new direction by questioning the current way of operating. By innovating the innovation itself. In this... I believe designers are quite adept and have clearly started seeking this direction in matters like these, and we’ve learned a lot from them. - Katri

The interviewees saw as essential, that the design professionals are *curious towards new and different*, interested on many topics. Good general knowledge and curiosity towards subjects outside their main domain is helpful in gaining a broad understanding of the world around us. It is not expected that you know everything about everything, but it is extremely valuable when a design professional can, for example, understand that things might be connected and guide the attention to the right direction. The attitude is also important here: it makes a huge difference if a person is open to not knowing and curious to find out versus a person who is afraid of be revealed as not knowing and avoiding to put oneself in that type of situation at all costs.

...it’s crucial for designers is to understand, what’s happening in the world. ...And that is a skill and capability, somehow an attitude... as general knowledge increases... and knowing that, ‘OK, something like this is coming’, it makes the designer’s job much easier. When you can connect the dots in your own head, like, ‘Ah, this relates to that issue and that thing. I need to look into this because it probably connects to this.’ It brings a tremendous amount of added value to the designer’s work when we can piece these elements together and connect them. Like, ‘Hey, by the way, did you know that green transition involves... this thing and there’s a regulation coming.’ Even if I don’t know anything about that regulation, but if I know that it’s planned or someone has mentioned it, it can be a huge deal for a company because it might cause to redirect their entire market. For example, ‘The EU is about to ban this, so we need to create a new business model, and I’ve found this business opportunity in it’. - Julius

Co-design and willingness to let go of the cape of the hero *and invite others to join the process* was seen as one of the most important skills. It was clear that in the opinions of the interviewees, participatory approach to design is the only reasonable way to go forward in the turmoil of our operating environment. In addition to actually being able to facilitate co-design, which will be discussed further onward in this chapter, it is crucial that design professionals see and seek the value of working together, even though the skills and perspectives of participants differ. It requires for design professionals to step down from the pedestal of sole expert and that they are willing to listen, share and learn from others.

...but the likelihood of making an impact increases when we truly understand the customer and the various stakeholders around them. And then the likelihood that... the desired change will stick is higher because we involve people in the development process. In design, relationships are formed with people when we involve them... Relationships are formed, trust is built, and when trust is built, commitment follows. - Jussi

The interconnectedness of problems, consequences and actions was one of the most important topics of the interviews. It was brought up that, since the scope of design challenges and the context where design is applied have widened significantly, so has the complexity. Especially the rise of social design practices and wicked problems has given more emphasis to address *the systemic thinking skills* of design professionals. It is mandatory that design professional's *perspective* on everything is *holistic* and they understand the systemic nature of the operating environment. It is not enough to design and develop a solution that solves a problem here and now. There are also the future consequences and stakeholders to consider, as well as other places where the effects of our solution could extend to. In general, the increased need for a broader perspective was highlighted and it was brought up, that especially service design already possesses a lot of ideologies to support design professionals on this quest. It is often the design professionals, who bring forward the voices of different stakeholders, also the non-human ones, and facilitate the finding of common ground, where the result could be more than the sum of its parts. Hence, it would be crucial to support the design professionals with suitable methods, tools and understanding in their training and education.

The skills of how a designer thinks and does their work is... thinking holistically and at a systemic level, while also paying attention to the details. They dig and explore and seek out, and they are also the bridge-builders between different stakeholders. - Krista

Design professionals need *tolerance to uncertainty and ability to act regardless of conflict and lack of clarity*. The fuzzy front end of design process (Sanders & Stappers, 2008, p. 6) is familiar to design professionals, but the increasing complexity and the systemic nature of the challenges we try to solve, result in a situation where "the solution" might be temporal, might have other, potentially harming consequences or the actual problem is so hard to define, that

nobody has a clear understanding of the nature of the problem in the first place. The design professional has to be able to somewhat at home with ambiguity and also to be able to coach others to tolerate the “not knowing” as well.

...you kinda have to like conflict. Not fighting, but conflict, and you need to enjoy paradoxes. You have to like all kinds of problems that can't be solved. You need to somehow enjoy creating agency for yourself in various environments. This is very difficult because, by nature, people don't want conflicts... and they might not like paradoxes very much. They want functional solutions... All type of uncertainty often scares people... - Expert 3

Given the demanding nature of the profession and the never-ending list of requirements, the interviewees brought up an important part design professionals skillset: understanding that you cannot be everything all at once and acting accordingly. *Recognising your personal motivation, interests, role and capability* to influence in the organisation *and planning your career in a way that supports your well-being* is also something that should be practised. One design professional cannot be the expert on all areas of design, but it should not stop one from pursuing what feels like the right path. The path can also lead to somewhere unexpected, but along the way it is important to stay on the driver's seat and listen to yourself.

6.3.2 The professional skills: Taking action and learning by doing

In addition to soft skills, mindset and values defining the posture towards the world, there are also skills where the before mentioned are really put to use and skills that support building a broader worldview. This taxonomy created in the analysis is based on the emergent themes of affinity diagramming, but it is mostly created to help the reader to make sense of the broad set of necessary skills brought into spotlight by the expert interviews.

First of all, *the essential “designer skills”*, understanding the design process, using the design methods and tools broadly and relying on the principles of design thinking, was seen as strategically valuable and relevant expertise, also in other fields and functions than in design function itself. You have to know the basics well, so that you can use and develop them in different contexts. In addition to different tools and methods, visualisation or crystallisation of the important was seen as the core skills of design professionalism. The interviewees saw it as essential that the core values of ecologic, social and economic sustainability are built-in in all aspects of design. As it already has been established, the scope of design projects and the domains of our organisations and society where design is being used have expanded. Even though the expectations to the competence of design professionals are constantly rising, the interviewees see, that the comprehensive approach of design, especially service design and participatory methods, has what it takes to tackle the challenge. The curiosity, holistic approach, the ability to connect the dots and bring relevant parties together is the starting point.

Then, to ideate, prototype, visualise and make the complex and intangible into something we can discuss over and develop further is vital for increasing better communication and interaction. Design professionals come into the picture with the will, tools and methods to do so.

...so basic skills, like creative thinking, empathy, the ability to process and represent information in a way that others can understand... these fundamental elements in creative work become very prominent, as tools can change rapidly. But as long as we have the ability to advance the creative process and leverage human creative intuition, it doesn't matter so much what the tools are. - Expert 2

Even though the interviewees saw it as a natural evolution of the profession, that design professionals are working closely with new technologies, they do not necessarily need to be the experts. But they need to be curious, need to know, who are the ones that can give more information, need to be able to utilise them and understand how their development affects the context they are working in. It is quite clear that a lot of work that was previously done face to face and with pen and paper, is now done online. It would be beneficial to explore the multitude of digital design tools and the use of AI during studies in order to gain a broader understanding of the subject and become confident in using them in different circumstances.

A designer's skillset should definitely include all these digital tools, as well as an understanding of artificial intelligence and AI tools... You don't have to know how to use everything, but having an understanding of them is sufficient. - Krista

Since the importance of *participatory methods in design* was recognised as one of the main topics in the interviews, it was also mentioned that this is something that is not easy in practice. You just cannot go and use the same methods every time, no matter how good they are. Participatory approach requires a lot planning, project management, visualisations and extensive use of methods and tools that need to suit the participants, context and aims of the workshop and project. For many of the Design professionals, it is crucial to understand, for example, what are the enablers of creative teamwork and how to manage it in a way that all the participant can contribute and feel safe and how to work in a way that results into something. The facilitator needs empathy, knows the context, is a good communicator, is sensitive to the unspoken feelings of the participants and knows how to inspire and sell the importance of committing to the process to them. And then, let's add digital environment and tools into this mix. Skills to actually be able to do all this and still feel comfortable doing so, asks for a lot of practice, reflection, flexibility and of course, trial and error.

...how can it be taught? It's a bit of a thing that you need to experience and learn from it. To see someone do it. That's how you learn best. You don't learn it just by reading the book. - Jussi

Interaction and communication skills are something that seem to come easier to others. Nevertheless, according to the expert interviews, they are amongst the most important ones. Even if these come more naturally for other individuals, they can be practised. There are many levels and different aspects of interaction and communication that came out during the interviews. First of all, a design professional should have strong social skills in order to raise confidence with stakeholders and participants. They need to be good listeners and the ones that encourage communication and collaboration, skilled at putting thoughts into words or other easily understandable form clearly and according to one's audience. In addition to previous, they should have the courage to form their own opinions and defend them while being respectful to the opinions of others. This often requires the skill to be diplomatic, but firm.

...multimodal communication skills... in different forms of language. Not just speaking, not just PowerPoint, not just drawing, not just playing, not just by music. These are different ways of communicating, so the more you can... If something isn't getting through to your team members, the more you can switch modalities, the more useful it is... And then... being able to sense how to present your idea in a way that creates a shared understanding with the audience. - Expert 3

Extensive research skills, systematic use of research data, data analysis skills and skills to use data for argumentation were mentioned as basic skills that design professionals need in order to succeed. It was seen also as something that can the Design professional can use as an emotional "backup" and contributing to occupational well-being in addition to being an integral part of design practice.

On the other hand, there should also be the capability to gather and analyse data. Because data really is everything. If you, as a designer, have that data as your support, it's much easier to work. And this perhaps also distinguishes it from artistry. While an artist might purely rely on their vision and what's in their own head, a designer finds it much easier to operate when they can rely on 'here's the fact, and here's the data'. - Julius

In the turmoil of constant change and insecurity, *coaching and mentoring the stakeholders* in the organisation or community was seen as a part of the changing role of the design professionals. Creating significance and coaching participants to find meaning is one aspect of this. The other one is being able to teach other to do things differently than before, even after the design professional is no longer available to guide them.

...you need to understand different needs and be, in a way, a translator between these needs. You should also be the one who encourages communication and collaboration within the organization. This even extends to a somewhat mentoring role, where you need to be able to teach others about different approaches to doing things. - Expert 2

What the interviewees call for, is the ability and increasing need for *critical and strategic thinking*. In short, critical thinking highlights practising reflective scepticism focusing on *what to believe or do* and it identifies multiple components to consider: observing, feeling, wondering, imagining, inferring, knowledge, experimenting, consulting, identifying and analysing arguments, judging and deciding (Hitchcock, 2018, as cited in Ericson, 2022). Even though the forementioned components of critical thinking might be familiar to design professionals, more effort on figuring out the hidden power relations, agendas and aims is needed. Also, even when the fastest gains of using design can often be seen at the operational level of the organisation, (Koivisto et al., 2019) a need for bringing design and designers into strategic level is recognised in the interviews.

The experts interviewed mentioned systemic design as an emerging design practice only a few times, but most of them had identified the need for *systemic thinking skills* as necessary for all design professionals. Similarly, it was seen important that the design professionals can spot opportunities and help in finding a purpose (for the system). It was mentioned that one of the distinctive qualities of design professionals is their ability to operate and connect the dots on multiple levels of the system, from micro-level operations to macro-level phenomenon, because taking a broad perspective is built in the operating practices and processes of design.

...the capability for systemic thinking. Like, having the skills to understand or at least a willingness to understand contexts. For example, recognizing that there are different levels—this level, that level, and this level—and understanding their relationships to each other... and especially leading and guiding that discussion. The wisdom doesn't have to come from the designer alone; it's about the team, the experts, and the people. But... I think it would be great if a designer had the ability to grasp those different layers and perspectives and then, of course, give the floor to those who really know about those different perspectives. - Julius

It was seen as helpful if design professionals were to have *multidisciplinary knowledge and experience* themselves, but even more important was the ability to seek knowledge, practices, tools and methods from the people and experts outside your own domain. It was seen as essential, that the huge challenges we face can only be solved by working together and the opportunities we might have can be found from unexpected places. For the working life, it was seen the most fruitful to opt for T-shaped competence, where professionals have a strong core in at least one field (design), but in addition to that, they have the ability to use the knowledge gained through the research and practice of other disciplines and collaborate with experts of diverse backgrounds. On the individual level, the advice given to design professionals was to develop expertise in a few specific topics as the “legs for your T” and use your expertise in multidisciplinary teams, where you have a change of learning from others. As for organisations and communities, the value of this setup is in creating a much more diverse and

deep understanding by combining different perspectives and experiences of people participating in teams.

We believe in the T-shaped professional concept... to be a good designer, you need to be multidisciplinary, but you can't be an expert in every field. So, represent a few areas yourself... It's important that you have some disciplinary identity as well, because otherwise, it's like having expertise in everything. And as we know, you can't know everything. You need to have one or more of the legs of the 'T' to be able to gain the top part, that connects things together. - Expert 3

To be able to put their design skills into use in real life, design professionals need also studies from other disciplines. Business, leadership, marketing, psychology, organisational development, industrial business and management as well as futures studies were mentioned as potential add-ons. The idea behind the list is to give the future professionals the basics of understanding how the organisations actually work and how many different stakeholders, purposes, aims and languages there are. Because, that's the reality where the design professionals will operate in. Off course, it is not possible to compress all of this in one degree, but the students should be given a realistic change of incorporating different topics from different faculties and even different universities to their degree by systematic cooperation of educators.

Studies in social sciences, public administration, and management... would complement the design education. It would make the basics in the world of organizational development more familiar to potential future designers... providing tools for how to manage those changes. When you're driving change and designing new solutions, services, models, or products, it's crucial to know how to integrate them into everyday practice (of organisations). That would be really important. - Jussi

Finding the one's that actually know about the matter at question and giving them a say, requires the understanding of the operating environment and relations, roles and actors in it, as a whole. As design professionals are often put into situations where they need to learn and internalise a lot of information fast and they also need to be able to put this information into context and into use. It was seen as an important ability to understand one's own learning. Fast learning and learning to learn will help in everyday situations, where the designer has to grasp the underlying structures, roles and power relations in a certain context, but it will also help in developing one's professional competence and capacity over time.

As one of the defining characteristics of design is the combination of thinking and doing. Also experimenting, prototyping and iterating are essentially included in the process of design. It was seen as an essential skill of a designer *to use the craft of making as an instrument of learning* and even more so, collective learning. The participants can seek and create common understanding and purpose through making and experiencing, trying things out in practice and crafting the intangible ideas and futures scenarios into artifacts. This learning by doing

can help in creating increased understanding in a certain context or finding a way to discuss differences of perspectives. This was seen as something quite unique for design and art and valuable for a whole lot of fields and topics.

Then we try to create prototypes to increase understanding, first in small groups then in larger ones, about what it could mean in concrete. Then we discuss around those artifacts, and everyone's understanding increases. ...You create concrete artifacts through which we understand more. Then we iterate. - Expert 3

Next chapter takes a look at the data from the perspective of how the current competence of Design professional fulfils these needs and expectations and how the design education is preparing newcomers into this field and practice.

6.4 Educating the future design professionals

One of the themes of the interview concerned how, in the opinion of the interviewees, the current professional competence and skillset of graduating design professionals meets the need in the organisations and communities. The answers revealed that graduating design professionals have excellent basic design skills that consist of understanding the process, the framework and tools to bring the user and customer in the centre in an empathic way. It was mentioned that this is a good starting point and helpful guideline, especially when one does not have a lot of experience.

...was originally kind of a multidisciplinary person with a background in art and acting, and had also worked in public administration. A very multidisciplinary and creative individual... and currently working on the master's thesis. This person had started researching sustainability transitions, this transition design... Every time I talked with this particular designer, I learned an immense amount from the discussions. So yes, I've used that as a benchmark, for example at VTT, to understand what kind of skills will be needed in the future. I've pointed out that, 'Look, these people are already starting to emerge and are being trained in our institutions'. - Katri

On the other hand, it was the lack of experience in the organisational life that causes the majority of the mis-match experienced by the interviewees. It was described to show itself in two ways: as lack of understanding of how organisations really operate and how design professionals contribute in them and as lack of experience on working together with others, who come from a different, non-designer, perspective. Freshly graduated design professionals, without actual experience from everyday life of organisations and coming from creative, even artistic environment that supports trial and iteration, innovation and low hierarchy in teams might be facing a shock when entering the organisations. Timeframes, decision-making policies, budgets, conflicting goals and viewpoints are difficult to figure out for everyone, but it

gets even harder if your job description is to design, facilitate, transform and innovate amongst all of this.

You have the methods, the processes, and the thinking, but it's quite challenging to be creative in a world that is very non-design-oriented. Organizations are not design-oriented in any way, and their reality is not like that at all. - Jussi

In the viewpoint of the organisations, freshly graduated design professionals might seem a bit naïve and idealistic and not quite on top of the game “in the real world”. That been said, it is recognised, that this kind of out-of-the box thinking might be just what is needed in the organisation. Professional self-esteem is also something that develops with experience and it was mentioned that newly graduated design professionals seldom have the ability to question the authorities in the organisation, discuss with them on their “own language”, meaning business language and defend their own ideas and standpoints. Good news is, that the lack of experience can be fixed by gaining experience. This was one of the most important aspects that the interviewees would focus on the education journey of the design professionals.

What is needed, is more experience in how designers work within organisations. Specifically, learning how to question or introduce new ideas and finding the courage to bring revolutionary thoughts. That's what I mean by experience. And then, dealing with an organisation—it's not just one person, but an organisation—how to work with it. And having long-term experience helps in sensing what is possible and identifying potential obstacles. - Jyrki

In the big picture, providing practical training during studies was seen one of the best ways to help graduating design professionals prepare for working life. The interviewees told that they encourage students to find real projects to participate into, even if it feels scary. It would be important to participate to projects in real organisations in order to understand how organisations operate, how decisions are made there, in what kind of roles designers work in and how they contribute in different levels of different organisations.

For personal growth and learning, it would be important to explore your own motivation, and strengths as a design professional as a part of your studies. As it has been established, the role of design professional is often a challenging one and understanding what is important for you, to what do you want to contribute into and how you can use your strengths to support your goals is good for your wellbeing. The list of expectations can feel really overwhelming, especially when one is just starting one's journey. The interviewees recognised a need for more personal educational paths, mentoring and career coaching from teachers supported by representatives of working life.

It's really essential for a designer to think about their career path. The solution probably isn't for one designer to have every possible skill... A designer or design

student needs to make strategic choices. For example, 'Now I'm going to focus on this and acquire these skills because it will allow me to take the next step'... or 'I want to develop specialized skills to become indispensable.' Not everyone's motivation is to work at a strategic level... I feel this is a weakness in our education as well. Career coaching should play a much bigger role... We need guidance to make the right choices and self-reflection to understand our own areas of strength, because we all have such different strengths. - Expert 1

Thinking is important, but so is doing. Teaching, how to take action and feel that you can make a difference, is a competence that can take you far. It is important that you complete your education with something as valuable as this.

So essentially, it's about teaching how to enhance agency, both individually and collectively. What can we actually do here? ... And if what I want to do is very much at odds with what I could do, then what... Can I somehow move in that direction step by step, so that I could eventually do what I want or what we want? Fundamentally, it's about developing one's own agency. - Expert 3

Since design professionals are not the only ones facing the heightened expectations in organisations, the topics and themes of education sparked some discussion on the reform of education all together. The interviewees brought out the opinions that the current degree structure of Master's degree (in Finland) is too rigid and, in some cases, too broad and long. I was suggested, that it would be more beneficial, if it would be normalised to work after completing bachelor's degree, gain experience from multiple perspectives and only after that, return to complete your master's degree where studies could be inter/multidisciplinary. It was also questioned if completing a whole Master's degree is the right approach for people who already have one, but still want to study in academic institution. The solution could be to offer modules to complement your one's existing expertise. This can already be done through open universities, but for some reason, it is not valued enough in the labour markets. Responsibility of learning through life and updating your skills, which we all should do, has been left as a responsibility of a person. Critique was given also to current financial structures in education facilities that do not support genuinely multidisciplinary design education for students. Silos do exist between faculties and money and resources are heavily guarded in them.

6.5 The intersection of Futures studies and Design practice in data

Even though futures focus is always present in design, the methodologies and practice of futures studies is still more of a side note in educating design professionals in some educational facilities. Its close connection to the role of design professionals can still clearly be seen on the interviews. Despite their differences, it is important not to see Futures studies and Design as separate and isolate approaches, but as fields that can complement each other.

(Futures thinking). I think it could be really refreshing. It would help designers to understand that there are many things happening in the world, and there are people who research and analyse the direction in which the world is transforming. Because it's still the designer's job to help the organization succeed in its purpose. However, the organization should understand the direction in which their market is evolving, whether it's private or public sector. So, if they had something more concrete about what might be happening... this knowledge and understanding should be a backbone for the designer. It's crazy that we make decisions without considering the futures... Absolutely. And now that I think about it, it's crazy that it's not included (in the education). – Julius

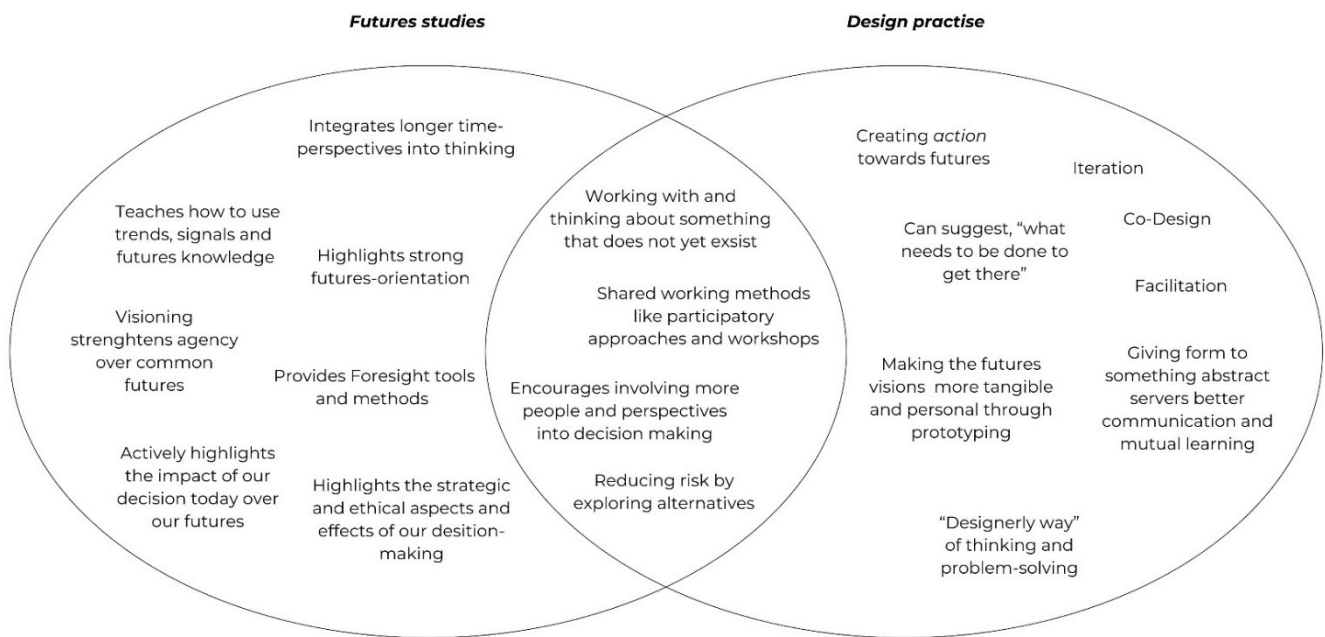


Figure 18. Integration of Futures Studies and Design practise in empirical data

Figure 18 summarises potential benefits of integrating futures studies with Design practice that were brought up by the interviewees. The interviewees pinpointed that we should take a longer time perspective and think about futures more actively, because imagining different futures images and scenarios actually guides our actions. If we can picture different futures, we are more informed of our possibilities and potential risks. In this ways, Futures studies has a lot to offer to design professionals. Exploring different futures is also a powerful tool for strengthening and cultivating the agency over our own futures.

...the biggest difference between Futures studies and Service design, though there are many differences, is that Future studies do not involve implementation planning. It addresses the initial stages of service design planning. I think it's very concrete in terms of where we can work together. - Jyrki

It was mentioned earlier, that being able to use data is an important skill for design professionals and they could benefit from gaining new tools, methods and understanding from the field of Foresight. Of course, this requires the skills to explore and use different kind of futures knowledge systematically and actively. Investigating futures also might bring the diverse needs of stakeholders into focus more strongly and thus highlight the ethical aspects of design. Using the methods of Futures studies and different forms of Futures knowledge can also help us to think more critically and not base our decisions and solutions solely on information and experiences from the past. As the ability to think strategically was recognised as an important skill for design professionals, it was brought up, that actively incorporating futures thinking can help in achieving that. By exploring what the future would look like based on the choices we make today and vice versa, it can be highlighted that our actions today take us into some direction and we need to be more aware of the consequences of our choices.

So, core professional skills also include the ability to look to the future, whether it's short-term or long-term. When developing something new, it's important to have the ability to see what steps are needed for that development to happen... Having a perspective of, say, 10 years ahead could be a really good addition, because it's something that is, or might be needed a lot in the job. Especially if working at a strategic level. - Expert 2

Participatory methods were seen as an important approach in both fields. This was seen as potential ground for joint effort for inviting more people and perspectives into solving our common problems. Participatory design methods can enrich the verbal and textual toolset of traditional futures research by bringing along the numerous ways of making the complex and invisible into something concrete. These designed artifacts can function as ways to building better to communication, because they can make the experiencing of futures possible and personal. By inviting more people and perspectives into designing and making decisions, can also reduce risk and cause savings, when solutions are evaluated early on the process.

As the world becomes more abstract, I think the value of actually creating a tangible artifact, whether it's a digital or physical representation, or some kind of software code, or something that can move out there on the streets, is becoming more significant. Because the world is so full of talk and PowerPoints, and while being able to sell ideas is important, I believe that with the advent of generative AI filling the internet with all sorts of content, the value of being able to actually show, 'Hey, this is how it could work,' is emphasized. - Expert 3

Of course, imagining and exploring multiple futures can also result in increased uncertainty, because options for actions also multiple. That is where bringing Design thinking, tools and methods can help significantly. One of the most brought up theme among the interviewees

was designs ability to create action towards the desired futures, which was seem to be somewhat lacking from Futures studies approaches, which concentrate more on imagining and mapping the potential futures.

Design tools are becoming extremely important as a way to concretize and frame the changes that might be possible. Many of the tools in Futures studies are verbal and textual... - Expert 1

Design practices have functioning processes and potential to bring in the relevant stakeholders, give form to abstract images of futures agilely and develop the ideas further in iterative manner. At this time, when our surrounding world is becoming more and more abstract, the ability to make a concrete artefact or prototype out of the idea is a valuable asset that Design professionals can use. Design artefacts can bring the imagined images of the future closer to our lives, more personal and make them more approachable.

When there are too many unknowns in the equation, we must start thinking about various frames and scenarios, iterating on how things might go this way or that way. We remain sensitive to signals, connecting with Futures studies. We constantly do Foresight, considering what is happening and what could happen. We even contemplate Speculative design—what is, what could happen, and what we would like to happen. If we want something to happen, how do we work backward from there to today's decisions? What uncertainties are there? What is our tolerance for risk? A lot of it is about guiding the future by creating artifacts—like a tablet, for instance. Once someone has envisioned it, it's mostly about figuring out how to make it happen. Our designerly way of thinking and problem-solving can help in creating an artifact, through which we can discuss the future, and perhaps show, that something like this should exist. - Expert 3

The intersection of Futures studies and Design can offer a fruitful ground for design professionals to upskill their expertise to better suit the needs of current operating environment. Next chapter discusses the findings in relation to prior literature and summarises the key findings of this study.

7 DISCUSSION

The findings presented in the previous chapter deepen and support the themes presented in literature review and theoretical framework for this study. In this chapter, main empirical findings will be mirrored against the theoretical framework by answering to the research questions of this study.

Based on the literature review (see, e.g., Angheloiu et al., 2017; Design Council, 2021; Irwin, 2015), the field of Design and professionals practising Design in their work are faced with increasingly challenging assignments and that the turbulence, complexity and volatility of our current operating environment are causing new requirements to the needed skillset and ways of working. The empirical findings of this study provided strong argumentation to support the literature by illustrating the current situation, where increasing uncertainty presents itself in many forms in the daily life of different organisations. A deep overview of current challenges facing Design professionals in a world characterised by volatility uncertainty, complexity and ambiguity (VUCA) was presented in the previous chapter. In brief, it can be stated that the sense of threat stemming from ecological, economic and social turmoil and worldwide unpredictability that strongly relates to the matter, seem to shorten the time perspective of decision-making and planning. This results in situations where organisations and individuals in them concentrate on coping and reacting, not in innovating and pro-active action. This situation poses a real challenge to Design professionals in the organisation, because investments to innovative development project are being cut down and people in the organisations do not have the time, energy or skills to participate and contribute to them. Even though Design is inherently future focused (Ojasalo et al., 2015) it became clear in empirical findings that current situation requires new skills from design professionals in order to be able to showcase Design's value in pursuing even more holistic, sustainable, systemic, transformative and ethical solutions for all. The findings suggest that integrating the concepts, tools and methods of Futures studies and Futures thinking to Design education can help designers navigate among these changes and steer the development towards preferable solutions for the future.

7.1 What kind of skills do Design professionals need in constantly changing and complex operating environment?

Empirical findings of this study show that Design professionals working in complex and uncertain operating environment need a mixture of "soft skills", such as empathy, creativity and strong interaction and collaboration skills as well as strong professional skills to support them in succeeding in the turmoil of change and transformation. Developing these soft skills helps Design professionals develop practices to approach all aspects of their work with futures-oriented, holistic, open and curious attitude highlighting ethical consideration and participatory approaches. These skills, that underline the importance of values, posture and mindset, need to be paired with professional design skills that enable the implementation of such holistic

approach into practice, within organizations, communities, and society together with different kind of stakeholders. Supporting strong Design skillset and mindset with additional, multidisciplinary knowledge and ways of working as well as embracing the role of Design professional as a coach and mentor was shown as important in the empirical findings.

Approaches to integrating Futures studies with Design presented in the theoretical framework (Angheloiu et al., 2017; Angheloiu, Sheldrick, & Tennant, 2020; Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020; Dunne & Raby, 2013, 2024; Irwin, 2015, 2018; Koskelo, 2021; Kossoff et al., 2015; Ojasalo et al., 2015) advocate certain demands for the skills of design professionals. Mirroring these demands with main empirical findings of this study, the importance of at least eight different areas of skills and competences for Design professionals can be identified: 1) Systemic thinking, 2) Futures thinking, 3) Sustainability, 4) Participatory approach, 5) Multidisciplinary approach, 6) Capabilities as mentor and facilitator, 7) Steering transformation and change and 8) Capability for self-reflection and posture of openness and curiosity.

Approaches of the theoretical framework and empirical findings prominently emphasise the importance of *systemic thinking*, where design problems are studied from holistic perspective and the interdependence and complex nature of systems and the stakeholders is recognised, understood and acted upon. Systemic design, on the other hand, is an approach to learn, innovate and adapt to complex and dynamic environment with a certain mindset and methods which combines and synthesises design thinking with systems thinking (Ryan, 2014). Interestingly, systemic design was not mentioned in the interviews more than a few times, but systemic thinking as a needed skill was highlighted throughout the interviews as an important life skill or competence for all people. The importance in the contexts of Design professional became especially prominent, because the complexity and connectedness of the challenges Design professionals face are increasing rapidly and the ability to understand what the real problem is, connecting the dots, was seen as one of the valuable strengths they possess. As design professionals often work at the grassroot level in local initiatives and projects, linking the projects and the ability to understand not just the components of the systems, but also the inter-relationships of those components (Monat & Gannon, 2015), becomes crucial in pursuit of the greater vision. Thus, concepts of systemic design and systemic thinking are closely connected in the context of this study and systems thinking has been identified as one of the foundational skills for design professionals, serving as a crucial starting point for building futures-proofed expertise.

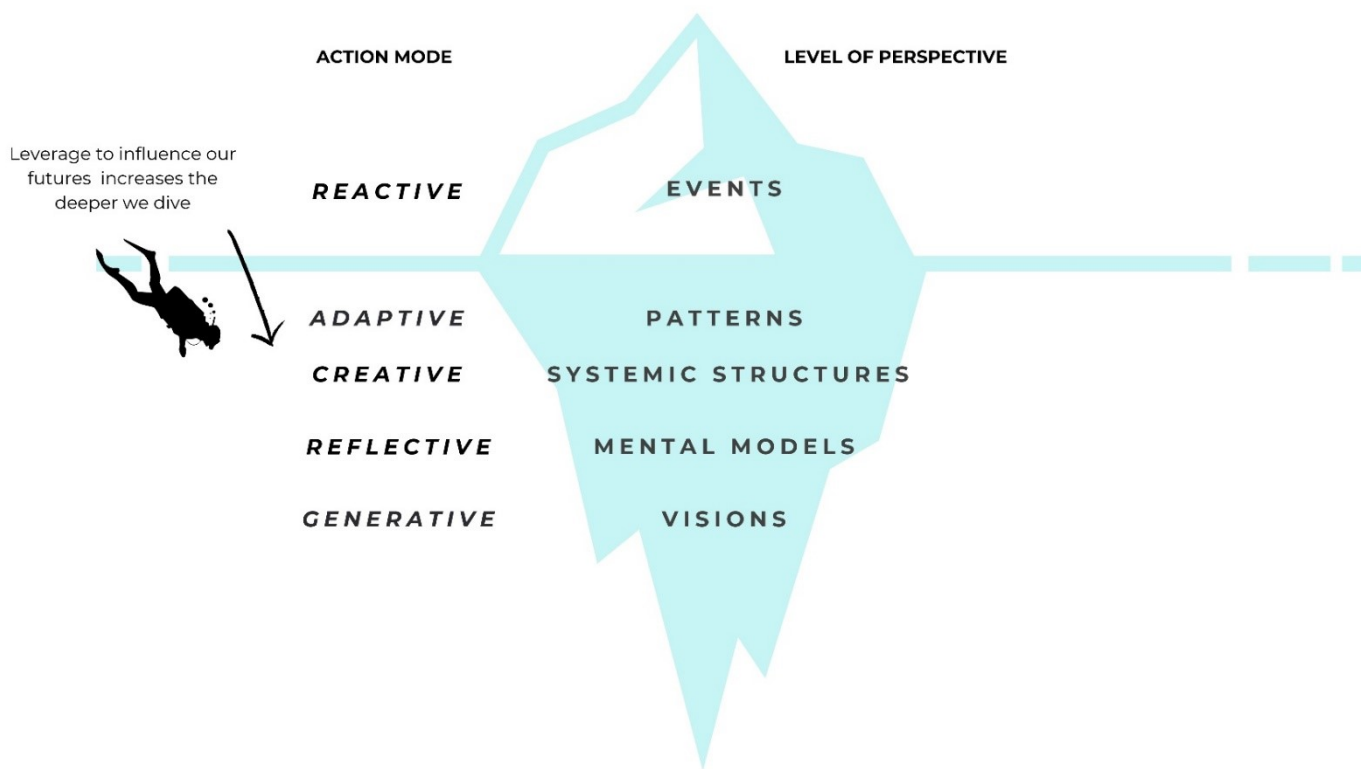


Figure 19. Levels of perspective and corresponding action modes of people (Adapted from Kim, 1999).

Figure 19 illustrates, how binding systems thinking into the skillset of Design professionals can also help in developing more *advanced futures thinking skills*. According to Kim (1999), our leverage to influence our futures increases with the action model (reactive, adaptive, creative, reflective and generative) through learning to operate on the higher levels of systemic structures, mental models and visions. Operating on those levels is hard, because it requires us to be able to imagine different kind of structures to the existing systems, but it also means developing more creative, reflective and generative individual capabilities (Kim, 1999).

The approaches identified in the theoretical framework refer to *futures-oriented thinking and designing for longer time-perspective* by anticipating future challenges, opportunities and the potential consequences of the solution and using this knowledge in the present (see, e.g., Koskelo, 2021). The findings of this study add to this by showing that design is inherently futures focused, but not a lot of Design professionals can actually use the tools and methods of Futures studies systemically. This skill is definitely demanded as the profession and its requirement are changing. When imagining futures, listening, ideating, speculating, visualising and designing the possible, plausible and preferable futures and deciding which one(s) we want to pursue is something designer could easily help with, provided that they have the necessary skills in futures studies.

Pursuit to *understand and develop ecological, social and economic sustainability* is crucial to approaches in the theoretical framework (Angheloiu et al., 2017; Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020; Irwin, 2015; Kossoff et al., 2015) and was equally supported in empirical data. Sustainable approach highlights the ethical consideration of all aspects of design,

which also gained a lot of support from empirical findings. In addition to professional skills related to sustainable design, the findings of this study call for increased attention to the attitude, will and posture of the Design professional in order to succeed in this mission and add to the importance of critical thinking, evaluation and responsibility of the individual. Placing the will and attitude to act sustainably and ethically even above the professional skills to do so, was seen as important. If there is a will, there is a way, and Design professionals are well equipped to find that way with design thinking approaches.

Developing and using participatory methods and co-design are standard operating practices in the modern design approaches. These skills were identified in the interviews as crucial for successful Design professionals. As the empirical data strongly argues, that the operating environment is now more complex and interconnected as ever and challenges can only be eased by working together and combining multiple perspectives, Design professionals need to have the will, methods and tools to steer development towards collaborating with stakeholders. Not designing for them, but with them. Participatory methods of co-design can be extremely effective in encouraging common understanding through creating concrete artefacts of the imagined images of the futures to discuss over and develop further.

The approaches presented at the theoretical framework emphasise the importance of *engaging in and enabling multidisciplinary cooperation* by bringing together experts and stakeholders from different fields to reach a comprehensive perspective and thus, better solutions (Mejía et al., 2023). In the empirical data, appreciating and searching for multidisciplinary knowledge was seen as important foundation to design professionals as individuals and collaborating in multidisciplinary teams was seen as the only reasonable way forward in the effort of solving the complex issues we face today. Design mindset that brings together science and arts, empirical and practical activities as well as experts and the community can enhance future-oriented collaboration outcomes (Mejía et al., 2023). Also, the quality of futures knowledge that will be used for decision-making benefits immensely from multidisciplinary approach. As Dufva (2015, p. 20) suggests, in systems perspective to foresight, futures knowledge is constituted by the actions of the agents acting in a particular context. When different and divergent perspectives of individuals are brought together, the common understanding is based on a much broader knowledge base.

The role of the design professional in this surrounding is recognised to be changing and *supporting the participants and mentoring them on building the capabilities* that are needed in the change process is an essential part of being a design professional, both in theory and in empirical findings. Empirical findings showed that changes in the role of the designers is becoming more prominent fast, due to, for example diminishing development budgets caused by uncertainty in the operating environment. People in the organisations need guidance in developing and continuing design thinking and practices in a way, that change towards wanted direction would continue also after the Design professional is no longer available. This requires a totally different and new abilities to coach people in design thinking and doing, inspire insight and encourage in critical thinking in others and, more importantly, willingness to share your expertise and teach it to others. In addition to developing design and futures

thinking skills in others, this also involves understanding and increasing agency in oneself and in others as a part of the role and process.

The approaches of the theoretical framework recognise the need for *understanding and driving transformational change and creative innovation* and aim for people to create flexible and adaptable solutions, that might be temporary or can respond to changing conditions and needs (Irwin, 2015, 2018; Kossoff et al., 2015). The empirical findings highlight that designers could be and should be the ones leading the transformation, since they have suitable thinking and tools to explore with participatory approaches, what the preferred images of the futures could be and they can instigate and steer change into the wanted direction. On the other hand, this was seen as one of the hardest missions to accomplish, since structures and culture in organisations and society is supporting different kind of goals and decision-making practices and the dominant economics-oriented worldview demands for effectiveness and results, not creative explorations. Linking development projects together in a larger portfolio to instigate transformation towards longer-term goals was seen as important way to improve the effectiveness of the development. That is why it is important for Design professionals to understand how transformation happens and stay patient and positive and on the right track while helping also others in doing so.

Lastly, as highlighted in both, theoretical approaches and in empirical findings, the complexity and speed of changes that surround us as individuals and as organisation and societies, requires *a mindset of openness, curiousness, optimism and capability of self-reflection and willingness to make a difference in collaboration with others*. The findings emphasise that the change and transformation we seek starts from ourselves. Only by reflecting where we stand in this world, we can start seeing the underlying structures and connections that surround us and other people. Understanding this gives us far better tools to pursue the preferred futures together.

7.2 How could integrating Future studies to Design studies support designers to develop the skills that are needed?

Research in both Futures Studies and Design is progressing towards more finetuned approaches, touching the ethical, moral and philosophical aspects and the multidisciplinary, holistic and participatory approaches and calling for transformational change and innovation (see, e.g., Kuosa, 2011; Zhang, 2023). On the other hand, the findings of this study show how organisations and individuals in them are still struggling under the weight of increasing demands and lack a proper mindset and skillset to approach the challenges with a holistic and systemic worldview, futures conscious stance and designerly ways of thinking, crafting and developing.

The approaches to integrating Futures studies with Design, that were presented in the theoretical framework, suggest that these fields could highly benefit from working together (see, e.g., Angheloiu et al., 2017). Next, different viewpoints for the advantages of this integration

and the requirements it poses for Design professionals are examined and mirrored with the findings from the interview data.

7.2.1 Three Lenses of Integrating Futures Studies into Design Practice

The three different lenses or routes to integrating Futures studies and Design (Business & Strategy, Arts & Experiments and Systemic and Holistic), which were introduced in theoretical framework, could all be clearly identified from the empirical data, even though the perspectives were highly overlapping. Depending on the level on which Design is practised at in the organisation, the need for certain types of skills was seen as essential. It could also be identified from the data, that when the discussion moved towards more complex challenges, also the needed skillset of Design professionals seems to become more and more multidimensional. In the empirical data, systematically using the longer time-perspective and understanding the pluralistic nature of futures (see e.g., Voros, 2001) was seen as an essential requirement for design professional. By adopting these principles and applying them systematically in their thinking and doing, design professionals can start to envision more and better options and this way, make more room for innovation and creativity in themselves and in others.

When looking at the integration of the fields of Futures studies and Design in terms of *the first lens, business and strategy*, the requirements highlighted in empirical data were, for example, strategic thinking, foresight tools and methods and knowing how to use longer time-perspectives in design, planning and decision-making. With this perspective, the benefits of using such skills can lead to creation of future value and significant competitive advantage, in reduced risk. As Bühring & Liedtka (2018) mention, this kind of development of perceptions about the futures through using the tools and methods of design may be used to inform the decisions or strategies of what is changing over the longer time-horizons and how this may be translated into creative and innovative images and narratives of possible futures. Also Koskelo (2021) brings forward the need to combine futures thinking with business, design and human sciences and warns of the possible pitfalls of using foresight as the only guiding factor for strategic and business development at the expense of the present moment. She highlights the importance of the capabilities to use multiple time-frames, recognising the biased thinking and relying on inadequate foresight skills or hasty decision-making based on scenarios that are outdated or based on incomplete monitoring of the operating environment. (Koskelo, 2021.) Advancing these points, the findings of this study point to the importance of being able to imagine and map the possible scenarios. Understanding the context of traditional planning and decision-making processes of the organisations would provide Design professionals with advanced skills and capabilities to use their core-expertise of Design especially in strategic positions. Understanding the “rules” and structures of business and organisational development also gives credibility to Design professionals in the eyes of the representatives of the more

the traditional approaches of organisational development. Knowing the ground gives an opportunity to question the existing status quo and suggest alternative approaches for innovation.

On the other hand, when the need for a fundamental paradigm shift away from economy-centred thinking was discussed in the interviews, skills like creativity, openness, critical thinking and the ability to explore multiple futures images in co-creation through design became more prominent. The second lens of integration, approaching it through *arts and explorations*, brought up similar needs and aims for the skillset of Design professionals. Dunne & Raby (2013) suggest that design can allow a person to open windows on the future in order to better understand the present. Recent developments in the field of design paint a picture of a practice shifting from outcome-oriented problem-solving approach to a broader mindset of asking carefully crafted questions through different, future-emphasising approaches like design fiction, speculative design and critical design (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020). The empirical findings highlight that we should be asking better questions to begin with and challenge the existing status quo and way of thinking. Even though foresight skills of individuals and organisations were highly requested, it was often mentioned that if the design professionals want to instigate transformative change, they should use the power of design to make things, including futures, visible and to be experienced here and today. These artefacts can help in dismantling existing worldviews and make room for new ones. As Ketonen-Oksi & Vigren (2024) conclude, in order to nurture the potential for imagining transformative futures, novel and innovative approaches, tools, and methods along with profound understanding of their potential to generate transformative political and collective agency is needed and also greater emphasis should be placed on ensuring that the methods used are well-suited to achieving the desired transformation. Based on the empirical data it became clear, that Design professionals already possess such tools and methods, but they would highly benefit from the perspective-broadening aspect of Futures studies. When looking at the integration through this lens, instead of focusing on solutions, of which Design is sometimes criticised at, design professionals can focus on providing alternatives and making them concrete and as such, expose the images of the future to criticism, discussion and evaluation.

As Angheloiu, Sheldrick, Tennant & Chaudhuri (2020) state, developing a sense of ownership is the key to enable participants to effectively reflect on alternative futures and their implications. In the interviews, this was highlighted when talking about change, transformation and our agency over the futures. The third lens of integration, highlighting *the systemic and holistic approach*, could be identified especially when talking about wicked problems, systemic nature of everything, increasing complexity of our operating environment and the need to change things radically and transformatively. In the skillset of Design professionals, this calls for systemic thinking, holistic approach, multidisciplinary expertise and participatory design skills, and skills and willingness to act as an agent for change. Also, the ethical perspective of design and designers became prominent. A designer has a moral obligation to open up the decision-making process to more people, especially to the one's that bear the consequences, allowing them to choose, which future they want or do not want (Zhang, 2023, p. 322). This statement received a lot of support from the interviews and was seen as closely entangled to

the changing role of design professionals and the skills required from them. As Irwin (2015), suggests, Transition Designs as an approach is deeply grounded in futures-oriented visions, it is fundamentally transdisciplinary, it highlights the need to understand the dynamic nature of change in social systems and emphasizes the temporal nature of the designed solutions, thus taking it a step further from, for example, service design. As was highlighted in the empirical data, these are exactly the kind of skills and approaches that the experts recognised as needed for Design professionals. Instigating transformational change was seen as a hard task that could be solved by working together for a greater, common purpose, by linking smaller projects and initiatives on a local level. This requires the designers working on those projects to be able to see the systems-level changes they could initiate, but as Irwin (2015) states, also to accept that emergent outcomes of design interventions cannot be predicted, but they can be speculated. As designers, even though we take pride in being great solving and framing the problem, we should acknowledge that recently technology has been a both a driver and a lens through which we interpret our reality and decide on what problems are worth solving (Angheloiu, Sheldrick, Tennant & Chaudhuri, 2020). Approaching challenges through this lens is challenging the dominant paradigms of economy and technology, demanding fast, concrete, predictable and profitable results, as was requested by the interviewees.

7.2.2 Future-proofing Design professionals' skillset: Anticipation and Futures Literacy

The empirical findings confirm how the practice of Design can provide Design professionals with the tools and methods to bring the imagined futures more concrete, personal, experiential and closer to present at all levels of design. This advances the prior literature (Angheloiu et al., 2017; Design Council, 2021; Irwin, 2015) by showing how it would be helpful and important for Design professionals to get familiar with the concepts of Anticipation, and Futures literacy, given that the strength and asset of Design professionals is to bring futures closer to present, into action. Stephan (2017) claims, that if designers want to create the future, they need to learn about transformation, and in order to do so, they need to learn about anticipation first. Understanding Anticipation and Futures literacy would provide Design professionals with valuable knowledge and understanding on how to approach futures with design and in action.

Miller et al. (2013) define efforts to know the future as anticipation or imagination of actions, which means thinking about the possible consequences of decisions that allows considering and evaluating future options. As Wilenius (2018) points out, it is important to recognise the dynamic and emergent nature of anticipation: the future is not something that occurs from somewhere, it is made. In this sense, the concept of anticipatory thinking brings Futures thinking closer to Design, where learning is closely linked into action and doing and learning from doing. The importance of the idea of "using the futures" in the present was brought up often in the empirical data as it was seen to have massive potential to help in making better decisions and strategies, reducing risk and ensuring sustainability of our current actions in the long run. The interviews were held in Finnish, and the word corresponding to anticipation,

antisipaatio or tulevaisuuskäsitys (Koskelo, 2021; Wilenius, 2018) was not explicitly mentioned, but the descriptions of how the design professionals should develop that skill and why it should be used clearly support this claim. In effort to clarify the concept of anticipation, Stephan (2017, p. S3630) states that, “To anticipate means to find a cause in the future that starts a transformation in the present. Understanding and exploring futures in order to make better choices today, and in that sense, steering the change and transformation towards the futures was seen as one of the most important skills for Design professionals, thus describing anticipation skills and anticipatory thinking. Even though imagining possible futures was seen as important for multiple reasons, such as increased creativity and inclusion of wider perspectives, anticipation was seen closely linked especially to *practising* design profession and highlighting the dynamic aspect of making changes in the present in pursuit of preferable futures. Koskelo (2021) warns of the potential narrowness of individuals anticipation and adds that it is crucial to understand *why and how to use those anticipations*, thus referring to futures literacy as and individuals’ capacity.

Futures literature, that refers to individual’s capability to consciously use the future in the present (see, e.g., Pouru-Mikkola & Wilenius, 2021) is linked to understanding *how and why to use the futures in the present* (Miller, 2018b). Skills and capabilities on futures literacy can support Design professionals in developing systematic thinking skills and holistic perspective, so strongly called for in the empirical data. According to Miller (2018b), futures literature as a capability is both reflexive and constructive, describing aptly how the interviewees wish the Design professionals could participate in building the world around us. Thinking about why to use a certain image of the future, why something imagined is designed or should be designed, calls for ethical consideration and recognising the underlying power structures and assumptions of our Western thinking and paradigm and including the stakeholders, both human and non-human, to participate (see, e.g., Angheloiu et al. 2017). Anticipation and action for futures in the present can also bring along the sense of agency and the tools for the participating individuals to create agency, which, in the empirical data, was seen as an important aspect of the posture and skillset of Design professionals in the current operating environment. Coops et al. (2022) highlight the importance of futures literacy as the unifying approach between futures studies and design: Instead of approaching future from our past experiences and projecting our fears to futures images, we should try to understand them through using creativity as a driving force. Being futures’ literate helps let go of the strains of the past and approaching future with curiosity, as was highly requested in the empirical data.

Close concept to Futures literacy, Futures consciousness (Ahvenharju et. al, 2018), adds to futures literacy by encompassing multiple dimensions that the empirical data supports as important skills and approaches to Design professionals. Time-perspective, agency beliefs, openness to alternatives, systems perception and concern for others (Ahvenharju et al., 2018) all find their match in the desired skillset of Design professionals tying the concept of Futures consciousness especially to the softer skills, that gained emphasised attention among the experts. Framework of transformative futures learning (Pouru-Mikkola & Wilenius, 2021) highlights the aspects of active and motivational dimensions in building the individual’s futures

capacity, which were seen as significant factors in futures-proofing Design professionals' capabilities and skills in the empirical data.

Figure 20 illustrates, how the role of anticipation as a future skill of design professionals is essential, as multiple sources for foresight knowledge already exists and is available for use, but the ability to use that information in the present is valuable asset in approaching change and transformation. This is where anticipation comes in, supported by futures literacy, which adds the why and how to use futures knowledge, thus supporting ethical and sustainable dimensions of design while emphasizing the importance of systemic thinking. Together, these skills provide a strong foundation for leveraging multiple "lenses" of integrating Futures studies and Design and utilizing the strengths of design, such as participatory approach, making concrete artifacts of images of the futures and instigating action in the present. By mastering these skills, Design professionals can navigate complex futures and take meaningful, proactive steps towards creating preferred outcomes together with participants from varying backgrounds.

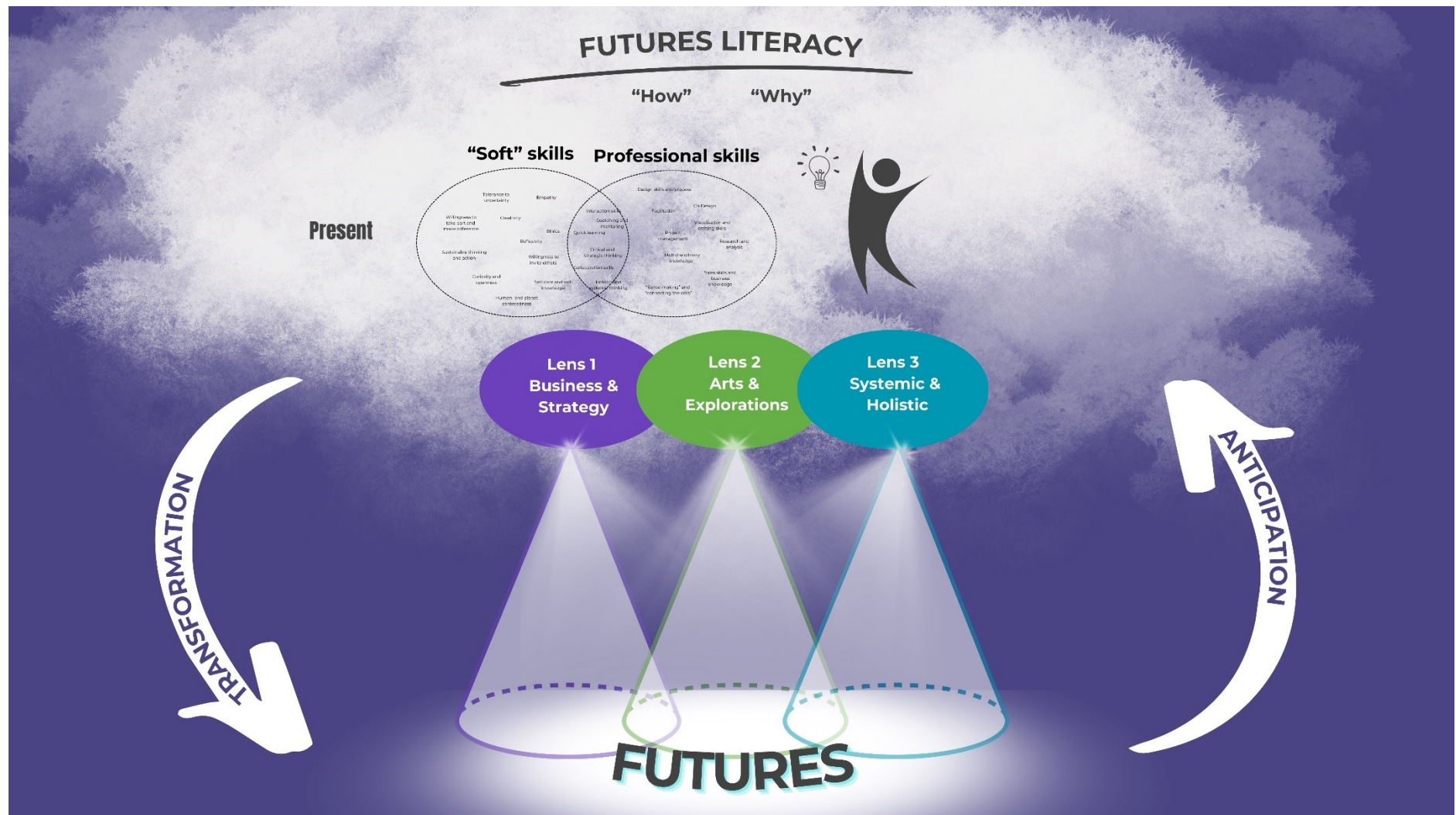


Figure 20. Framework for Future-proofing Design professionals

7.2.3 Barriers to integrating Futures Studies with Design practice

Developing future literacy in organisations and systematically incorporating foresight to strategy and operations can bump into barriers similar as adapting design thinking and practices in organisations. Literature review surfaced barriers such as lacking experience and required mental models in organisations and individual level, lacking measurability and clarity on investment and most of all unsuitable and unsupportive organisational culture to seek new ways for thinking and doing (see, e.g., Koivisto et al., 2019; Mortensen et al., 2021). Empirical findings add to this list by showing, that recent developments of our operating environment have narrowed down the courage to approach challenges differently even further. Looking into the future and speculating alternatives feels pointless, when even tomorrow or next week looks uncertain. Organisations do not have resources for it, let alone skills to use these capabilities, design thinking and futures thinking, systemically. Nevertheless, empirical findings support the notion that imagining multiple futures and approaching them with the holistic perspective of design is more important than ever. As Koskelo (2021) importantly states, when we want to enable co-creating of the futures, futures thinking must be demystified and made visible and tangible. Participatory co-creating practices of Design can help with achieving that. Combination of the barriers and current situation in operating environment enhancing their effect, poses a challenge, but also an opportunity to Design professionals to take the front seat in developing these skills and new ways of collaboration and decision-making in organisations, also on strategical level.

8 CONCLUSIONS

All humans anticipate the future (Miller, 2018a) and whether knowingly or not, anticipatory thinking influences our decision making. It is natural for us as humans to base our images of the future on the information and interpretations of the past, often shadowed by our fears. The current operating environment, described by volatility, uncertainty, complexity and ambiguity, creates a sense of threat, narrowing down our thinking even further. On the other hand, creative approaches aiming for transformation and change are more needed than ever. Change is happening and we can either float along or guide it to the direction we want to. This study highlights the notion that, Design professionals, whose expertise stem from the holistic approach combining thinking with doing, participatory methods, multidisciplinary approach and the ability of creating artefacts, something concrete out of ideas in agile and iterative manner, have great potential to be the pathfinders and navigators in the pursuit for better futures for all. Taking this new role as a mentor and guide in transformation requires even more heightened focus on the futures and systemic thinking and adding these aspects to the education of Design professionals can help them in future-proofing their expertise. By shifting the perspective of our approaches to be drawn from the future instead of driven by the past (see. e.g., Stephan 2017), gives us the agency over our futures and guides the decision we make today, giving us tools to pursue the preferred future. If we do not pay attention to future-proofing the skills of design professionals, a great potential in transformations is lost.

Research summary

This study is aimed at increasing the understanding and discussion on the matter of how current skills of Design professionals correspond to the needs that stem from practising the profession in the turmoil of the globally and locally recognised challenges of our operating environment. The prevailing world view requiring fast and visible results and efficiency poses challenges for Design professionals. By investigating literature and different theoretical approaches at the intersection of Design and Futures Studies and bringing them together with qualitative research data derived from eleven expert interviews, this study suggests that combining certain aspects of Futures studies to the education of Design professionals, they could bring much emphasised futures focus, ethical consideration and holistic perspective to Design practice.

The Design professional skillset identified from the empirical data mirrored the increasing complexity and uncertainty of our operating environment. The most important skills to support Design professionals to respond to changes in their operating environment and role were a mixture of soft skills and professional skills. Soft skills, supporting in creation of an open, empathic, ethical and futures-focused mindset and posture, should be backed up with strong design skills, multidisciplinary knowledge and expertise in co-design practices. Great emphasis in this mixture was given especially to systemic thinking, futures thinking, sustainability

and ethics, participatory approach, multidisciplinary approach, Design professionals' capabilities as mentor and facilitator, designers' capabilities and willingness to steer transformation and change and capability for self-reflection and posture of openness and curiosity.

This study further suggests that integrating Futures studies with Design practice, especially understanding the concepts of anticipation and futures literacy, can help design professionals approach futures and transformation systemically and with open posture. Anticipation and Futures literacy, as individual's capability, allow Design professionals to use the different lenses of integrating Futures studies with design practice (Business & strategy, Arts & explorations and Systemic & holistic) at all levels of Design in organisation (see, e.g., Koivisto et al., 2019). Depending on the level of influence of the Design solution, whether it is strategic, operational or explorative, different kind of approaches of Futures studies can be incorporated to Design practice. Understanding futures literacy and anticipation helps position oneself and others in the face of challenges and opens up thoughts on what is possible, supporting the use of creativity in innovation as well as in solving everyday challenges. Actively integrating futures into all design and decision-making processes naturally brings in all aspects of sustainability (social, ecological, economic) and strongly guides actions through shared purpose and sense of agency. Futures literate design professionals have the capability to decide *why and how to use the anticipatory knowledge in the present* while pursuing the preferred futures *together* with multidisciplinary stakeholders. Futures consciousness (Ahvenharju et al., 2018, 2021), a close relative to the concept of futures literacy, adds to it by promoting also longer time perspective, agency beliefs, systems perception, openness to alternatives and concern for others in addition to cognitive aspects of futures literature. Futures consciousness thus mirrors strongly the skills needed in more recent systemic, holistic, ethical and sustainable design approaches (see e.g., Zhang, 2023), making it a valuable addition to Design professionals skills set. Design practice and expertise provide tools and methods for bringing imagined futures from ideas to reality, clarifying and identifying the real problem, building a shared understanding by concretising abstract future visions through various prototypes, artifacts, and illustrations. Design artefacts also introduce an experiential level, allowing the participants to prototype, how a particular future might feel like on a personal level. Shared understanding is refined and developed together through iterating and co-developing these prototypes and artefacts.

Theoretical contributions of the study

Theoretical contributions of this study add to the existing literature of integrating the fields of Futures studies and Design by highlighting the emphasised importance of open, curious, empathic and ethical attitude and mindset as one of the most important capabilities of futures-proofed Design professional especially as the uncertainty in the operating environment increases. This study provides insight by emphasising how strong design skills can provide added value to making futures images concrete especially in these situations *only if* creativity and ethical choices are not discouraged and intimidated by threat, but supported by sense of agency and willingness to make a difference. Similarly, this study adds to design research by

bringing the concept of anticipation and anticipatory thinking to the discussion on the skillset of Design professionals and bringing *the focus on the action and the forms the future takes in the present*. Findings support not just adding certain foresight skills and methods to Design professionals' skillset, but to advance one's anticipatory thinking skills and systemically using the large pool of futures knowledge made available by others as well. This makes anticipatory thinking a core skill in future-proofing Design professionals. Supporting more recent, non-affirmative (Zhang 2023) design approaches highlighting the need for both, social and ethical approaches, findings of this study suggest actively including futures literacy and Futures consciousness to the education of Design professionals in order to emphasise the need to incorporate time perspective, agency beliefs, openness to alternatives, systems perception and concern for others (Ahvenharju et al., 2018, 2021) into the skillset of future-proofed Design professionals.

Practical Implications of the study

Even though the purpose of basic qualitative study is to increase the understanding of the phenomenon and the meanings the phenomenon has for those who are involved (Merriam & Tisdell, 2016), some practical implications can still be derived from the results.

On individual level, the findings and suggestions of this study aim to demonstrate the value of combining Futures studies with Design practice, providing a roadmap for Design professionals to proactively engage with the future rather than merely reacting to it. This study encourages Design professionals to reflect on their own motivation, recognise suitable role and opportunities to influence and build their futures-focus and related skills accordingly. Being a futures-literate and futures-conscious Design professional increases the understanding of oneself, the operating environment, people in it and their motivation. Focusing on developing soft skills, such as empathy, ethics and communication and interaction skills together with professional skills (including participatory and multidisciplinary approach), and combining them with systemic and holistic thinking, gives a strong foundation to thriving in your profession despite the challenges the changing role of Design professionals poses. Learning the basics of futures thinking open up a world of tools and methods that future-proofed professionals of design can utilize and develop onwards, especially in participatory approaches. Introducing oneself with the approaches presented in the theoretical framework can help Design professionals both in framing complex challenges and approaching them with a longer time perspective. For example, the idea behind Irwin's Transition Design Framework (2018) is to provide designers a logic that adds to designing systems-level change by bringing together knowledge and practices outside the design discipline and supporting the co-evolution of knowledge, action and self-reflection.

Practical implications of this study also suggest that Design professionals need to pay special attention on how and with what wording futures design or design futures is presented to the participants and wider audience. As Koskelo (2021) mentions, all people are futures designers, but how can we use that potential when working together. What kind of vocabulary we should use while inviting others to join in order to de-mystify the integration of these two

expert-fields? Since both of these fields already have distinct vocabularies, process-models and methods, Design professionals need to be skilled in communicating and interacting in an accessible way. Again, this means letting go of the hero's cloak made out of the jargon of design and futures and making sure to use one's expertise in inviting people to join, especially the ones that usually do not have a voice.

This study provides suggestions for how design education programs can incorporate futures studies to better prepare students for the challenges and opportunities of the future. Investigating the possibility to join forces with Futures studies, starting with adding the understanding of the concepts of anticipation (Miller et al., 2013, 2018) and Futures consciousness (Ahvenharju et al., 2018) to design education and exploring transformational futures learning (Pouru-Mikkola & Wilenius, 2021), would provide Design professionals with a head start to developing the much emphasised "soft skills" of Futures-proofed Design professionals. As the findings of this study suggest, more emphasis on understanding systems and systemic change in design education is needed, since the changes in operating environment and in the role of Design professionals are described as more and more complex and interconnected. Design professionals, who already have a unique, holistic approach of combining thinking and doing together, could provide valuable insights to organisational strategy and decision-making by applying futures thinking and innovating how these methods can be used to address real-world challenges, such as sustainability, social innovation, and technological disruption.

In Finland, combining strong expertise and academic tradition in Futures studies and (particularly participatory and empathetic) Design, with technological expertise, we could have a unique multidisciplinary combination to offer. The findings of this study show that all of these components are needed in the transition towards more sustainable future for all on planet Earth. By working together, Design, Futures studies and Technology, guided by ethics, critical thinking and systemic approach, could offer profound and innovative solutions that bring together the strengths and perspectives of different fields. This approach could lead to significant results in promoting societal transformation in an inclusive and comprehensive manner. Combining the important questions, the "What if...?" of Futures Studies and "How might we...?" of Design, takes us much closer to that goal.

Limitations of the study and suggestions for further research

Reflecting on the research process and the choices made in it, it can be said that the selection for the research methods and data collection served the aim and purpose of the study well. The findings of the study are in line with the selected research design: approaching Design as interdisciplinary discipline, where design knowledge resides in people, and the subjects of interest is the development of design ability of individuals and how that development can be nurtured in design education (Cross, 2006). Also, the selection for the interviewees for the empirical data followed this interdisciplinary approach, allowing multiple perspectives to enrich the data. On the other hand, building the literature review of this research design, and trying to keep it as relevant as possible, was challenging do to including two different fields of study and eventually combining them.

Even though assessing the quality of interpretive qualitative research is not so straightforward (Braun & Clarke, 2006; Merriam & Tisdell, 2016) , as a researcher, I have done my best to rigorously enhance the trustworthiness and reliability of this research by: carefully planning the research design, reporting the process transparently and guiding the reader through interpretations and the analysis of the data and results with justifications and providing extracts as examples of all relevant themes (see, e.g., Braun & Clarke, 2006). My own multidisciplinary background from Business, Leadership and Service design paired with personal interest towards Futures studies gave me a change to dive deep into the topics with the interviewees from different fields in this research context and abled me to “speak the same language” to make sure, that the concepts used were understood in a similar way. But being a part of what was research also posed some challenges. Biggest challenge was not to assume and rush into interpreting based on my own perspective, but to listen carefully. I reflected my position at all phases of the research, analysed the data in many phases and also tested and questioned my findings before proceeding as described in Chapter 5.4. of this study.

This study offers a glimpse into the crossroads of Futures studies and Design from the perspective of expectations, that the changing and complex operating environment poses for Design professionals and how integrating these fields might help in future-proofing their skillset and capabilities. As suggestion for further research, it would be interesting to turn towards the Design professionals themselves and study how they experience the changes of the operating environment and the role of the design professional. Do their experiences of the required skills and capabilities match with the finding of this study or do they differ significantly? Another interesting topic for research would be to find real life case studies or examples of design projects that have successfully integrated aspects of Futures studies in them. For example, case studies from approaches like Transition design (see, e.g., Irwin, 2015) and Futures Design (see, e.g., Koskelo, 2021) would be interesting from the perspective of the required skillset of the Design professionals. Of course, the changing role of Design professionals and designing the design education to match the needs brought forward in this study deserves more attention in further research.

REFERENCES

- Ahvenharju, S., Lalot, F., Minkkinen, M., & Quiamzade, A. (2021). Individual futures consciousness: Psychology behind the five-dimensional Futures Consciousness scale. *Futures*, 128, 1–18. <https://doi.org/10.1016/j.futures.2021.102708>
- Ahvenharju, S., Minkkinen, M., & Lalot, F. (2018). The five dimensions of Futures Consciousness. *Futures*, 104, 1–13. <https://doi.org/10.1016/J.FUTURES.2018.06.010>
- Alasuutari, P. (2011). *Laadullinen tutkimus 2.0*. Vastapaino.
- Amara, R. (1981). The Futures Field. *Futurist*, XV (1), 25–29.
- Angheloiu, C., Chaudhuri, G., & Sheldrick, L. (2017). Future Tense: Alternative Futures as a Design Method for Sustainability Transitions. *Design Journal*, 20(sup1), S3213–S3225. <https://doi.org/10.1080/14606925.2017.1352827>
- Angheloiu, C., Sheldrick, L., & Tennant, M. (2020). Future tense: Exploring dissonance in young people's images of the future through design futures methods. *Futures*, 117, 102527. <https://doi.org/10.1016/J.FUTURES.2020.102527>
- Angheloiu, C., Sheldrick, L., Tennant, M., & Chaudhuri, G. (2020). Future Tense: Harnessing Design Futures Methods to Facilitate Young People's Exploration of Transformative Change for Sustainability. *World Futures Review*, 12(1), 104–122. <https://doi.org/10.1177/1946756719844050>
- Anttila, P. (1996). *Tutkimisen taito ja tiedonhankinta: taito-, taide- ja muotoilualojen tutkimuksen työvälineet*. Akatiimi. <https://metodix.fi/2014/05/17/anttila-pirkko-tutkimisen-taito-ja-tiedon-hankinta/>
- Baldassarre, B., Calabretta, G., Karpen, I. O., Bocken, N., & Hultink, E. J. (2024). Responsible Design Thinking for Sustainable Development: Critical Literature Review, New Conceptual Framework, and Research Agenda. *Journal of Business Ethics* 2024, 1–22. <https://doi.org/10.1007/S10551-023-05600-Z>
- Battistoni, C., Nohra, C. G., & Barbero, S. (2019). A systemic design method to approach future complex scenarios and research towards sustainability: A holistic diagnosis tool. *Sustainability*, 11(16), 1–30. <https://doi.org/10.3390/su11164458>
- Bell, W. (2017). *Foundations of futures studies. Volume 1, Human science for a new era: history, purposes, and knowledge*. Routledge.
- Benavides Rincón, G., & Díaz-Domínguez, A. (2022). Assessing futures literacy as an academic competence for the deployment of foresight competencies. *Futures*, 135, 1–12. <https://doi.org/10.1016/J.FUTURES.2021.102872>
- Berinato, S. (2014). *A Framework for Understanding VUCA*. Harvard Business Review. <https://hbr.org/2014/09/a-framework-for-understanding-vuca>

- Bleecker, J. (2009). *Design Fiction A short essay on design, science, fact and fiction*. https://systemsorienteddesign.net/wp-content/uploads/2011/01/DesignFiction_WebEdition.pdf
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706QP063OA>
- Brown, T., & Katz, B. (2009). *Change by design: How design thinking transforms organizations and inspires innovation*. Harper Business.
- Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, 8(2), 5–21. <https://doi.org/10.2307/1511637>
- Buehring, J., & Bishop, P. C. (2020). Foresight and Design: New Support for Strategic Decision Making. *She Ji: The Journal of Design, Economics, and Innovation*, 6(3), 408–432. <https://doi.org/10.1016/J.SHEJI.2020.07.002>
- Bühning, J., & Liedtka, J. (2018). Embracing systematic futures thinking at the intersection of Strategic Planning, Foresight and Design. *Journal of Innovation Management*, 6(3), 134–152. https://doi.org/10.24840/2183-0606_006-003_0006
- Burns, C., Cottam, H., Vanstone, C., & Winhall, J. (2006). *RED Paper 02: Transformation Design*. www.designcouncil.org.uk/red.
- Candy, S., & Kornet, K. (2019). Turning Foresight Inside Out: An Introduction to Ethnographic Experiential Futures. *Journal of Futures Studies*, 23(3), 3–22. [https://doi.org/10.6531/JFS.201903_23\(3\).0002](https://doi.org/10.6531/JFS.201903_23(3).0002)
- Chen, D.-S., Cheng, L.-L., Hummels, C., & Koskinen, I. (2016). Social design: an introduction. *International Journal of Design*, 10(1), 1–5.
- Coops, F., Hummels, C., Dorst, K., Evan Goldstein, B., & Loorbach, D. (2022). *Designing for transitions and transformations*. <https://doi.org/10.21606/drs.2022.897>
- Corporate sustainability reporting*. (n.d.). European Commission. Retrieved August 30, 2024, from https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en
- Cross, N. (2006). *Designerly Ways of Knowing* (1st ed. 2006.). Springer London.
- Cross, N. (2007). Forty years of design research. *Design Studies*, 28(1), 1–4. <https://doi.org/10.1016/J.DESTUD.2006.11.004>
- Design Council. (2005). *The Double Diamond*. Design Council. <https://www.designcouncil.org.uk/our-resources/the-double-diamond/>
- Design Council. (2021). *A Systemic Design Approach Beyond Net Zero*. <https://www.designcouncil.org.uk/our-resources/systemic-design-framework/>

- Directorate-General for Financial Stability, F. S. and C. M. U. (2023). *The Commission adopts the European Sustainability Reporting Standards*. European Commission. https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en
- Doordan, D. (2015). Professional skills and local engagement: the challenge of Transition Design. *Design Philosophy Papers*, 13(1), 63–67.
<https://doi.org/10.1080/14487136.2015.1085697>
- Dufva, M. (2015). *Knowledge creation in foresight – a practice- and systems-oriented view* (Vol. 22) [Doctoral dissertation, Aalto University]. <https://aalto-doc.aalto.fi/items/cea13122-5f2c-4600-8682-250354387476>
- Dufva, M., & Rekola, S. (2023). *MEGATRENDIT 2023 Understanding an era of surprises*. https://www.sitra.fi/app/uploads/2023/03/sitra_megatrends-2023_v3.pdf
- Dunne, A., & Raby, F. (2013). *Speculative everything: design, fiction, and social dreaming*. The MIT Press.
- Dunne, A., & Raby, F. (2024). *Speculative everything: design, fiction, and social dreaming*. MIT Press.
- Earth Overshoot Day*. (2024). Earth Overshoot Day. <https://overshoot.footprintnetwork.org/>
- Ericson, J. D. (2022). Mapping the Relationship Between Critical Thinking and Design Thinking. *Journal of the Knowledge Economy*, 13(1), 406–429.
<https://doi.org/10.1007/s13132-021-00733-w>
- Finnish National Board on Research Integrity. (2021). *Guidelines for ethical review in human sciences*. Publications of the Finnish National Board on Research Integrity 3/2019.
<https://tenk.fi/en/advice-and-materials>
- Fleischmann, K. (2022). Design education in transition: A multidisciplinary design classroom with non-allied disciplines. *Design Journal*, 25(1), 25–43.
<https://doi.org/10.1080/14606925.2021.2004717>
- Frayling, C. (1993). Research in Art and Design. *Royal College of Arts Research Papers*, 1, 1–9.
- Gaziulusoy, I., Erdo, E., & Gan Öztekin, Ş. (2019). Design for Sustainability Transitions: Origins, Attitudes and Future Directions. *Sustainability*, 11, 2–16.
<https://doi.org/10.3390/su11133601>
- Guba, E. G., & Lincoln, Y. S. (1994). Competing Paradigms in Qualitative Research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research*. Sage.
- Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic Controversies, Contradictions and Emerging Confluences. In N. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (3rd ed., pp. 191–215). Sage.

- Hancock, T., & Bezold, C. (1994). Possible futures, preferable futures. *The Healthcare Forum Journal*, 37(2), 23–29.
- Hay, A. F., Vink, J., & Suoheimo, M. (2023). The Context of Addressing Power Dynamics in Service Design. *ServDes.2023 Entanglements & Flows Conference: Service Encounters and Meanings*, 639–662.
- Hines, A., & Zindato, D. (2016). Designing Foresight and Foresighting Design. *World Futures Review*, 8(4), 180–192. <https://doi.org/10.1177/1946756716672477>
- Hupkes, T., & Hedman, A. (2022). Shifting towards non-anthropocentrism: In dialogue with speculative design futures. *Futures*, 140, 1–7. <https://doi.org/10.1016/J.FUTURES.2022.102950>
- Inajatullah, S., & Sweeney, J. A. (2021). From Strategic to Transformative Foresight: Using Space to Transform Time. *World Futures Review*, 13(1), 27–33. <https://journals.sagepub.com/doi/pdf/10.1177/1946756720971743>
- Inayatullah, S. (2013). Futures Studies. Theories and Methods. In *There's a Future. Visions for a Better World*. https://www.researchgate.net/profile/Sohail-Inayatullah/publication/281595208_Futures_Studies_Theories_and_Methods/links/5afd24cfaca272b5d87082e2/Futures-Studies-Theories-and-Methods.pdf
- Irwin, T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research. *Design and Culture*, 7(2), 229–246. <https://doi.org/10.1080/17547075.2015.1051829>
- Irwin, T. (2018). The Emerging Transition Design Approach. In C. Storni, K. Leahy, M. McMahon, P. Lloyd, & E. Bohemia (Eds.), *Design as a catalyst for change - DRS International Conference* (pp. 967–989). DRS Biennial Conference Series. <https://doi.org/10.21606/dma.2017.210>
- Irwin, T., Tonkinwise, C., & Kossoff, G. (2015). Transition Design provocation. *Design Philosophy Papers*, 13(1), 3–11. <https://doi.org/10.1080/14487136.2015.1085681>
- Ketonen-Oksi, S., & Vigren, M. (2024). Methods to imagine transformative futures. An integrative literature review. *Futures*, 157(157), 1–13. <https://doi.org/10.1016/j.futures.2024.103341>
- Kim, D. H. (1999). *What Is Systems Thinking?* Pegasus Communications, Inc. <https://thesystemsthinker.com/introduction-to-systems-thinking/>
- Koivisto, M., Säynäjäkangas, J., & Forsberg, S. (2019). *Palvelumuotoilun bisneskirja* (2.painos). Alma Talent.
- Koskelo, M. (2021). *Tehtävänä tulevaisuus: tulevaisuusmuotoilu päätöksenteossa*. Alma Talent.

- Kossoff, G., Irwin, T., & Willis, A.-M. (2015). Transition Design. In *Design Philosophy Papers* (Vol. 13, Issue 1, pp. 1–2). Informa UK Limited.
<https://doi.org/10.1080/14487136.2015.1085681>
- Kuosa, T. (2011). Evolution of futures studies. *Futures*, 43(3), 327–336.
<https://doi.org/10.1016/J.FUTURES.2010.04.001>
- Kyrö, P. (2002). *The Paradigm and Methodological Choices in Scientific Research*. Metodix-Metoditietämystä Kaikille, Prosessiartikkelit.
- Kyrö, P. (2003). *Tieteellinen tutkimusprosessi*. <https://metodix.fi/2014/05/17/kyro-paula-tieteellinen-tutkimusprosessi/>
- Lätti, R., Malho, M., Rowley, C., & Frilander, O. (2022). Skenaarioiden rakentaminen tulevaisuustaulukkomenetelmällä. In H.-K. Aalto, K. Heikkilä, P. Keski-Pukkila, M. Mäki, & M. Pöllänen (Eds.), *Tulevaisuudentutkimus tutuksi -Perusteita ja menetelmiä*. Tulevaisuudentutkimuksen Verkostoakatemia, Tulevaisuuden tutkimuskeskus, Turun yliopisto.
- Leppänen, A. (2023). *Julkishallinnon muotoilun tulevaisuusprosessi*. Julkis-Muotoilijat.
<https://medium.com/julkis-muotoilijat/julkishallinnon-muotoilun-tulevaisuusprosessi-e2d95858d906>
- Light, A., Gray, C. M., Lindström, K., Forlano, L., Lockton, D., & Speed, C. (2022). Designing transformative futures. *Design Research Society 2022: Conversations*, Bilbao.
<https://doi.org/10.21606/10.21606/drs.2022.896>
- Lloyd, P. (2017). From Design Methods to Future-Focused Thinking: 50 years of design research. *Design Studies*, 48, A1–A8. <https://doi.org/10.1016/J.DESTUD.2016.12.004>
- Lloyd, P. (2019). You make it and you try it out: Seeds of design discipline futures. *Design Studies*, 65, 167–181. <https://doi.org/10.1016/J.DESTUD.2019.10.008>
- Manzini, E. (2015). *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. MIT Press.
- Marien, M. (2010). Futures-thinking and identity: Why “Futures Studies” is not a field, discipline, or discourse: a response to Ziauddin Sardar’s ‘the namesake.’ *Futures*, 42(3), 190–194. <https://doi.org/10.1016/J.FUTURES.2009.11.003>
- Martikainen, A. (2023). *Kotimaiset vastuullisen muodin brändit ovat ahdingossa*. Yle.Fi.
<https://yle.fi/a/74-20031900>
- Masini, E. (1982). Reconceptualizing Futures: A Need and a Hope. *World Futures Society Bulletin*, 16(6), 1–8.
- Masini, E. (2006). Rethinking futures studies. *Futures*, 38(10), 1158–1168.
<https://doi.org/10.1016/J.FUTURES.2006.02.004>

- Mejía, G. M., Henriksen, D., Xie, Y., García-Topete, A., Malina, R. F., & Jung, K. (2023). From researching to making futures: a design mindset for transdisciplinary collaboration. *Interdisciplinary Science Reviews*, 48(1), 77–108.
<https://doi.org/10.1080/03080188.2022.2131086>
- Melnikovas, A. (2018). Towards an Explicit Research Methodology: Adapting Research Onion Model for Futures Studies. *Journal of Futures Studies*, 23(2), 29–44.
[https://doi.org/10.6531/JFS.201812_23\(2\).0003](https://doi.org/10.6531/JFS.201812_23(2).0003)
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: a guide to design and implementation* (Fourth edition). Jossey-Bass, a Wiley Brand.
- Miller, R. (2018a). *Introduction Futures Literacy: Transforming the future*.
- Miller, R. (2018b). Sensing and making-sense of Futures Literacy: Towards a Futures Literacy Framework. In R. Miller (Ed.), *Transforming the Future. Anticipation in the 21st Century* (First Edition, pp. 15–50). Routledge.
- Miller, R. (2018c). *Transforming the Future* (R. Miller, Ed.; First edition). Routledge.
<https://doi.org/10.4324/9781351048002>
- Miller, R., Poli, R., & Rossel, P. (2013). *The Discipline of Anticipation: Exploring Key Issues* (Bellagio Document 4: Working Paper 1 – Discipline of Anticipation). https://www.academia.edu/download/31251355/Miller_Poli_Rossel.pdf
- Miller, R., Poli, R., & Rossel, P. (2018). The Discipline of Anticipation -Foundations for Futures Literacy. In *Transforming the Future. Anticipation in the 21st Century* (pp. 51–65).
- Minkkinen, M. (2020). Theories in Futures Studies: Examining the Theory Base of the Futures Field in Light of Survey Results. *World Futures Review*, 12(1), 12–25.
<https://doi.org/10.1177/1946756719887717>
- Minkkinen, M., Auffermann, B., & Ahokas, I. (2019). Six foresight frames: Classifying policy foresight processes in foresight systems according to perceived unpredictability and pursued change. *Technological Forecasting and Social Change*, 149, 1–13.
<https://doi.org/10.1016/J.TECHFORE.2019.119753>
- Monat, J. P., & Gannon, T. F. (2015). What is Systems Thinking? A Review of Selected Literature Plus Recommendations. *American Journal of Systems Science*, 2015(1), 11–26.
<https://doi.org/10.5923/j.ajss.20150401.02>
- Mortensen, J. K., Larsen, N., & Kruse, M. (2021). Barriers to developing futures literacy in organisations. *Futures*, 132, 1–12. <https://doi.org/10.1016/J.FUTURES.2021.102799>
- Nelson, H. G. (2020). The Promise of Systemic Designing: Giving Form to Water. In *Learning, Design, and Technology* (pp. 1–49). Springer International Publishing.
https://doi.org/10.1007/978-3-319-17727-4_98-2

- Nelson, H. G., & Stolterman, E. (2012). *The design way: Intentional change in an unpredictable world*. The MIT Press.
- Nickerson, R. S. (1998). Confirmation Bias: A Ubiquitous Phenomenon in Many Guises. *Review of General Psychology*, 2(2), 175–220. <https://doi.org/10.1037/1089-2680.2.2.175>
- NYT Youth Future Report. (2023). <https://nuortennyt.fi/ajankohtaista/tutkimukset/tulevaisuusraportti/>
- Ojasalo, K., Koskelo, M., & Nousiainen, A. K. (2015). Foresight and service design boosting dynamic capabilities in service innovation. In *The Handbook of Service Innovation* (pp. 193–212). Springer-Verlag London Ltd. https://doi.org/10.1007/978-1-4471-6590-3_10
- Ollenburg, S. (2018). Beyond Futures: Designing Futures by Educating Future Designers. *World Futures Review*, 10(4), 279–293. <https://doi.org/10.1177/1946756718790758>
- Ollenburg, S. A. (2019). A futures-design-process model for participatory futures. *Journal of Futures Studies*, 23(4), 51–62. [https://doi.org/10.6531/JFS.201906_23\(4\).0006](https://doi.org/10.6531/JFS.201906_23(4).0006)
- Paavola, S., Hakkarainen, K., & Sintonen, M. (2006). Abduction with Dialogical and Trialogical Means. *Logic Journal of the IGPL*, 14(2), 137–150.
- Parkkonen, P., & Vataja, K. (2019). Näkökulmia ja lähestymistapoja tulevaisuustyön ja ennakkoinnin arviointiin. *Futura*, 1. <https://www.sitra.fi/julkaisut/nakokulmia-ja-lahestymistapoja-tulevaisuustyon-ja-ennakkoinnin-arviointiin/#johdanto>
- Planetary boundaries*. (2023). Stockholm Resilience Center Website. <https://www.stockholmresilience.org/research/planetary-boundaries.html>
- Poli, R. (2021). The challenges of futures literacy. *Futures*, 132, 1–9. <https://doi.org/10.1016/J.FUTURES.2021.102800>
- Pouru, L., & Wilenius, M. (2018). Educating for the Future: How to integrate Futures Literacy into secondary education. *6th International Conference on Future-Oriented Technology Analysis (FTA)*, 1–6.
- Pouru-Mikkola, L., & Wilenius, M. (2021). Building individual futures capacity through transformative futures learning. *Futures*, 132, 1–13. <https://doi.org/10.1016/j.futures.2021.102804>
- Poussa, L. (2024). *Democratizing futures is about building more inclusive futures*. SITRA. <https://www.sitra.fi/en/news/democratizing-futures-is-about-building-more-inclusive-futures/>
- Ramos, J., Sweeney, J. A., Peach, K., & Smith, L. (2019). *Our futures: by the people, for the people*. www.nesta.org.uk

- Rubin, A. (2014). *Tulevaisuuden tutkimus tiedonalana ja tieteellisenä tutkimuksena*. <https://metodix.fi/2014/12/02/anita-rubin-tulevaisuuskientutkimus-tiedonalana-ja-tieteellisena-tutkimuksena/>
- Ryan, A. J. (2014). A Framework for Systemic Design. *Formakademisk*, 7(4), 1–14. <https://doi.org/https://doi.org/10.7577/formakademisk.787>
- Salmi, A., & Mattelmäki, T. (2021). From within and in-between - co-designing organizational change. *CoDesign*, 17(1), 101–118. <https://doi.org/10.1080/15710882.2019.1581817>
- Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5–18. <https://doi.org/10.1080/15710880701875068>
- Sardar, Z. (2010). The Namesake: Futures; futures studies; futurology; futuristic; foresight—What's in a name? *Futures*, 42(3), 177–184. <https://doi.org/10.1016/J.FUTURES.2009.11.001>
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.
- Saunders, M., & Tosey, P. (2012). *The Layers of Research Design*.
- Sides, M., Carey, H., Dorn, E., & Theriault, N. (2022). Engaging with Theories of Change in Transition Design. *Cuadernos Del Centro de Estudios de Diseño y Comunicación*, 157, 141–158. <https://doi.org/10.18682/CDC.VI157.6849>
- Simon, H. A. (1996). *The sciences of the artificial* (Third edition). The MIT Press.
- Stephan, P. F. (2017). You say you want a revolution? Non-normative foundations of Transformation Design. *The Design Journal*, 20(sup1), S3630–S3642. <https://doi.org/10.1080/14606925.2017.1352866>
- Sweeney, J. A. (2023). *Aperture: An Approach for Transformative Futures & Foresight (part one)*. Medium/@aloha_futures. https://medium.com/@aloha_futures/aperture-an-approach-for-transformative-futures-foresight-part-one-of-6508958cf938
- The European Green Deal*. (n.d.). European Commission. Retrieved August 30, 2024, from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
- The Future of Jobs Report 2023*. (2023). www.weforum.org
- Tonkinwise, C. (2015). Design for Transitions - From and To What? *Design Philosophy Papers*, 13(1), 85–92. <https://doi.org/https://doi.org/10.1080/14487136.2015.1085686>
- Trowbridge, H. (2024). Democratising futures, reinvigorating democracy? Participatory futures as a tool for citizen voice and influence in local decision-making. *Foresight*. <https://doi.org/10.1108/FS-09-2023-0195/FULL/PDF>

- Tuomi, J., & Sarajärvi, A. (2018). *Laadullinen tutkimus ja sisällönanalyysi* (Uudistettu laitos). Kustannusosakeyhtiö Tammi.
- University of Lapland: Tutkimuksen tietosuoja. (n.d.). <https://www.ulapland.fi/FI/Tutkimus/Vastuullinen-Tutkimus/Tutkimuksen-Tietosuoja>. Retrieved September 3, 2024, from <https://www.ulapland.fi/FI/Tutkimus/Vastuullinen-tutkimus/Tutkimuksen-tietosuoja>
- Valtonen, A. (2020). Approaching Change with and in Design. *She Ji: The Journal of Design, Economics, and Innovation*, 6(4), 505–529. <https://doi.org/10.1016/J.SHEJI.2020.08.004>
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68, 1–17.
- Vilkka, H. (2021). *Näin onnistut opinnäytetyössä: ratkaisut tutkimuksen umpikujiin*. PS-kustannus.
- Vink, J., & Koskela-Huotari, K. (2022). Building Reflexivity Using Service Design Methods. *Journal of Service Research: JSR*, 25(3), 371–389. <https://doi.org/10.1177/10946705211035004>
- Vink, J., Wetter-Edman, K., & Koskela-Huotari, K. (2021). Designerly Approaches for Catalyzing Change in Social Systems: A Social Structures Approach. *She Ji*, 7(2), 242–261. <https://doi.org/10.1016/j.sheji.2020.12.004>
- Voros, J. (2001). A primer on Futures Studies, foresight and the use of scenarios. *Prospect: The Foresight Bulletin*, 40(2), 1–8. <https://thevoroscope.com/publications/foresight-primer/>
- Voros, J. (2017a). Big History and Anticipation. *Handbook of Anticipation*, 1–40. https://doi.org/10.1007/978-3-319-31737-3_95-1
- Voros, J. (2017b, February 24). *The Futures Cone, use and history*. <https://thevoroscope.com/2017/02/24/the-futures-cone-use-and-history/>
- Wilenius, M. (2018). Tulevaisuudentutkimus ja antisipaatioajattelu. In *tutuseura.fi*. https://www.tutuseura.fi/wp-content/uploads/2018/06/Anticipation2018_Wilenius.pdf
- Zhang, L. (2023). The Ethical Turn of Emerging Design Practices. *She Ji: The Journal of Design, Economics, and Innovation*, 9(3), 311–329. <https://doi.org/10.1016/J.SHEJI.2023.09.002>

APPENDICES

APPENDIX 1: INTERVIEW FRAMEWORK

Background Information

- Current position and background with Design and Futures studies
- How would you describe your understanding of future studies and its utilization in an organization?
- How would you describe your understanding and experience in (service) design?
- What are your personal interests in these topics?
- How do these topics come up in regards to your work?

Organisational and Societal Change

- What general themes or challenges have you identified in your or your clients'/partners' operating environments in recent years?
- How do you think these reflect on the work and skills needs of those in development roles (designers)?
- What kind of information is needed in the organization to succeed better?

Role of Design and Design Professionals in Organisations

- What kind of development have you noticed in the role of Design professionals in the organization?
- What changes have you identified in the skills of (service) designers in recent years?

The Skills and Abilities of Design Professionals

- What kind of skills and capabilities do you think design professionals need in today's organizations?
- What skills do they have that others might lack?
- What skills/strengths have you identified?

Collaboration in organizations

- Who do you think design professionals in development roles work with?
- Who do you think design professionals in development roles *should* work with?
- What kind of special expertise is needed for this?
- In what kind of roles do you see design professionals in future organizations?
- How could the impact of projects be improved?

- Who should be involved?

Education of Design professionals

- How do you think the skills of graduating (service) designers/design professionals meet the needs of the organizations at the moment?
- What do you think are the most important themes that should be emphasized in the education of design professionals/service designers?

Integrating Futures Studies with Design

- What future studies methods or futures thinking premises the designers should the know?
- How should one be introduced to the field of futures studies
- What kind of collaboration of Futures studies and Design you would wish for?