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# PRACTICING DESIGN: REPOSITIONING THE ROLE AND PROFESSIONAL DIMENSIONS AMID ANTICIPATED STRUCTURAL CHANGE


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**Abstract:**

This study is a theoretical research that results in a theoretical framework of designers' key competencies amid anticipated structural change in the future. This study begins with a theoretical (philosophical) analysis, where theoretical perspectives (systemic design framework, strategic foresight, critical thinking, discursive design, critical design, speculative design, and design fiction) are dissembled and compared through viewpoints based on cross-disciplinarity, anticipation, critical thinking and research, and discourse and speculation. The theoretical analysis is followed by theoretical synthesis, where the key findings of the analysis are combined into new concepts, which results in the 7-field framework (a theoretical framework). The framework presents 7-key competencies of a future designer. The results can be used to evaluate the need for designers to develop personal skills in the context of future working life, and the main goal of the study is to provide a basis for future research on this topic: this research can be broadened by empirical research.

**Keywords:** discursive design, critical design, speculative design, design fiction, critical thinking, design research, strategic foresight, systemic design, cross-disciplinary design, proactive design, professional development, professional role, structural change in the professional field

**X** Thesis does not contain personal data of any other than the data of the author.

**LAPIN YLIOPISTO**

**Tiedekunta:** Taiteiden tiedekunta

**Työn nimi:** Muotoilun harjoittaminen: Ammatillisen roolin ja ulottuvuuksien uudelleensijoittaminen ennakoidun rakennemuutoksen keskellä

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**Tiivistelmä:**

Tämä on teoreettinen tutkimus, jonka tuloksena syntyy teoreettinen viitekehys muotoilijan ammatillisen kompetenssin vaatimasta muutoksesta, perustuen ennakoituun rakenteelliseen muutokseen. Tämä tutkimus koostuu teoreettisesta (filosofisesta) analyysistä, jossa teoreettiset näkökulmat (systemic design framework, strateginen ennakointi, kriittinen ajattelu, diskursiivinen muotoilu, kriittinen muotoilu, spekulatiivinen muotoilu ja design fiction) on purettu osiin ja vertailtu poikkialaisuuteen, ennakointiin, kriittiseen ajatteluun ja tutkimukseen, sekä diskurssiin ja spekulaatioon perustuvista näkökulmista. Teoreettisen analyysin tulokset on yhdistetty uudeksi teoriaksi teoreettisessa synteesissä. Synteesin tuloksena syntyy seitsenkenttäinen teoreettinen viitekehys, 7-field framework. Tämä viitekehys esittelee seitsemän keskeistä ammatillista taitoa ja kykyä, joilla vastata tulevaisuuden haasteisiin. Tutkimuksen tulosta voidaan käyttää tulevaisuuden ammatillisten tarpeiden arviointiin, mutta sen päätavoite on toimia pohjatutkimuksena tulevalle laajemmalle empiiriselle tutkimukselle.

**Avainsanat:** diskursiivinen muotoilu, kriittinen muotoilu, spekulatiivinen muotoilu, design fiction, kriittinen ajattelu, muotoilututkimus, strateginen ennakointi, systeeminen muotoilu, poikkialainen muotoilu, proaktiivinen muotoilu, ammatillinen kehitys, ammatillinen rooli, ammattialan rakennemuutos

**X** Tutkielma ei sisällä muita kuin tekijän omia henkilötietoja.

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# 1. INTRODUCTION

In this chapter, the background, objectives of the research, methodology, ethical considerations, and limitations of the study are presented.

## 1.1 BACKGROUND

Design is a broad field that is in constant change. It is difficult, if not impossible, to define the boundaries of the field or even define who is a designer. Design expertise is being adapted to new fields, which increases the looseness of the definition. Muratovski (2022) advocates that design reflects society and the societal changes in it. For designers, this means collaboration between other fields to create meaningful outcomes for society, the environment, and the economy. (Muratovski, 2022, p. 36). A designer needs to have a sufficient understanding of socio-technical and socio-economical structures. The change driven by technical development causes designers to change roles from producer and creator to curator. Designers with critical thinking skills, high analyticity, and high competence in complex problem framing are in demand. (Muratovski, 2022, p. 12-13). In other words, future designers will have to wrestle with multifaceted problems (wicked problems) that can only be solved through novel and innovative approaches and methods. Technological development and reorganization alone are not enough by themselves, as designers need to adopt new ways of thinking, understand and include socio-economical elements in their work, rebuild their belief systems, and understand the ever-changing nature of values, beliefs, and attitudes in the context of passing time.

The shift and transition of the role of a designer is not a new phenomenon. Tharp and Tharp (2018) point out that the history of design knows many of those so-called status quo crackers, such as Italian Radical Design, Boston Experiment, The School of the Art Institute of Chicago, and Victor Papanek's Design for The Real World. (Tharp & Tharp 2018, p. 44). In the footsteps of these practices and approaches, discursive design, critical design, speculative design, and design fiction have become more widely practiced today. Apple's Knowledge Navigator is an interesting example of a concept that looks forward and combines

innovativeness and speculation. Although the term speculative design did not exist at the time that the concept was created in the 1980s, it can considered to be speculative design according to the definition of the practice today. Since decades have passed since the initial presentation of the concept, the results and their realization can be evaluated. The concept unites technological, economical, societal, and proactive dimensions and speculative design to create a future application. John Sculley (1988) describes in his book *Odyssey: Pepsi to Apple: A Journey of Adventure, Ideas, and the Future* a next-generation imaginative device called the Knowledge Navigator. This device is described as turning vast amounts of external knowledge into internalized and comprehensive knowledge. This knowledge is retrieved from libraries, museums, databases, and public archives. The Knowledge Navigator contains a large, flat screen that can display high-quality full four-color images and has HDTV quality, as well as full pages of text, graphics, and computer animations. It is also equipped with a speech synthesizer and voice recognition, and users can simultaneously view several windows, move through menus, and open galleries and archives. The Knowledge Navigator learns the most useful form to provide information regarding the user's point of view and transforms the data to be the most user-friendly. The shape of the Knowledge Navigator is not essential as pocket microcomputers can be shaped according to customer's wishes, and they can be so small that they can be integrated into other devices and objects (such as clothing or wallpaper). According to Sculley, such an innovative tool can change the way we learn, think, work, communicate, and live. It also can dramatically change the computer industry: from a manufacturer of equipment or software to a mass producer of applied information systems. (Scully, 1988, p. 477-479).

The Knowledge Navigator was presented at the Educom conference in 1987. A video of the Knowledge Navigator was included in John Sculley's keynote speech. (Mui, 2011). In one scene, a university professor enters a room, folds open a tablet-looking device, and turns it on. A visualized and human-voiced 'butler' on the screen informs the professor of three new messages. The professor listens to two of them and then moves forward, and the tablet goes through the professor's schedule. After this, the professor starts to seek

information about Amazonian rainforest deforestation by using his voice as a command. As the professor is seeking information, the butler informs that a colleague is calling. The professor and the colleague start a video conversation. During the video conversation, they share information graphics regarding Amazon, and the professor navigates the table by touching the screen. (Mac History, 2011). It is noteworthy that the video demonstrates abilities and predecessors of future applications, that at the time had not been materialized. Those abilities could later be found in Apple iPad and iOS (such as Siri, Facetime, iCloud, touch displays, embedded cameras, gesture, and voice controls). The video shows intelligent personal assistance, deep voice integration, data analytics, and robust simulation. The video also presents functions that were not materialized by Apple, such as Google Translate, Wolfram Alpha, and IBM's Watson. According to Alan Kay (American computer scientist from Apple), every innovative technology takes about 15 to 20 years to develop from the concept stage to commercial. Based on this, technologies that might be important to the company's future are already at some development stage of their evolving process (from invention to commercialization). (Mui, 2011). Although the Knowledge Navigator was originally a speculative proposal, it offered proactive and innovative views on the development of the field, which some realized later on. The concept, which anticipated possible changes regarding the future, required abstract thinking, foresight, boldness, and the ability to evaluate people's values, beliefs, and behaviour. The creation of the concept also required vision and understanding of the company's future needs and possible development.

John Mauriello, who is an industrial designer and adjunct professor of design at California College of the Arts, provides another interesting view on innovation. In his Design Theory (2022) YouTube channel, in a video called "Why Do Great Companies Make Bad Products? Design Analysis" he notes that some companies have a flawed or unclear vision. Innovation is seen as polarizing and risky. Mauriello states that everything that is genuinely innovative is relatively alien or unfamiliar and that the most innovative work often comes from people who have nothing to lose or no one to impress. As an example, Mauriello brings up Apple, which brought the iPod on the market when it was on the verge of

bankruptcy, and the Mini Cooper which was introduced to the market during the oil crisis. Albeit not all innovation needs a crisis to tackle, there should be a genuine need for it. However, the skills that are required to run a business are different from the ones used in innovation and design. Running a company requires people to set up processes and systems. When companies grow, they are inclined to reduce risks, use multi-level approval systems for decisions, and rely on measurable data. As a company grows bigger it begins to monopolize the market and designing new or better products is not necessary, because people end up buying the company's products anyway. In these cases, the company's interests lie in maximizing profit, either by cutting production costs or presenting the product to a wider audience. From the point of view of maximizing profits, there are challenges associated with new products: there is not enough measurable data available when compared to the sales and marketing of old products. In these situations, innovation can be seen as a risk and a threat. This highlights the value that sales and marketing have for companies. Based on the aforementioned way of operating, it can be stated that some companies have challenges with adapting. (Design Theory, 2022).

The industry of design is changing rapidly, and designers must have cross-disciplinary competence in addition to their core competencies. The role of the designer, in the context of its current and conventional state, should be critically examined for professionals to adapt to the changing environment. Since organizations place value on sales and marketing, designers must be able to justify and create alternative ways of working and make them visible and measurable. As already mentioned, Apple's Alan Kay states that the changes of the future are already in our environment. Designers must be able to recognize these changes to use them to develop ideas further and prepare for change.

As a conclusion and as an addition to the organizational side of innovation, Tharp and Tharp (2018) present that public consciousness of important human issues can be raised and used in policy-making, cooperative activism, counselling and to improve the user research outcomes of conventional design practice. Designers are also able to broaden their professional credibility and value. (Tharp & Tharp, 2018, p. 7-8) This approach adds an intellectual dimension to design

methods. When designers understand the requirements of their operating environment and the changes concerning it, they can become more well-equipped for the demands and challenges of their role. By taking into consideration the human perspective and the systems in control, designers can tackle challenges related to the human perspective. These competencies strengthen the position and adaptability of a designer.

## 1.2 OBJECTIVES OF THE RESEARCH

As Muratovski (2022) has noted, designers are usually processing open-ended problems in complex environments. Creativity is an intuitive process but oppositely, critical thinking is based on conscious reasoning that can be verified and recognized. However, when creativity and critical thinking are combined, it can result in a more advantaged innovative process which can be interpreted as a more research-based approach. (Muratovski, 2022, p. 38-39). In addition to solving challenges, a designer should understand people's needs and develop problem-solving skills. The cross-disciplinary model enables extensive ways to address the research question but also enables the exchange of methods and conceptual frameworks on multi-, inter-, and transdisciplinary approaches. (Muratovski, 2022, p. 19).

This study is a critical review of conventional design that aims to explore the designer's professional role and dimension considering the challenges and opportunities in the future through cross-disciplinary theories, frameworks, and concepts. Although traditional designers are believed to be in demand in the future, it is concluded that the conventional role of the designer will shift more in the direction of a professional thinker. However, as the object of the study is in the future, it is purposeful not to define 'design' or 'designer' as something specific at the beginning as it could significantly affect the outcome of the study. The role and dimension will be structured according to the future reference on the theoretical framework. This study is based on the hypothesis that a majority of designers today work too process-based, meaning that different complex problems will be placed in the same similar framework as always before. Secondly, according to Tharp and Tharp (2018), the state of design is generally

reactive: the designer or client detects a problem, either functional or aesthetic, and then the designer solves the problem. If there is not a problem, there is no need for design. (Tharp & Tharp, 2018, p. 36-37). In this sense, this study goes beyond the problem-solving mentality.

Therefore, this study is structured on five research questions: the main research question which is supported by four secondary research questions to provide insight.

The main research question is: How are the designer's role and professional dimensions determined amid anticipated structural change?

1. How can discursive and speculative approaches be used to broaden perspective?
2. How to expand and strengthen the cross-disciplinary approach?
3. How to stay alert and expect changes in the professional field?
4. How to practice critical thinking in design?

The objectives of the research have been determined based on the saturation of the study. According to Muratovski (2022), saturation is repetitive patterns of information, familiar arguments, methodologies, and findings. (Muratovski, 2022, p. 57). The theoretical perspectives support the research objectives, and similarly, the objectives have defined the selected theoretical perspectives. Theories and objectives are based on their competence to produce new information for the study while avoiding repetition. This study approaches these objectives through the practices of discursive design (such as critical design, speculative design, and design fiction) and critical thinking, strategic foresight, and systemic design framework approach. The systemic design framework approach can be seen as an updated version of the industry-established double diamond process model. These practices are analysed through theoretical (philosophical) analysis, followed by a theoretical synthesis, which results in a theoretical framework.

## 1.3 METHODOLOGY

This study is based on theoretical research. According to Muratovski (2022), theoretical reviews are based on particular theories or reasoning which provide analysis of how various theories are being examined and framed around particular issues. An issue with a broad range of theoretical perspectives usually offers a comprehensive environment for theoretical research, but the researcher can use it as well to criticize certain types of theoretical constructions. (Muratovski, 2022, p. 57). Therefore, this research aims to examine systematically the connecting factors between the disciplines, but on the other hand also to critically examine the prevailing consensus in the field of conventional design.

Theoretical research has an indirect connection to empiricism (physical reality) or praxis (human practice). It has a conventional status as meta-level research; it is research about research, argumentation, counterargumentation, alternative argumentation, seeking connections and contradictions, comparisons, derivation, deduction in many senses, developing ideas, thought experiments, and especially realizing and highlighting problems that can be empirically investigated with the tools of special sciences. (Salonen & Sotasaari, 2015, p. 12).

Theoretical research consists of numerous procedures, but they can be broadly divided into three main types: the research of theories, methods, and empirical materials. (Malmberg, 2014, p. 62). The research approach for this study is the research of theories. According to Uusitalo (1991) Although the subjects of theoretical research are issues related to the concepts, perspectives, or theories of the discipline, the borderline between empirical and theoretical research can be indistinct. Every empirical study has theoretical components and in many theoretical studies, the components are at least secondarily empirical, as it consists of theoretical conclusions that have been previously made in the target phenomenon. (Uusitalo, 1991, p. 60). This applies to the scope of this study as well. As Malmberg (2014) has noted, a theoretical researcher can therefore be defined to work in two ways: either as two different roles of the same researcher or as their own type of researcher. (Malmberg, 2014, p. 62).

Concept analytical research focuses on the central concepts of the discipline. In theoretical modelling, the research object is decomposed into a mathematical form. In the modification of the theory, new empirical observations are made about the research object. It is also possible to develop a new theory that is more comprehensive, more informative, or better corresponds to the facts than previous theories. In addition, the type of theoretical research can be a theoretical overview of the research topic. In theoretical research, it is also possible to examine the semi-productions of key theorists in the field of science or to compare them with each other. (Uusitalo, 1991, p. 60). In this study, the latter is implemented.

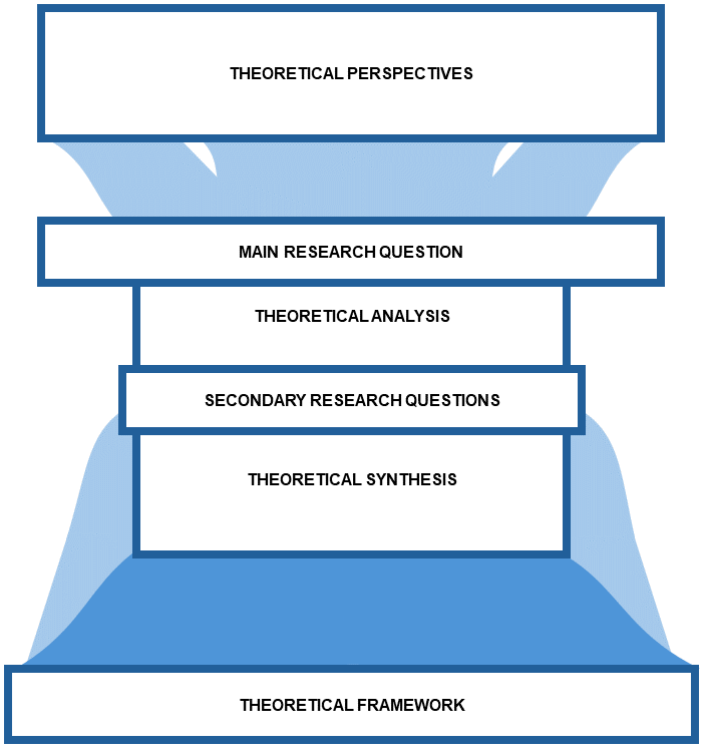
Furthermore, theoretical research can be divided into analysis and synthesis methods. This study uses them both. Analysis is first made of the examined subjects, from which a synthesis is then conducted. According to Uusitalo (1991), analysis aims to break down the subject matter into a more manageable form. Synthesis in turn attempts to reform the entire perspective by combining previously separate and incompatible theories or empirical observations. (Uusitalo, 1991, p. 60-61). Synthesis can therefore be considered the opposite of analysis. Its significance is that synthetic thinking creates an overall picture of the results and state of the discipline. (Uusitalo, 1991, p. 23).

Tuomi and Sarajärvi (2009) state that there is no actual method for theoretical analysis in the same way as for empirical analysis. However, they present the body of the analysis based on Haaparanta's view on theoretical (philosophic) analysis. 1) problematization; the problem is raised, 2) explicate; to make clear, specify, and formulate unclear multi-minded or implicitly adopted views, and 3) argumentation; the validity of the insights obtained in the explication is evaluated. In theoretical research, observations are often written in a distributed manner, therefore the analysis is not limited to the analysis chapter itself but forms a whole with the rest of the text. The research literature does not give an unequivocal answer to how the researcher brings out the process. Thus, it is important to note that it is a problem-solving situation to some degree. According to several authorities, the report does not necessarily show all the interactions conducted by the researcher in the theoretical analysis. As a result, data collection methods

are rarely even discussed, and the review of observation material is usually written in the report and the argumentation. Therefore, the credibility and validity of the theoretical research consist of how the argumentation is carried out and how the sources and literature are used. (Tuomi & Sarajärvi, 2009, p. 21). Research subjects in this study are reviewed based on saturation. Muratovski (2022) defines saturation as repetitive patterns of information, consisting of familiar arguments, methodologies, and findings. (Muratovski, 2022, p. 57). Theoretical synthesis as a term and a concept can be considered to be well-established in science. Synthesis can be generally defined through identifying relevant concepts, which are then rendered into a new whole. In support, the Cambridge Dictionary (n.d.) describes it as follows: *synthesis: the act of combining different ideas or things to make a whole that is new and different from the items considered separately*. (Cambridge Dictionary, n.d.). In this study, the result of the synthesis is a theoretical framework.

Research triangulation is considered in this study on the basis that this study can establish later broader empirical research.

**Figure 1**
*The Research Framework*




*Note. Design by Anton Wikstedt, 2024.*

## 1.4 ETHICAL CONSIDERATIONS

Power and status have an impact on research. The power relations between different individuals or disciplines are not equal either through funding or status. Strong attitudes can create discipline boundaries rather than rationale and who has the role of the decision-maker is often a key part of the power structure. (Muratovski, 2022, p. 22). This study is based on key theorists and specific parts of their production. Theoretical perspectives are selected based on saturation. There are no other participants in this study besides the author. Although this is a theoretical study, it should be noted that all the theories include empirical components.

Critical design, speculative design, and design fiction are relatively marginal and new practices. Related source material generally originates from a few authors and institutions; Dunne, Raby, Malpass, and the Royal College of Art in London. Few authors can underline the concern of elitism, related to information from a small circle, and source criticism. The concepts of the aforementioned authors leave space for interpretation. Tharp and Tharp (2018) note that freedom comes with responsibility. A designer working on discursive content should have an adequate understanding of the discourse they convey in a means of ethical responsibility, efficacy, and credibility. (Tharp & Tharp, 2018, p. 26). While this research isn't a discursive project, the aforementioned responsibilities are considered as discursive standpoints are applied.

## 1.5 LIMITATIONS OF THE STUDY

This study does not provide a concrete answer on how to implement the core skills of a future designer, rather it provides a framework for abilities on which the responsible future role of a designer can be built. Designers and the industry (field of design) are not specifically defined at the beginning of this research. These definitions are formed as part of the analysis and synthesis. The reason why these concepts are not defined is to prevent the possible specific definitions from affecting the processing of the theoretical material and the outcome of the research.

Theoretical problems usually require a long study and can therefore be challenging for a beginning researcher. An exception can be made to this by strictly limiting the topic to a study targeting some part of the production of key theorists in the discipline or works comparing their theories. (Uusitalo, 1991, p. 61). Uusitalo's theory applies to this study too, as the source material targets some key theorists of the discipline and parts of the production of those key theorists.

When considering the theories from the standpoint of traditional design, it should be noted that the default in speculative design is that the designer accepts the fictional nature of the design speculation in separation from naturalism and futurism. (Dunne & Raby, 2013, p. 134) Also, large-scale speculative thinking is different from design thinking. Design thinking focuses on problem-solving which is also the case in social design although it takes more complex human problems into account and does not implement commercial agenda at full potential. (Tharp & Tharp, 2018, p. 160). Similarly, foresight shares an abstract nature. (Koskelo, 2021, p. 50-54). Methods and practices mentioned in this study, that relate to the disciplines of discursive design, while aiming for similar processes and conclusions as established forms of research, are not established methods of research themselves. This study discusses the possibility of the application of the methods of the disciplines of discursive design in research but acknowledges that the status of these methods related to academic research is not generally acknowledged. Critical design shares key characteristics with speculative design. Malpass (2017) states that in design research critical practice is not seen as a serious form of design. (Malpass, 2017, p. 9).

According to Muratovski (2022), universities traditionally teach by discipline-specific curricula and are lacking cross-disciplinary approaches. (Muratovski, 2022, p. 15). This notion applies to my educational history as well. I have studied in several different programs related to conservation-restoration, fashion design, and later service design. Although my background may seem versatile, the programs individually have been subject-oriented. During my master's degree, I was able to shift towards a more cross-disciplinary approach. In addition to this, I have worked as a core team member in a foresight organization and taught

foresight, discursive design, speculative design, and design fiction as a teacher in higher education. My interdisciplinary background has had a great influence on the way I research since I have equally learned reasoning, analyticity, and creativity. Today, I see myself above all as a systemic and strategic designer.

## 2. CONTEXT

Muratovski offers a comprehensive overview of the current state of design and the future development of the discipline. Muratovski (2022) states that the field of design has shifted towards large social processes, including the study of human action in social situations. People-centric solutions emphasize that design is a service for humanity, including listening, asking, understanding, and creating new possibilities and alternative realities. (Muratovski, 2022, p. 43). Businesses and society are dealing with a growing number of complex problems. Designers can respond to these questions by growing their cross-disciplinary knowledge and designers today are expected to work in situations where they were not considered to be a part of the past. (Muratovski, 2022, p. 34).

Design reflects the societal changes occurring in it. For designers, it means acting and collaborating with other fields to not be marginalized or dropped behind. When designer places themselves outside of their comfort zone, they generate possibilities to change the traditional design outputs within artistic developments to outcomes meaningful to society, the environment, and the economy. (Muratovski, 2022, p. 36). The requirement for being a successful designer is to understand socio-technical and socio-economic systems. In the future technical development will change the field and may require the designer to change their role from producer and creator to curator. Designers who have well-developed critical thinking skills, are highly analytical and have high competence in framing complex problems are about to be a valuable resource. (Muratovski, 2022, p. 12-13).

As automation proceeds in many fields, the ability to move from one job to another and embrace the new environments becomes a competitive advantage for individuals. The demand for soft skills is increasing in all fields and it includes

critical inquiry, social perceptiveness, active listening, and complex problem-solving. (Muratovski, 2022, p. 14).

The World Economic Forum has predicted 8 characteristics in the future of learning content and experiences regarding to the 4th industrial revolution. Education 4.0 report consists of:

- Global citizenship skills
- Innovation and creativity skills
- Technology skills
- Interpersonal skills
- Personalized and self-paced learning
- Assessable and inclusive learning
- Problem-based and collaborative learning
- Lifelong and student-driven learning

(Muratovski, 2015, p. 14-15).

Designers with technical skills will continue to be in demand in the industry, however, society needs a new generation of designers who can design products and communication but also living systems. For many designers, this means a shift from an artistic service provider to a strategic designer or professional thinker with the capability to work across disciplines. (Muratovski, 2022, p. 19).

The importance of design has begun to be emphasized by businesses, policymakers, and academics, where design is seen as a tool for innovation, productivity, and economic growth. As a result, design skills can be seen as present in new technologies, new industries, and new services as well as a resource of supply of differently qualified people with the ability to promote innovation. (Muratovski, 2022, p. 34).

Furthermore, speaking of conventional design, Tharp and Tharp (2018) have listed eight characters that also involve contradictory challenges. The characteristics are functionalism, formalism, commercialism, individualism, rationalism, positivism, realism, and ethnocentrism. (Tharp & Tharp p. 33-38).

Functionality becomes problematic when considering who is the object of the design, who it will serve and in what time, how much resources are consumed, and what the consequences of consuming those resources are. The challenges related to formalism are that the product's stylistic expression suppresses the product's other characteristics. A product that can be exploited commercially is valuable in commercialism and as a result, design with no-commercial value is not considered valuable, and therefore non-commercial or para-commercial design is not seen as potential and is not exploited. When speaking of individualism, it is common to consider an individual user as a basic unit for which the designer designs in user-centered design. However, this approach usually does not take social contexts and complexity into account enough. Social interaction is either downplayed or not considered at all. From the perspective of rationalism, design is understood as a problem-solving activity, based on logic. Calculated, utility-maximizing, and individualistic design is seen as the most useful. The designer starts their work when the customer reports a problem or when the designer has found one by themself. If there is no problem to be found, there is no need for design. This directs design toward a reactive state and closes the possibilities related to fantasy and imagination. Positivism affects design as well. The validity, reliability, and generalizability of claims obtained in user research should be viewed more sceptically. These findings remain useful in practice but should be considered either as inspirational insights or educated guesses, rather than researched facts. According to realism, products sold to consumers are often required to be real and practical, which may limit the speculation and freedom used by the designer in the design process. Finally, from the viewpoint of ethnocentrism, design serves people who can afford to pay for it, and it ignores non-capitalist, non-commodity-driven cultures that are seen as undeveloped and thus useless or either unimportant, a source of raw material, cheap labour, or objects for waste disposal. (Tharp & Tharp p. 33-38).

It is noteworthy that Tharp and Tharp emphasize that functionalism, formalism, commercialism, individualism, rationalism, positivism, realism, and ethnocentrism are important and vital for the designer's vision and implementation. The

challenges appear when they are interpreted deterministically and exclude other potentials. (Tharp & Tharp p. 39).

As a conclusion, the field of design will be encountering both external and internal challenges and opportunities in the future. Designers must therefore find new ways to examine their activities critically and strive to expand their expertise to perceive their professional competence.

## 3. THEORETICAL PERSPECTIVES

In this section, speculative design and design fiction are defined as subgenres under the discursive design umbrella. In this study, critical design is separated as a parallel discursive practice. Critical design has a significant position, based on shared characteristics with speculative design and design fiction, and its position as a practice from which speculative design and design fiction emerged.

As a consideration, Tharp and Tharp have defined discursive design the most comprehensively. Dunne created the practice of critical design and its counterpart affirmative design, speculative design in cooperation with Raby. From the basis of these practices, the practice of design fiction emerged. Malpass has continued to develop the practice of critical design.

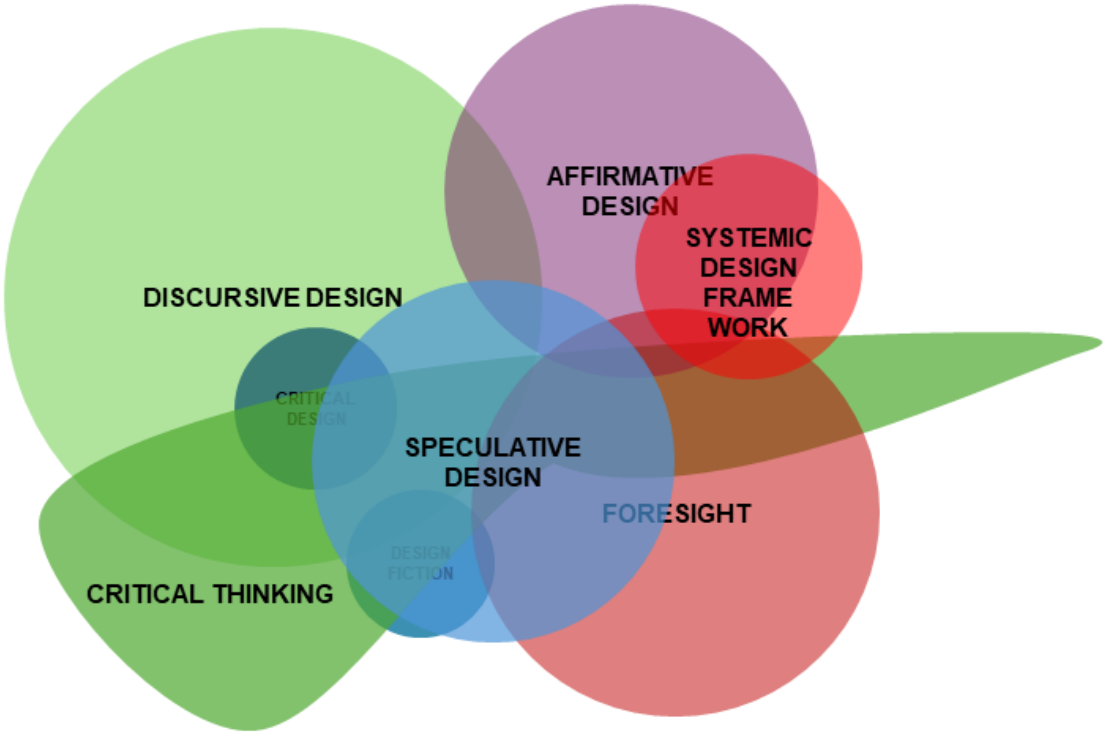
Speculative design and design fiction lean heavily on the future and scenarios, as does Foresight. Hines' and Bishop's strategic foresight process and guidelines lead to a more systemic and strategic approach. Koskelo's views on future thinking and business thinking supplement this approach.

All the practices and approaches mentioned in this chapter require critical thinking and detachment from familiar and conventional thinking, which is why critical thinking has been selected as a theoretical perspective. Critical thinking has a central role in learning and scientific research. Critical thinking is approached through Haber's views, which define critical thinking to be something that can be taught, practiced, and evaluated.

The systemic design framework presented by Design Council 2021, represents conventional design perspectives. The framework takes into account a more

versatile, more systemic approach compared established double-diamond model.

**Figure 2**
*The Taxonomy of Theoretical Perspectives*




*Note. The interrelations of theoretical perspectives. The size of the objects does not indicate the significance of the theory. Design by Anton Wikstedt, 2024.*

## 3.1 AFFIRMATIVE DESIGN

Affirmative design means useful, usable, and desirable products within the framework of consumerism and capitalism. Affirmative design is currently the status quo in the field. (Tharp & Tharp, 2018, p. 90). Affirmative design complies with cultural, social, technical, and economical prospects. Most of design is interpreted to be affirmative. (Malpass, 2017, p. 46).

Dunne and Raby (2013) present the following division between affirmative design and critical design practices:

| A | B |
|---|---|
| Affirmative | Critical |
| Problem-solving | Problem finding |
| Provides answer | Asks questions |
| Design for production | Design for debate |

| | |
|---|---|
| Design as solution | Design as medium |
| In the service of industry | In the service of society |
| Fictional functions | Functional fictions |
| For how the world is | For how the world could be |
| Change the world to suit us | Change us to suit the world |
| Science fiction | Social fiction |
| Futures | Parallel worlds |
| The “real” real | The “unreal” real |
| Narratives of production | Narratives of consumption |
| Applications | Implications |
| Fun | Humor |
| Innovation | Provocation |
| Concept design | Conceptual design |
| Consumer | Citizen |
| Makes us buy | Makes us think |
| Ergonomics | Rhetoric |
| User-friendliness | Ethics |
| Process | Authorship |

(Dunne & Raby, 2013, p. vii).

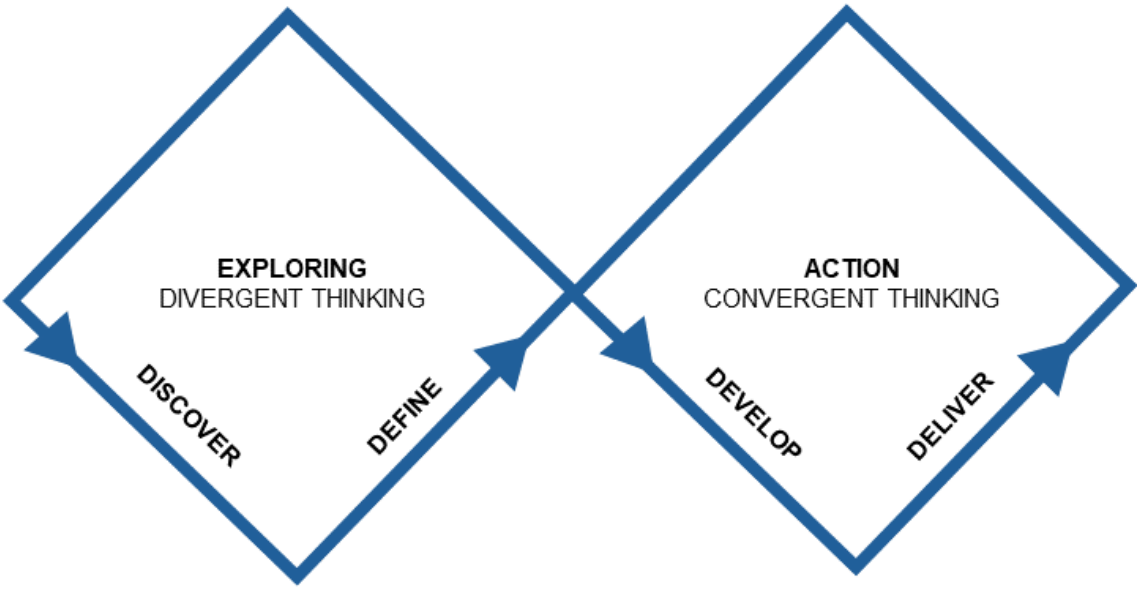
For example, Malpass (2017) specifies that conventional design is a dominating perception in industrial design. It consists of generally shared values, norms, and expectations of how product design is expected to work. Markets encourage designers to participate in economic systems that are arguably beyond the ability of individuals to confront. (Malpass, 2017, p. 8).

### 3.2 SYSTEMIC DESIGN FRAMEWORK

The systemic design framework is based on the double diamond design process, and it can be seen as an updated version of it. To understand the systemic design framework, knowledge about the double diamond process is essential.

Double diamond was created by Design Council and is widely used in the field of design and innovation. (Design Council, n.d.). There are many adaptations of the double diamond, but initially Design Council divided the design process into four stages: discover, define, develop, and deliver. The prevalent notion is that design process has an iterative nature. (Design Council, n.d.).

**Figure 3**
*Conceptual Model of Double Diamond Process*




*Note. Adapted from Design Council. (n.d.). The Double Diamond, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

In the first phase, **discover**, the aim is to unravel what the problem is. This is done by interaction with people affected by the problem. Typical methods are for instance observation, user diaries, putting yourself into the users' position, brainstorming, sampling, qualitative surveys, secondary research, and hopes and fears. (Design Council, 2015a).

The following **define** phase deals with the insights gathered from the discovery phase. This stage is for defining the challenge in a different way. Usually carried out with the following methods: focus groups, assessment criteria, comparing notes, drivers and hurdlers, and customer journey mapping. (Design Council, 2015b).

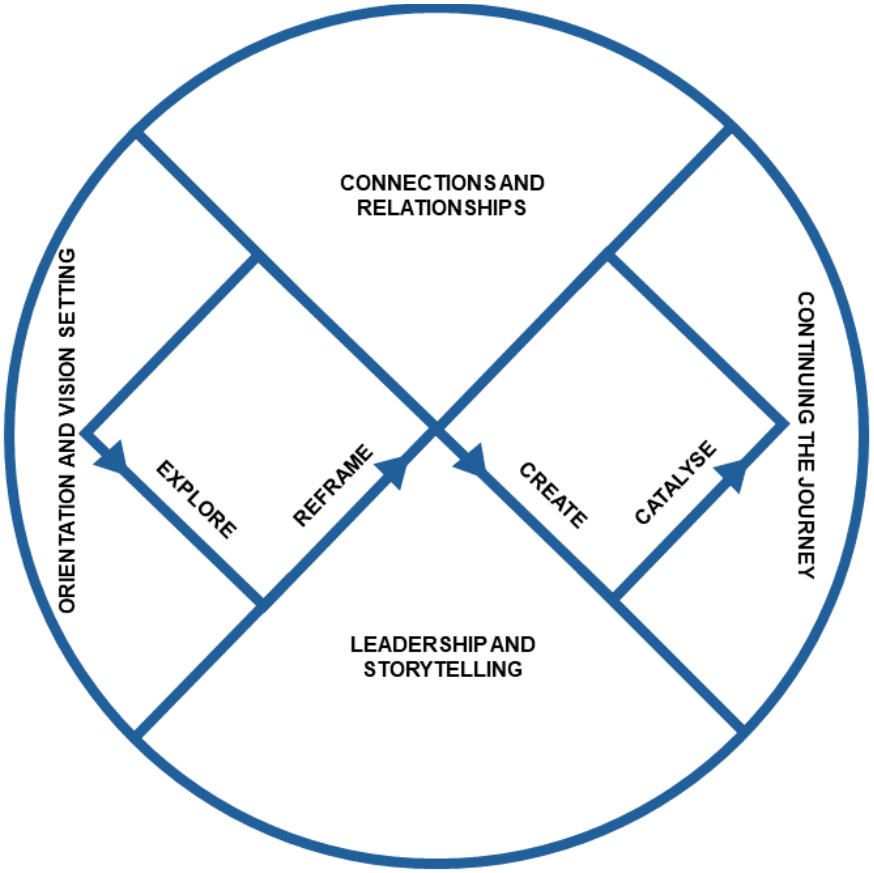
The latter **develop** phase is about getting new perspectives on a well-defined problem. During this stage, inspiration is sought broadly, and the co-design method is widely used. This stage can include character profiles, scenarios,

roleplaying, service blueprints, and physical prototyping. (Design Council, 2015c).

At the end stands the **deliver** phase, where the solutions are tested and either accepted or rejected. The deliver stage can include phasing, final testing, evaluation, feedback loops, and methods banks. (Design Council, 2015d).

The systemic design framework is much broader in scope compared to the double diamond, and the purpose of the framework is to help designers work more systematically and sustainably. It encourages the sharing of knowledge and emphasizes ethics and values. Systemic design framework activities are guided by six principles that are people and planet centred, inclusive and welcoming difference, zooming in and out, collaborating and connecting, testing, and growing, and circular and regenerative. These principles are to help adapt or develop new design methods and tools. (Design Council, 2021, p. 42-43).

**Figure 4**
*Conceptual Model of Systemic Design Framework*




*Note. Adapted from Design Council. (2021). Systemic Design Framework, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

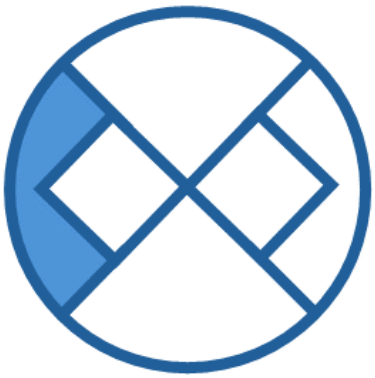
The people and planet centred principle is about sharing the benefits of all living things. Inclusive and welcoming difference means spaces created for people where they feel safe, where they can have a shared language, and multiple and marginalized viewpoints are heard. Zooming in and out happens when things are viewed at the micro and macro levels, from the root cause to great visions, from now to the future, and from a personal level to large systems. Collaborating and connecting is about understanding the project as part of a big movement. In testing and growing ideas are reviewed by the functionality of the idea and the possibility of new and developed ideas emerging. Circular and regenerative focuses on physical and social resources that can be reused. (Design Council, 2021, p. 43).

In addition to these principles, the systemic design framework suggests four core roles for project participants: system thinker, leader and storyteller, designer and maker, and connector and convener.

System thinker sees things on a large scale, between both micro and macro levels and across different silos. Leader and storyteller can condense the story into what is possible and accurate and can see the work throughout. Designer and maker controls design and innovation with the help of tools, technical skills, and creative skills already at the beginning of the process. Connector and convener creates spaces with good relationships where people with different backgrounds can work together. Connector and convener unites different factors and elements to create a bigger movement. (Design Council, 2021, p. 44).

The systemic design framework consists of four, usually linear, stages that can loop back and forth: explore, reframe, create, and catalyse. Around these the settings that deepen the view are formed: orientation and vision setting, leadership and storytelling, connections and relationships, and continuing the journey. (Design Council, 2021, p. 47-49).

**Figure 5**
*Conceptual Model of Systemic Design Framework, Orientation and Vision Setting*



*Note. Adapted from Design Council. (2021). Systemic Design Framework, Orientation and vision, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

The first setting is **orientation and vision**. Instead of looking for solutions to problems, a clear, hopeful vision and a mission for reaching it is created. Projects are founded on a positive and value-driven place and the goals are shared among partners. When trust is built thoroughly, it is easier to return to questions of value during the process. The activities around orientation and vision include understanding people's personal connection to the work and building a large picture of the system that consists of history, societal values, assumptions, and the system itself where participants are working. A hopeful vision is generated through shared language and terms. Design Council provides United Nation's Sustainable Development Goals as an example. To guide the work, or to reframe the way the work is seen, a set of values and design principles are developed. Experiences that connect people to the nature are created, and nature should be seen in a stakeholder position. Thus, this phase is also about understanding what needs to be valued, measured, and noticed in a means of environment, societal, and cultural aspects to see the change. (Design Council, 2021, p. 48).

**Figure 6**
*Conceptual Model of Systemic Design Framework, Leadership and Storytelling Setting*

*Note. Adapted from Design Council. (2021). Leadership and storytelling, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

In **leadership and storytelling** setting, leaders offer a vision based on their values, which are then implemented at all levels by finding and sharing stories to inspire the system. Anyone can be a leader and it is connected to personal actions and position in an organization. Leadership and storytelling are built around activities such as self-care, self-reflection, and learning during the work, and organizational design is used to spread the given values through the organization. The purpose is linked to the work and the individual ability to influence a goal. The work is done openly, and the

story, approach, skills, and mindsets are shared to achieve different ways of learning and creating. A community is built, and its members are supported (Design Council, 2021, p. 48).

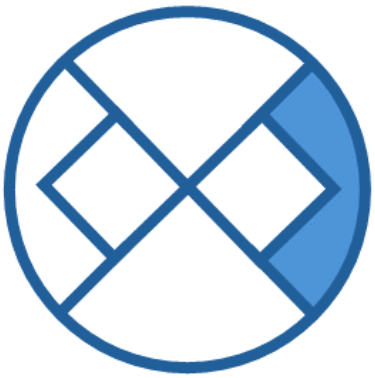
**Figure 7**
*Conceptual Model of Systemic Design Framework, Connection and Relationships Setting*

*Note. Adapted from Design Council. (2021.). Systemic Design Framework, Connection and relationships, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

**Connections and relationships** is a setting for building relationships and empathy throughout the design process. The perspectives of all involved, such as stakeholders, community, and nature are brought to the fore. The purpose is to create trust and mutual understanding, build confidence, and connect between organizations, which all enable working in new ways. Acting as translators and mediators, designers can connect people throughout the project. (Design Council, 2021, p. 49).

This is achieved through spending time with communities, assuring they can use their voice and power during the process, stakeholder mapping (both human and nature), and estimating the value gained through the work. People and natural resources outside of the system in which this process is used should be included too. Places where people have equal power, and a shared language are created. To connect people and nature, new platforms are generated, and new partnerships congregated, where ideas are shared, and trust is built. Skills and networks are shared jointly. Co-design, co-production, and open dialogue are used among other engagement methods. (Design Council, 2021, p. 49).

**Figure 8**
*Conceptual Model of Systemic Design Framework, Continuing the Journey Setting*

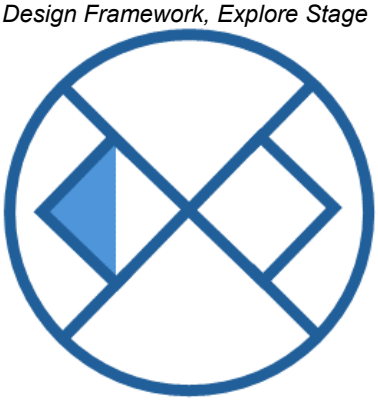


*Note. Adapted from Design Council. (2021). Systemic Design Framework, Continuing the journey, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

The final setting is **continuing the journey**, where the journey is reflected on by how close the outcome

came to the vision: what were the missteps of the process and what was learned during the process. To achieve an understanding of the process the outcome must be open-ended and focused on creating and sharing knowledge that can be used in future work. The activities with which to achieve the continuing the journey-setting are reflecting and learning from made mistakes, observing what impact the outcome of the project has had on different parts of the system, sharing knowledge that was created during the project, and finally strengthening the connections and alliances for use in upcoming projects. (Design Council, 2021, p. 49).

**Figure 9**
*Conceptual Model of Systemic Design Framework, Explore Stage*



*Note. Adapted from Design Council. (2021). Systemic Design Framework, Explore, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

The first stage in design activities is **explore**, which was formerly known as discover in the double diamond process. The root cause of the problem is defined, and already available ideas and resources are considered, through which a hopeful vision of what the future will look like can be built. The designer should reflect on their position and seek deviant or marginal perspectives. This can be achieved by scoping the existing systems and focusing on what assumptions the previous projects are based on. Data should be collected from people who offer different perspectives. Marginal material such as expert opinions and evidence, spatial data, variant life experience, material knowledge and learning from nature, and understanding the effects of power and relationships within the system are all important data. (Design Council, 2021, p. 50).

For example, systems mapping, supply chain analysis, and circular flows can be used to find out the influence relationships between things. This stage should also take into consideration power, relationships, and purpose. Different opportunities are identified through existing resources and materials, mapping new technology, and through such works that have either been forgotten or ignored or ended up with only minor use. In the beginning, a prototype can be created, which can be used to test whether something works or to reveal

something about the system, such as the relationships, power dynamics, or resistance to change. (Design Council, 2021, p. 50).

**Figure 10**
*Conceptual Model of Systemic Design Framework, Reframe Stage*

*Note. Adapted from Design Council. (2021). Systemic Design Framework, Reframe, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

The following stage is **reframe**, formerly known as define in the double diamond. To move to an egalitarian, regenerative world, things, products, places, and services must be created according to value and the collective behaviour of people should be changed. Insight can be synthesised by bringing people together and opportunities can be reframed from different perspectives, for example, through a different purpose or a goal, or sustainable or regenerative values. By setting a new goal or a purpose or by adding new organizations or different relationships the system can be remapped to raise new questions about the possibilities. This stage can be used to identify specific opportunities and challenges by either expanding a specific area in order to show interconnectedness, or by refining the brief in order to focus on a specific area (Design Council, 2021, p. 50).

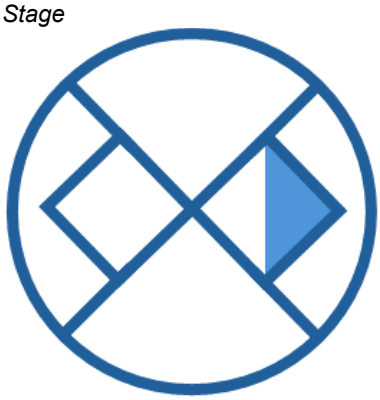
**Figure 11**
*Conceptual Model of Systemic Design Framework, Create Stage*

*Note. Adapted from Design Council. (2021). Systemic Design Framework, Create, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

The **create** stage was formerly known as develop. At this stage, various activities and ideas are created that can be used to reach a larger goal when combined with other interventions. The goal is to think big and generate ideas that are bold and might never come true but will help people think. This can be achieved by creating a portfolio of interventions and idea generation at different layers of the system. These can be specific products, services and places, policies, regulations and standards, narratives, or cultural mindsets. If developing or delivering the ideas is challenging, it is important to find capable people. For instance, by re-using already existing materials and existing intervention, it is possible to utilize circular thinking. Bold, radical, and

provocative ideas are welcome. They do not necessarily lead to concrete results, but with their help, bigger questions can be brought up that can be used in innovation. Specific leverage points, for example, a rule of target or a new wave of thinking (such as net zero or veganism) and disturbing governing mentality are examples of exercises that can be created to prioritize which activities are the most valuable when moving towards a renewing world. (Design Council, 2021, p. 51).

**Figure 12**
*Conceptual Model of Systemic Design Framework, Catalyse Stage*



*Note. Adapted from Design Council. (2021). Systemic Design Framework, Catalyse, CC-BY-4.0, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

The finale stage is **catalyse**, previously deliver in the double diamond. Since systemic thinking can be difficult, concrete action can help to proceed. The idea should be prototyped and mocked up so that people can see how the new vision looks and feels. People can add their thoughts on it so that functionality can be tested, and the idea's relation to other interventions can be observed. At this stage, the prototype is used to test and iterate. Consequences should be tested across the system, supply chains, and stakeholder groups, also considering natural habitats and marginalised groups. To find out the environmental and social impacts either qualitative or quantitative measures are created. By using sustainable business models, the growth of the outcome is ensured without negative consequences. By creating stories and narratives, encouraging others to join, and committing to their similar ideas, it is possible to create a larger movement of change. (Design Council, 2021, p. 51).

### 3.3 CRITICAL THINKING

According to The Foundation of Critical Thinking, critical thinking is:

*That mode of thinking – about any subject, content, or problem – in which the thinker improves the quality of his or her thinking by skilfully analysing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrected thinking. It presupposes assets to rigorous*

*standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism.* (Haber, 2020, p. 103-104).

In addition, Dr. Peter Fracione created a structured decision-making and foresight process, Delphi method, from which originated the now well-known definition of critical thinking, practices, and qualities. It later led to the so-called Delphi report where Critical Thinking was defined as follows: *Purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explaining of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based.* (Haber, 2020, p. 105).

According to researchers and educators, critical thinkers must emphasize the skill of looking into problems from different perspectives. (Haber,2020, p. 2). Critical thinking is effective when it has been first practiced and adapted. It requires the development of habits that encourage to follow the critical thinking pattern. (Haber, 2020, p. 35-36). Haber (2020) addresses that critical thinking contains components such as structured thinking, i.e., logic, language skills, and argumentation but, he supplements them with additional skills and attributes such as creativity and personal dispositioning. (Haber, 2020, p. 37-38).

Haber (2020) states that an organized way of thinking is more important than which method is used. However, he emphasizes the goals to be:

- Clarifying to others that we are thinking or communicating.
- Making our reasons and beliefs transparent.
- Having the ability to determine if reasons for the belief are justified.

(Haber, 2020, p. 38).

Haber (2020) advocates that structured thinking is usually divided into two separate categories: formal logic and informal logic. Structured arguments are at the core of formal logic. Informal logic shares the emphasis on structured arguments but also focuses on the meaning of the words within them to exercise logical principles in ordinary communication. Critical thinking instruction tends to

focus on informal logic. Yet both formal and informal logic commonly share the following terms:

**Argument:** Statements that provide evidence for the support of a conclusion.

**Premise:** a statement of evidence in an argument.

**Conclusion:** The claim in an argument that is asked to validate.

**Inference:** the trajectory of logical reasoning from the premises to the conclusion.

**Logical Form:** Abstract structure of the argument.

**Validity:** The quality of an argument. Premises are viewed as impossible and false.

**Soundless:** The quality of an argument. Premises viewed as true and valid. (Haber, 2020, p. 38-40).

Another primary distinction is between deductive and inductive reasoning. A deductive argument concludes that conclusions are true if the premises are true. Inductive argument on the other hand supports the idea that if the premises are true, the conclusion is most likely true. Inductive argument can be evaluated through its continuum of strength and weakness, for example, based on the probability of the argument being true, acceptability, relevance, and sufficiency of the argument's premises. Inductive reasoning is manifested particularly in everyday life. (Haber, 2020, p. 40-41).

Language skills include the ability to translate normal human language into premises and conclusions creating a structured argument, and those statements can be used as the basis for logical analysis. (Haber, 2020, p. 68).

Argumentation can be described as statements that include evidence as a form of premises. Premises and conclusions are connected by conclusion and logical inferences. A wider way to define argumentation is through encompassing ideas, thoughts, feelings, and suppositions, joining them together in logical and quasi-logical sequences supported by evidence. (Haber, 2020, p. 80).

Of the other skills mentioned by Haber (2020), creativity represents the high thinking skill. What scientists are looking among facts and observations, are patterns. To discover new patterns and observations one might have to be able to evaluate them artistically. Therefore, creativity in critical thinking can provide

new material for structured reasoning. Similarly, design-based processes use design thinking's experiment-based, iterative approaches to knowledge formation, discovery, and making. (Haber, 2020, p. 89-91).

The Foundation of Critical Thinking has developed a framework for traits describing a critical thinker, which can be used as a base when dispositioning yourself:

**Intellectual humility:** recognition of the limits of your knowledge, as well as of potential flaws in your own reasoning.

**Intellectual courage:** The ability to argue for your own belief confidently and not passively accept what you are being told is true, even in the face of social pressure.

**Intellectual empathy:** A willingness to put yourself into the mind of others to better understand their positions.

**Intellectual autonomy:** Thinking for yourself, while maintaining control over your own reasoning.

**Intellectual integrity**: The ability to think and argue honestly, holding yourself and others to the same rigorous intellectual standard, as well as a willingness to admit when you are wrong.

**Intellectual perseverance:** Readiness to put in the hard intellectual labour needed to overcome obstacles to answer questions or argue one's positions.

**Confidence in reason:** Belief that, over time, everyone is best served by adherence to reason as the best means to gain knowledge and find solutions to problems.

**Fairmindness:** Putting in the good-faith effort to treat all viewpoints fairly, regardless of one's own beliefs, emotional reaction to issues being discussed, or community norms (such as peer pressure to agree with a single point of view). (Haber, 2020, p. 92-94).

Another key component attached to critical thinking is metacognition, the awareness, and understanding of the person's own thought processes, which appear as reflection in personal thinking. (Haber, 2020, p. 97).

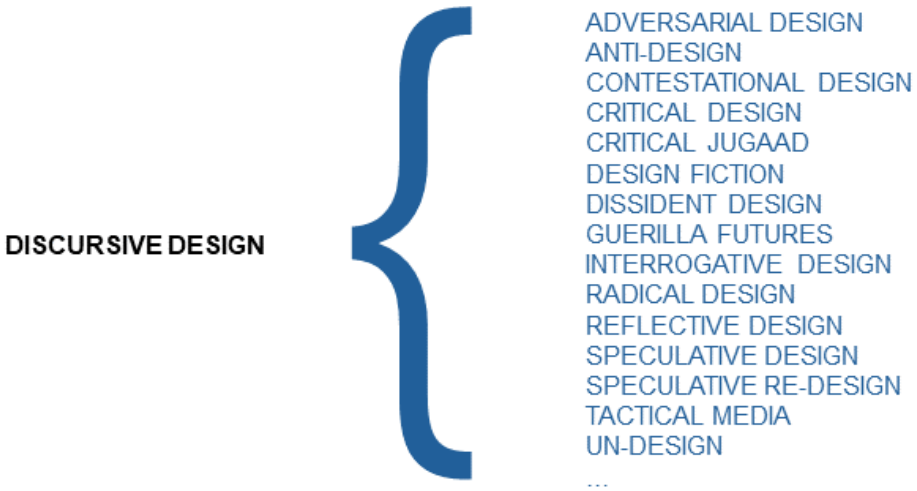
According to Haber (2020), critical thinking is proposed to be an important skill by most teachers, academic administrators, and policymakers. Employees with high-quality reasoning skills are in demand by employers. (Haber, 2020, p. 169-170). However, more than three-quarters of employers feel that hired employees lack the ability to think critically, although teachers and professors state that it is being prioritized. The need for critical thinking is generally accepted, and most of the discussion between educators, employers, and political decision-makers is related to the concerns of how the ability of critical thinking can be increased. (Haber, 2020, p. 101-102).

Critical thinking can offer solutions to encountered problems, such as environmental and or economic catastrophes, which are either caused or worsened by irrational ways of thinking. (Haber, 2020. p. 99-100).

### 3.4 DISCURSIVE DESIGN

Discursive design is an umbrella term that covers design practices carrying similar goals of intellectual impact, purposefully provoked reflection, and communicative nature. Practices such as speculative design, critical design, design fiction, adversarial design, interrogative design, anti-design, radical design, and reflective design line up under the discursive agenda. (Tharp & Tharp, 2018, p. 5-7).

**Figure 13**
*Conceptual Model of "Genus" and "Species"*




*Note. Taxonomy of Discursive Design, Adapted from Tharp & Tharp. (2018.). Discursive Design: Critical, Speculative, and Alternative Things, "Genus" and "Species", Copyright 2018, The figure has been adapted by Anton Wikstedt to include changes in graphics, 2024.*

Typically employing material characteristics, traditions, and features for immaterial purposes. Individual behaviour, public debate, professional practice, institutional policies, and new knowledge can be influenced by creating ideas resulting in socio-cultural change. (Tharp & Tharp, 2018, p. 5-7). The definition means conveying discourse, but it does not describe content, tone, audience of impact, or voice. (Tharp & Tharp, 2018, p. 69).

Discursive design is applied in academics, companies, and other research environments to generate insights for application. It is also used to produce new information and general principles in basic research as part of individual and social life (Tharp & Tharp, 2018, p. 25). It can be also used in companies in product development processes and branding, and as a way to convey discourse (Tharp & Tharp, 2018, p. 95).

Tharp and Tharp (2018) created the four-field framework that consists of four agendas: commercial-, responsible-, experimental-, and discursive agenda. The framework guides how to apply discursive design.

**Commercial** agenda is market and profit-driven. It consists of products that are useful, usable, and desirable enough to make a profit, despite communicating intellectual ideas, yet failing to convey some of the usability, comfort, and positive emotional experience.

**Responsible** agenda can be considered to be a humanitarian approach and socially responsible. The purpose is to provide services to those who are ignored or underserved by the market or other sociocultural structures. They can be commercially available, but ethics, compassion, altruism, and philanthropy determine the objects' existence.

**Experimental** agenda is for exploration, experimentation, and discovery. Therefore, learning during the process can be the main goal. Experimental agenda enables the testing of technology, manufacturing technique, material, concepts, context, or aesthetic issues. It can be applied in design research or used to test a hypothesis.

**Discursive** agenda is focused on reflection. Artifacts exist for thinking, conveying ideas, raising awareness and understanding, or debating. Commonly having

psychological, sociological, and ideological interpretations. Usually displayed in exhibitions, print, web, film, and research. (Tharp & Tharp, 2018, p. 43-51).

Commercial design works with the problem-solving mentality. It is capable of finding problems, but they are often interpreted through the prevailing state in the field – through a framework in which the commercial design can solve them. Alternatively, discursive design positions itself either as the problem finder or the problem communication. Thus, it has better conditions to deal with wicked problems than commercial design. (Tharp & Tharp, 2018, p. 78-79). Designers within the conventional design's scope usually focus on designing and creating practical solutions and results. The utilitarian nature of how to imagine and employ product design can be limiting. However, anthropologists, sociologists, psychologists, and other researchers base their work on analyses and synthesizing of what they observe and record. Consequently, designers' professional dimensions and the given value to others can be expanded when the goal is to provoke people to think about complex and controversial issues. Repositioning professional awareness and general awareness of humanly important issues can be used to explore, then use, for example, in decision-making, community activities, activism, counselling, practical applications, and in forms of user research to improve the results of traditional design. Succinctly, an understanding can be created through design objects, professional awareness, and change in positioning to achieve individual and societal benefit. (Tharp & Tharp, 2018, p. 6-10). As a result, the designer can take a broader professional role as an engaged citizen, sociocultural critic, activist researcher, educator, and provocateur. (Tharp & Tharp, 2018, p. 19).

Tharp and Tharp (2018) have defined the theory and practice based on which discourse is conveyed. The definitions are based on communication theories. The theoretical lens consists of rhetorical tradition, semiotics, sociocultural tradition, and critical tradition. (Tharp & Tharp, 2018, p. 103-108)

**Rhetorical tradition:** Although discursive design can communicate through usefulness, usability, and desirability, it seeks reflection, and the user is influenced by psychological, sociological, and ideological concerns. The

designer's goal is to get the viewer involved to play along, believe, and suspend their misbeliefs and convince them that the issue has enough significance for reflection.

**Semiotic Tradition:** Known as the study of signs. Historically semiotics has been built around language, but symbolic qualities of form and material are possibly closer to product design. Discursive design communicates through a higher order of topical messaging, referring to the nature of dealing with more complex problems than artifacts' psychical attributes.

**Sociocultural Tradition:** called “a symbolic process that produces and reproduces shared sociocultural patterns”. The sociocultural position considers cultural conditions and rationale supporting an object. Viewing objects through this lens, objects are assumed to be legitimised and are then considered through the socio-cultural values and ways of thinking that support them.

**Critical Tradition:** Originates from Marxism’s distinctive intellectual and practical goal: “*Philosophers have hitherto only interpreted the world in various ways; the point is to change it*”. Theorists of the Frankfurt School decided to raise awareness about action against the ideologically repressive social structures and forces. Authentic communication that is free of hegemonic suppression only occurs in discursive reflection and in a process where the reflection itself, instead of achieving a goal, is liberating. (Tharp & Tharp, 2018, p. 103-107).

The aim is to gain audiences’ reflection. (Tharp & Tharp, 2018, p. 53). Discursive framing can intentionally distort, emphasize, suggest, speculate, incite, or criticize. It can magnify, reflect, and reveal culture to its audience. The ability to shift requires a new positioning of the role of the audience as well, towards an investigative and anthropological approach. Instead of usefulness and relevance, discursive objects should be understood according to the message they are conveying. (Tharp & Tharp, 2018, p. 13). Discursive objects affect their audience in intellectual pursuits by reminding, informing, provoking, inspiring, and persuading. Therefore, the designer must have a sufficient understanding of their discourse - thought or knowledge system, in terms of ethical responsibility, effectiveness, and credibility. (Tharp & Tharp, 2018, p. 26). The discussion is promoted with socio-culturally relevant arguments, counterarguments, and

questions that are attached to the objects. This leads to the act of transmission. (Tharp & Tharp, 2018, p. 76).

The audience is coping with discursive objects usually through six different stages that are encounter, inspect, recognize, decipher, interpret, reflection.

**Encounter:** The nature and the quality of the encounter can influence the expression and interpretation of the message: was the encounter a surprise, was it a coincidence, or was it somehow primed beforehand?
**Inspect:** How to encourage the viewer to continue exploring the object. It is possible to establish, for example, through empathic direction, lengthy time allotted for consideration, social pressure, motivation-specific cues or suggestions, tangible rewards, and punishments.
**Recognize:** The object's discursive agenda needs to be recognized. Sociocultural understanding emphasizes this recognition, but viewers can be engaged through misrecognition as well.
**Decipher:** Understanding the language and that a message exists. After the discursive agenda has been recognized the viewer is apt to decipher it by reformatting the semantics into an understandable form.
**Interpret:** Understanding the conveyed message.
**Reflection:** A motivated audience will profoundly think about the discursive agenda. Reflection can be perpetrated either through critical assessment or through more personal reflection; how is the message placed in relation to the viewer's life. (Tharp & Tharp, 2018, p. 114-119).

Discursive design communicates commonly through artifacts. As noted, all objects can work discursively but only discursive object is created specifically as such. (Tharp & Tharp, 2018, p. 76-77). Tharp and Tharp (2018) are emphasizing that all artifacts contain symbols that enable the construction and transmission of meaning. (Tharp & Tharp, 2018, p. 8).

The operational domains of discursive design are social engagement, practical application, applied research, and basic research of which the latter two are research-based. (Tharp & Tharp p.122).

## 3.5 CRITICAL DESIGN

Malpass (2017) introduces critical design as an umbrella for design approaches that seek solutions that go beyond product design and problem-solving. (Malpass, 2017, p. 5). However, this notion is challenged by Tharp and Tharp (2018) who define that critical design is employed either as its own term or as a practice among other discursive design agendas from which speculative design and design fiction have merged. Originally Dunne and Raby coined the term to describe their approach and work, as a counter to affirmative design (Tharp & Tharp, 2018, p. 90). In this study, critical design is seen in a subordinate position to discursive design.

Compared to conventional design, the goals of critical design are addressed apart from designing a functional product. Malpass (2017) defines that critical design avoids conventional production and conception. Designs are used to create debate and inquiry. Critique and argumentation are set on the communication of the object's narrative use and the design of objects. This is achieved by processes of making and production, scenario building, and storytelling. (Malpass, 2017, p. 1-2).

In critical design, design is positioned as a concern. It is set as an answer and question form. (Malpass, 2017, p. 39). Critical design is not supposed to offer practical solutions and instead focuses on the scope of intellectual and emotional aspects. (Malpass, 2017, p. 46). Design practice enables a way to study, know, and project the relationship between users and designed objects and the environment in which they occur. (Malpass, p. 39). It offers a broader approach to complex societal problems, sociotechnical questions, and material scarcity and thereby questions the industry´s dominant mentality. The practice of critical design questions dominant ideologies and hegemony in the context of science, technology, social inequality, and unchallenged disciplinary norms. (Malpass, 2017, p. 6). Thereby critical design is non-exploratory and an affective design practice. Its goals are set outside of solving problems and the aim is targeted towards engaging and encouraging people to discuss wanted topics. (Malpass, 2017 p. 41). As the influence of previously implemented projects, approaches,

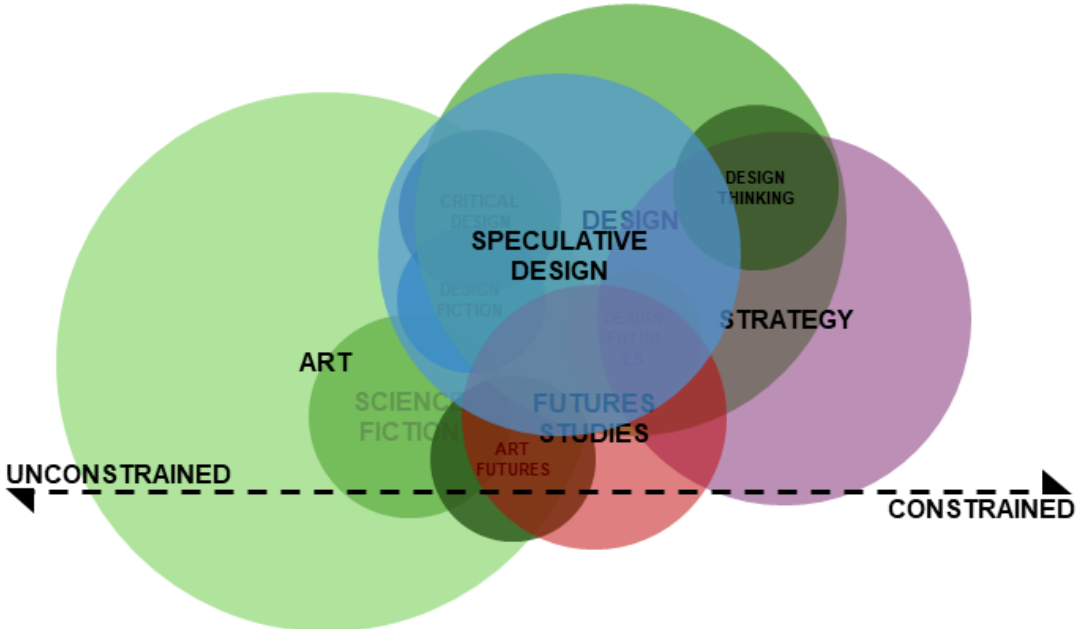
and methods is essential, knowledge of the critical design tradition is important. (Malpass, 2017, p. 38-39). Product or industrial design as a medium can increase issue comprehension through engagement and conversation around the design object. Design works as an inquiry that opens discussion and new insights. Tactics are based on the notion that the public naturally understands the environment through material objects and their interaction with them. (Malpass, 2017, p. 43). The principles, methods, and tactics of the design process are expected to provide more than a service-based relationship between a designer and a client (Malpass, p.2). When targeted toward a design audience, critical design practice is a viable technique as a critique within the discipline. (Tharp & Tharp, p.86). It criticizes the current state of using design objects by incorporating alternative social, cultural, technical, or economical values. Design that asks well-prepared questions and makes people think is equally challenging and important as design that focuses on problem-solving and finding answers. (Malpass, 2017, p.46).

The methods of critical design are based on voluntariness and product design is used by bypassing the traditional purposes it has and thus working outside of the typical limitations of the discipline. Critical design is often defined as art instead of product design. (Malpass, 2017, p. 7). One of the challenges of critical design is that it is not adopted more widely in the field of design. Therefore, it is a threat that critical designers might become a small and introverted group that lacks self-reflective functions focusing on the field of the practice of critical design. (Malpass, 2017, p. 8).

Conventional design teaching has little connection to critical practices due to the absence of exogenous research. In addition, design research does not see critical design as a viable method. (Malpass, 2017, p. 9). The relationship between critical design and critical theory is based on strategic and sporadic application, using concepts for inspiration and explanation instead of building a parallel competing practice. (Malpass, 2017, p. 10-11). Design practice enables a way to study, know, and project the relationship between users and designed objects and the environment in which they occur. (Malpass, 2017, p.39).

## 3.6 SPECULATIVE DESIGN

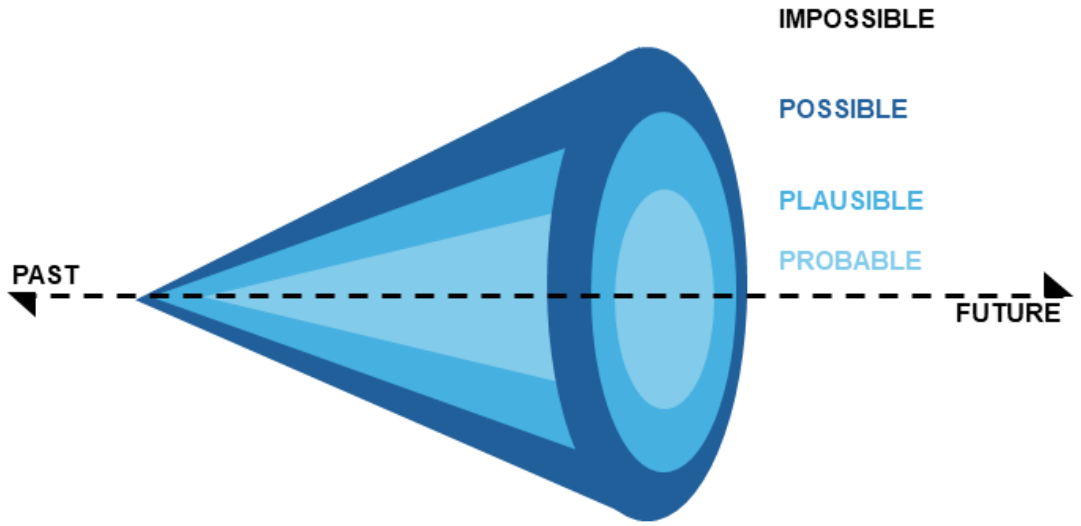
**Figure 14**
*Conceptual Model of an Unresolved Mapping of Speculative Design*




*Note. Adapted from Montgomery, E. (n.d.). EPMID, an unresolved mapping of speculative design, Copyright n.d., The figure has been adapted by Anton Wikstedt to include changes in visual presentation, 2024.*

Dunne and Raby (2013) have described speculative design as a practice that uses possible futures as a tool for understanding the present, creating discourse on people's thoughts on wanted and unwanted futures, and generating new perspectives on wicked problems. Speculative designs are commonly formed through scenarios, set between reality and impossible, and built around the question 'what if'. They are intentionally simplified, provocative, and used as a medium to create debate and discussion. The fictional nature of speculative designs enables viewer to detach from their misbeliefs and promotes imagination. The characteristic features of speculative design are inspiration from cinema, literature, science, ethics, politics, and art. It adopts tools and ideas from fictional worlds, cautionary tales, what-if scenarios, thought experiments, counterfactuals, reductio ad absurdum experiments, prefigurative futures, etc. (Dunne & Raby, 2013, p. 2-3). As the goal is to create a parallel channel to convey ideas and discuss issues, separation from the marketplace is essential. (Dunne & Raby, 2013. p. 12).

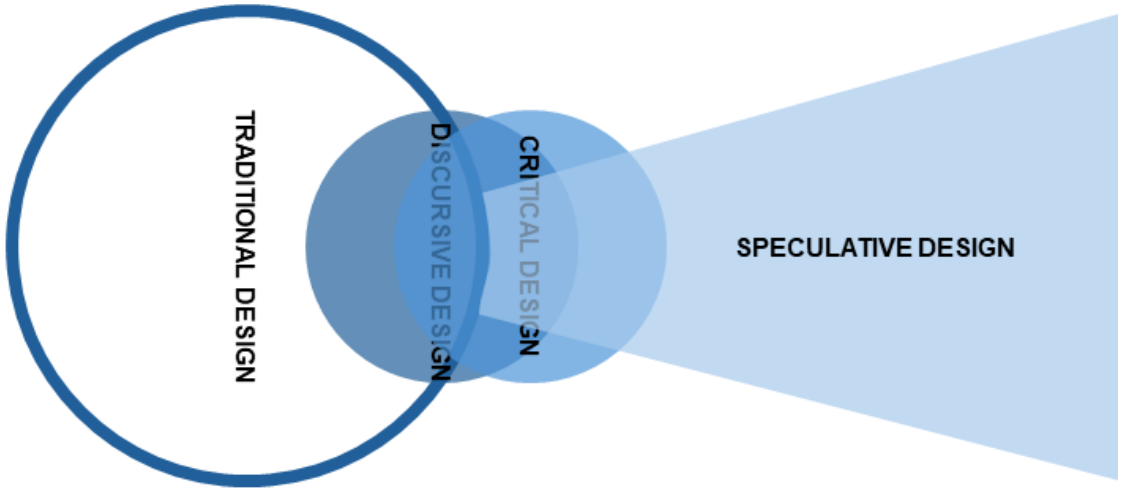
**Figure 15**
*Conceptual Model of Futures Cones*




*Note. Adapted from Voros, J & Bezold, C. (n.d.). EPMID, Futures Cones, Copyright n.d., The figure has been adapted by Anton Wikstedt to include changes in visual presentation, 2024.*

Speculative design has emphasis on critical thinking. It consists of scepticism, questioning the consensus, and not just taking things as granted. Critique is not necessarily only negative but a way of think alternative ways of being. Thus, it is separated from critical theory and the Frankfurt School. (Dunne & Raby, 2013, p. 34-35). Also, Tharp and Tharp (2018) describe speculative design more as curious than confident. It encourages the imagination of different alternatives and is not strict in critical positioning. (Tharp & Tharp, 2018, p. 86).

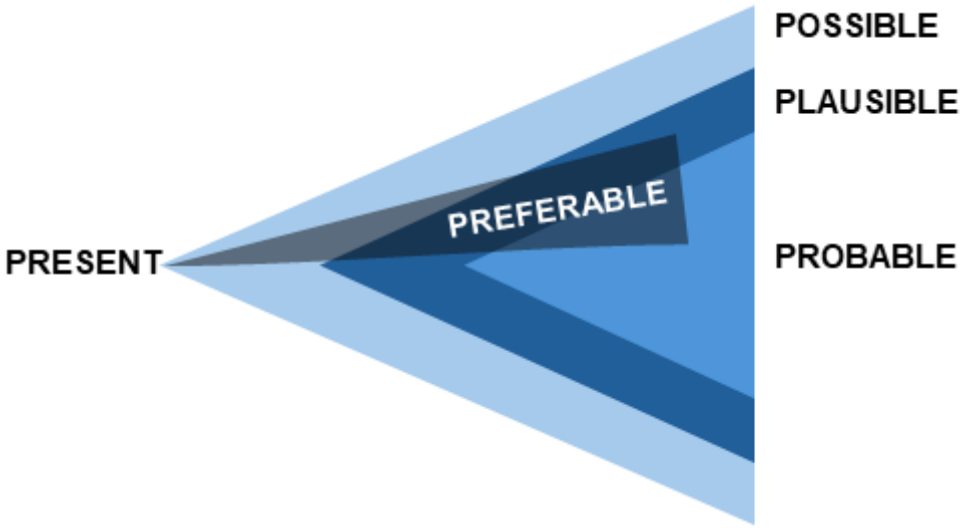
**Figure 16**
*Conceptual Model of Traditional Design vs. Speculative Design*




*Note. Adapted from Mitrović, I. (2015). An Introduction to Speculative Design Practice, Copyright 2015., The figure has been adapted by Anton Wikstedt to include changes in visual presentation, 2024.*

Speculative design has the same capacity as critical design but in distinction, it offers a channel to address alternative futures from viewpoints related to science and technology. (Tharp & Tharp, 2018, p. 93). In addition, Tharp, and Tharp (2018) claim that speculative design was possibly detached from critical design due to criticism related to elitism, critical design's efforts to educate others with knowledge they do not have, or intellectual carelessness compared to academic fields that embrace critical theory. (Tharp & Tharp, 2018, p. 86). Speculative design also deviates from design thinking and social design, both of which aim at solving or fixing problems. (Dunne & Raby, 2013. p. 160).

**Figure 17**
*Conceptual Model of PPPP*




*Note. Speculative design: preferable futures. Adapted from Dunne, A, Raby, F. (2013). Speculative Everything, PPPP, Copyright 2013, The figure has been adapted by Anton Wikstedt to include changes in visual presentation, 2024.*

Dunne and Raby (2013) introduce the future cone diagram in their book Speculative Everything. The diagram was inspired by futurologist Stuart Candy's work. In the diagram, the future is divided into four different cones. Each cone represents a certain kind of development path or approach to the futures. The first cone represents probable futures where development is expected to continue as expected. Most of the designers, design methods, processes, tools, what is acknowledged as good practice, design education, and valuation of design are usually located within this area. The second cone represents plausible futures, which is known as space for foresight and scenario working. It focuses on what could happen by exploring alternative economical and political futures so that the organization can prepare for changes in the future. The third cone is about

possible futures. A scientifically possible path to a future scenario is created and permits the viewer to adapt to it and use it as a tool for critical reflection. This space consists of speculative culture writing, cinema, science fiction, social fiction, and so on. This space is limited to fantasy, which does not belong to the agenda of speculative design. The fourth cone is a space for speculative design, the preferable future. It cuts between probable and plausible futures and partly covers them both. For now, the space is overseen by government and industry, but speculative design's approach supports the idea that futures should be defined in unison with experts, ethicists, political scientists, economists, and so on. The stance is that design can provide a liberating way to think for these experts. Speculative futures can work as a tool to create a space where people can discuss and debate about the future they desire or do not. (Dunne & Raby, 2013, p. 3-6).

Speculative design can be implemented in conceptual design as it offers an alternative space outside of the market forces and enables a space where ideas can be tested. (Dunne & Raby, 2013. p. 12-14). Products that are fictional and present abstract issues allow the viewer to investigate social and ethical issues in a way that is brought close to their everyday life. (Dunne & Raby, 2013. p. 51). Credible speculative design is based on a scientific basis such as physics, biology, and so on. Ethics, psychology, behaviour, economics, and other similar factors can be changed with credible speculative design. (Dunne & Raby, 2013 p. 71). Consequently, for example, a probe can also be the subject of speculative design when it is used to promote the legal and ethical limits of the existing system. (Dunne & Raby, 2013, p. 57).

The most common channels for speculative design are exhibitions, publications, the press, and the internet. However, it is worth noting they all are affected by accessibility, elitism, populism, sophistication, and audience for example. In its prime, speculative design communicates and suggests possible uses, interactions, and behaviours. (Dunne & Raby, 2013. p. 139).

Speculative design can be explored further with a couple of project examples.

Dunne & Raby's The Foragers project (2009) deals with the issue of food shortages caused by overpopulation of the planet and the unstable use of resources. In their scenario, the governments and industry can't solve the problem, and as a result, groups of people must create their own solutions. The project takes a stance on evolutionary processes and molecular technologies. Inspired by extreme guerrilla gardeners, garage biologists, amateur horticulturalists, and foragers, these groups build external digest systems based on synthetic biology to create stomach bacteria alongside mechanical devices. These modifications make it possible for these groups to increase nutritional value gathered from the urban environment. In the project, hyper-realism was avoided in the design of objects and photography for the viewer to be able to relate to the ideas instead of the products themselves, and the viewer could compile their own view about the Foragers. (Dunne & Raby, 2013, p. 151).

Another interesting project was conducted by Dunne and Raby as well. The United Micro Kingdoms project (2013) presents an imagined England divided into four experimental zones that all create their own governance, economy, and lifestyle. The concepts are fables rather than analytical and factual scenarios. These four deregulated regions were compared with each other through different categories: transportation and vehicles, infrastructure, technology, and products. Each compared category embodied a different ideology, values, priorities, and belief systems of each kingdom. The Micro-Kingdoms consisted of Digitarinas, Bioliberals, Anarcho-Evolutionists and Communo-Nuclearists. (Dunne & Raby, 2013, p. 173-187).

Technology-dependent Digitarians rely on digital technology and its totalitarianism-tagging, metrics, total surveillance, tracking, data logging, and full transparency. They are ruled either by technocrats or algorithms, no one knows for sure, and it doesn't really matter as long as things run smoothly. The Digitarians' mode of transport is an electric self-driving digicar. Never-ending planes of tarmac dominate the Digiland, and it is a landscape made for machines. (Dunne & Raby, 2013, p. 175-179).

Bioliberals are social democrats, relying on biotechnology and they are advanced in synthetic biology. People produce their own energy and adjust their consumption according to the resources. Their vehicles are organically grown, bio-fuelled, and made of artificial skin, bone, and muscle. The cars are powered by anaerobic digesters that produce gas and fuel cells which produce electricity. (Dunne & Raby, 2013, p. 180-182).

Anarcho-Evolutionists live in a self-organized, almost completely unregulated society that's based on trust and agreements regarding individuals and groups. The permissibility of actions is measured according to their harm to others. Anarcho-Evolutionists believe that people should change themselves instead of changing the environment. They have either stopped the development of major technologies or don't use them at all, living in a world without cars and with human, wind, or animal-powered transportation. They also use the VLB, which is a Very Large Bike that is used to travel in groups on the deserted road infrastructure. (Dunne & Raby, 2013, p. 182-184).

Communo-Nuclearists are a regulated and centralized society living on a three-kilometer-long nuclear-powered mobile landscape that crawls through the country, divided into seventy-five carriages. The area around the tracks is fully naturalized and a sort of nature paradise. (Dunne & Raby, 2013, p. 185-187).

### 3.7 DESIGN FICTION

Design fiction deals with imaginary designs, which are disturbing and strange. Fiction indicates that the practice is involved with technological futures and science fiction in contrary to general fiction. Design fiction refers to other places, values, and times. Speculative design and design fiction can be considered to be overlapping and crosswise terms. (Dunne & Raby, 2013, p. 100). However, Tharp and Tharp (2018) note that in comparison to speculative design, where it is typical to describe future-oriented alternatives, design fiction often focuses on describing parallel alternatives for the present. (Tharp & Tharp, 2018, p. 86-87).

Like in speculative design, design fiction uses objects to convey stories about alternative futures or the present. Design objects are either central to describing

the given scenario or serve in a supporting role in a more complex story. (Tharp & Tharp, 2018, p. 51). Design fiction deals with emerging science or technology and is consciously based on literary- or cinematic fiction and communicates through narrative devices such as videos, photographs, sequencing, short stories, and descriptions. Typical methods are, for example, counterfactuals or alternative history or scenarios where generally accepted facts are not true. (Tharp & Tharp, 2018, p. 86-87).

### 3.8 STRATEGIC FORESIGHT

Foresight is a method for anticipating the future. According to Hines and Bishop (2015) strategic foresight does not provide immediate results. The nature of strategic foresight is ambiguous, and it requires a different way to operate than just finding correct data and information. (Hines & Bishop, 2015, p. 20).

Foresight requires the ability to recognize patterns and understand how things work in relation to each other. Most models involve non-linear and complex systems and models, which is challenging because people are more prone to see linear patterns (Hines & Bishop, 2015, p. 33). By embracing complexity, it is possible to avoid accepting simple interpretations. They are often incomplete and disregard risks when parts of the explanation are left out. (Hines & Bishop, 2015, p. 35). Changes take place at different paces and to different degrees throughout society. Technological changes can be fast compared to environmental or demographic changes for example. (Hines & Bishop, 2015, p. 36).

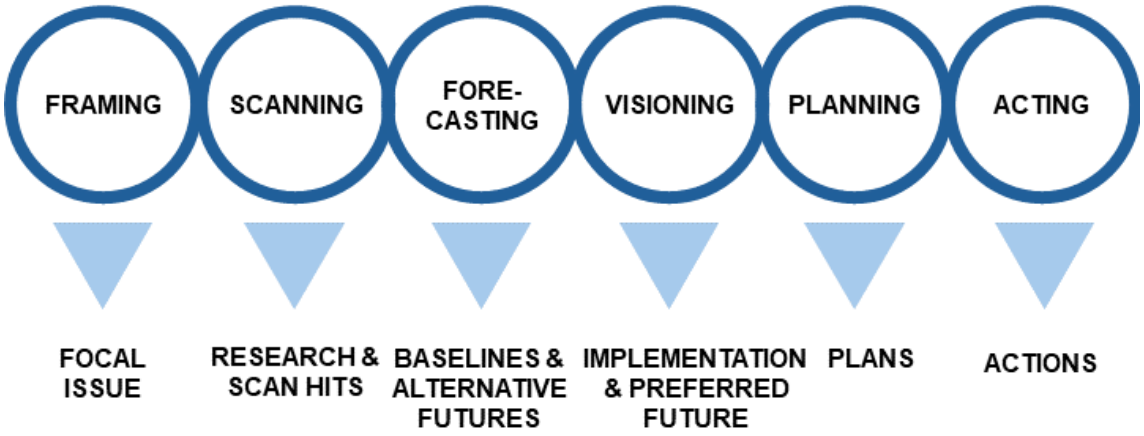
The four central principles of future thinking are:

1. The future cannot be predicted
2. The future is not predetermined
3. The future is made
4. We have many alternative futures ahead of us (Koskelo, 2021, p. 55).

Hines and Bishop have defined the strategic foresight process through a six-phase framework: framing, scanning, forecasting, visioning, planning, and acting. According to Hines and Bishop (2015), framing and scanning sustain the context of the work and knowledge which aids the goal. Forecasting provides a scope of

futures to think about. Visioning outlines the preferred future, and planning creates a route to the future. (Hines & Bishop, 2015, p. 297).

**Figure 18**
*Conceptual Model of Evolution of Framework Foresight (part 1)*




*Note. Adapted from Hines, A. (2018). Hinesight, Evolution of Framework Foresight (part 1, Copyright 2024., The figure has been adapted by Anton Wikstedt to include changes in visual presentation, 2024.*

**Framing:** Define the scope and priorities of problems requiring strategic foresight. Framing can consist of outlining the subject and the subject boundaries, gaining an understanding of the depth and scope of the research, and assessment of available resources, and thinking of the range of alternative scenarios and future images needed. (Hines & Bishop, 2015, p. 19).

**Scanning:** When the boundaries and scope of the activity are clear, the next phase is to start scanning trends and information about both the internal and external environment. In the internal context, the purpose is to find out the organization's experiences with the problem. Externally the purpose is to immerse ourselves in what is happening regarding the problem. The aim is to determine basic driving forces that imply the most likely future and gain insight into potential change drivers that lead to alternative futures. (Hines & Bishop, 2015, p. 85).

**Forecasting:** Alternative futures are created in forecasting. The goal is to create a wide range of possibilities, from which the most useful ones are confirmed and prioritized in terms of preparing for the future of the organization. The main goal is to expand the organization's range of possibilities, which reduces the number of surprising factors, as the central principle of strategic foresight is that the future cannot be predicted. Organizations are best served by understanding and preparing for different opportunities. Anticipating alternative futures means

monitoring the external environment and identifying indicators, from which one can conclude the course of events towards one or more alternatives. Practical foresight challenges existing assumptions about the future and leads the organization to act and plan differently. (Hines & Bishop, 2015, p. 127-128).

**Visioning:** Strategic foresight is a tool for decision-making in the present. Forecasting guides to identify potential futures, allowing decision-makers to think about preparing for them more effectively. (Hines & Bishop,2015, p. 221).

**Planning:** takes place between vision and action. The division interest strategy consisting of tactics is translated into action. (Hines & Bishop, 2015, p. 267).

**Acting:** movement from the abstract nature to the more concrete action. The plans are brought into operation. (Hines & Bishop, 2015, p.267).

According to Koskelo (2021), foresight is implemented mostly in big companies as small businesses have challenges with their resources. However, foresight is often not strange to companies in general as they often utilize trends and making scenarios but do not necessarily link them with the foresight domain. Common applications are market analysis, consumer- or customer-understanding, and strategic planning. Thus, there is room for improvements in the systematicity, comprehensiveness, and method expertise of companies' way of working. (Koskelo, 2021, p. 39).

Due to the shortened development cycle of business models and innovations, companies must renew themselves more often to maintain competitiveness. When changes in the operating environment are known, foresight increases the ability to react to the change. (Koskelo, 2021, p. 29). In recent years the demand for foresight has increased which can be observed in the growth of the foresight network. (Koskelo, 2021, p. 45).

Foresight is used essentially in strategic planning in organizations, particularly as a part of the board's work, preparing for alternative futures, or in visioning. Product development, innovations, and supporting sales are common implementations as well. An agile foresight process requires either a multi- or interdisciplinary approach and widely involved personnel. The foresight process is always goal-oriented, and methods are chosen accordingly. Typical foresight

methods are statistical analysis, forecasts, methods based on expert surveys and interviews (e.g., Delphi), scenarios, gamified methods, simulations, quantitative or qualitative modelling, change phenomena collection, and future workshops and other participatory workshops. (Koskelo, 2021, p. 41-44). Foresight work is essentially systematic and continuous, which requires regular updates on change drivers and scenarios. (Koskelo, 2021, p. 58). Alternative futures are created from change drives, of which best known are megatrends, trends, weak signals, and black swans. (Koskelo, 2021, p. 61).

According to Koskelo (2021), foresight poses many advantages and benefits. Foresight can stretch out the organization's time span. Foresight methods can be used to create a framework for desired futures, and to identify things that can be influenced. As a result, the company becomes an active creator of the future. When foresight and plans to reach the desired future are made in the organization with participatory methods, the personnel, stakeholders, and customers also commit to the change. It is possible to create a competitive advantage by identifying future business models and utilizing them before others. Preparing for different futures creates security and operational preparation, and thereby the ability to change and resilience increases. Preparation increases the number of options in decision-making. An understanding of the future creates better conditions, in which to make future-proof investments and acquisitions. Foresight can assess what kind of skills are in demand in the future. Foresight provides (for companies) an opportunity to build thought leadership by opening or participating in conversations. (Koskelo, 2021, p. 112-115).

Foresight faces challenges when the benefits are either not identified, or they are unclear. Instead of focusing on a long-term time span, organizations concentrate on a short time span, for example, quarterly goals. A good current state can create an over-optimistic picture of the future. Organizations might not have enough time for the process of foresight, and resources are funnelled elsewhere. Organizations might lack competence in foresight, processing foresight information, and the skills to apply the information. In addition, organizational culture and management do not necessarily view foresight as valuable. Performance is evaluated in metrics that do not take foresight into account. In

these cases, organizations understanding is limited and they are not ready to change. Foresight is a combination of fact and imagination which requires conductive atmosphere. (Koskelo, 2021, p. 50-54). It is also worth noting that the business benefit of foresight is often difficult to demonstrate in advance. (Koskelo, 2021, p. 58).

## 4. THEORETICAL ANALYSIS

In this chapter, the theoretical perspectives are run through the theoretical analysis. The analysis follows the structure of theoretical (philosophic) analysis: 1) problematization, the stage where a problem is raised. The starting point of this research is the designer's role and professional dimensions in the future as the field shifts. The source material already partly raises this question because it challenges the hegemony of conventional design and the traditional role of the designer. 2) Explication, to make clear, specify, and formulate unclear multi-minded or implicitly adopted views. 3) Argumentation, the validity of the insights obtained in the explication is evaluated.

The key concepts and elements in the following chapters of this section are derived from the theoretical perspectives of Chapter 3. Key concepts and elements have been defined through the research objectives.

### 4.1 EXTENSIVE APPROACH WITH DISCOURSE AND SPECULATION

In this chapter the secondary research question *1. How can discursive and speculative approaches be used to broaden perspective?* is used to analyse the theories.

In its current form, conventional design can be seen to produce homogeneous approaches. Tharp and Tharp (2018) emphasize that the prevalent state of design can be defined to be affirmative design. Affirmative design can be determined by useful and usable outcomes, that are desirable in a means of capitalism and consumerism. (Tharp & Tharp, 2018, p. 90). The outcomes of affirmative design are united by shared cultural, social, technical, and economical

elements. (Malpass, 2017, p. 46). The same model is emphasized in design teaching. According to Tharp and Tharp (2018), design studies are still structured according to the category-based line-up. (Tharp & Tharp, 2018, p. 44). This is how a designer's career is built from the beginning, according to a certain approach and way of thinking. For example, Malpass (2017) similarly confirms the notion from the point of view of industrial design. He states that the industry shares values, norms, and expectations that are built on commercial values. (Malpass, 2017, p. 8). As this is the status quo in the field, designers need to fit in and be successful and generally approved professionals regarding professional appreciation, requirements, and ethics. However, this poses the challenge of applying design in solutions that require breaking away from the traditional professional context, or when facing challenges that require new or alternative perspectives to commercialism, capitalism, or traditional user-oriented design. This can also produce a dilemma for emerging designers. The use of conventional methods can support the creation of a constructive and credible career, and the skill of using these methods can demonstrate competence in the prevalent state of design. However, this might result in designers only trying alternative methods after achieving competence. The threat of such an environment is that these so-called new ways to implement design practice always remain as new or alternatives and are not incorporated into the way of thinking or finding optimal solutions. A too-homogeneous background, where alternative methods are only partially applied to old structures, will continue to create similar outcomes.

The position and definition of design as a field can be open to interpretation. Dividing the boundaries between design, art, and research is challenging. Muratovski (2022) contends that design is most often taught as part of art programs, often apart from science. (Muratovski, 2022, p. 36). He continues that at times, the creative process of designers has been considered a method that enables a unique collection of skills, styles, and techniques. These creative outputs may also have been seen as part of research. However, this is a completely normal part of design practice and not research in the scientific sense. Usually, this kind of activity is considered as a designer's specific way of working,

which does not establish facts or new solutions, and is rarely systematic. (Muratovski, 2022, p. 38). As a result, many designers find the transition to research-based approaches challenging. (Muratovski, 2022, p. 36). In support, Hines and Bishop (2015) present that creativity that lacks rigor can ignore the topic, and information is not considered in the implementation. However, rigor without creativity can in its results be too obvious and not propose any insight. (Hines & Bishop, 2015, p. 172). They summarize that to get results, rational analysis information should be combined with imagination, desires, hunches, and beliefs. (Hines & Bishop, 2015, p. 174). In addition to creativity, other soft skills such as critical thinking, empathy, languages, philosophy, ethics, communicational skills, and global competencies such as cultural awareness, languages, teamwork, and adaptability can hold a key position in identifying the problem and understanding the global concerns behind it. (Muratovski, 2022, p. 18). Design requires research-based hard data, that can be processed creatively. Creativity requires a versatile way of thinking instead of just one's individual creative process. A one-sided approach can be too limiting when approaching systemic, multi-faced, and cross-disciplinarian challenges. As mentioned, design can be seen as a part of the field of art, but the field of design also utilizes research practices. In general, however, design cannot be considered research-based, and the field does not contain much of its own research tradition. Knowledge of research methods and using research as a link between art and creativity could be used to strengthen designers' scientific credibility, enabling the use of scientific and artistic research. Similar goals are shared in arts-based research practices.

Approaches to design are central: what is the wanted outcome from design? Tharp and Tharp (2018) maintain that the general implementation of commercial design is problem-solving. Problems are defined through the prevailing state of the field, and as a result, the solutions for detected problems are formed according to commercial design's capability to solve them. As an alternative, discursive design posits itself either as a problem finder or problem communicator. Thus, it has better settings to operate with wicked problems in comparison to commercial design. (Tharp & Tharp, 2018, p. 78-79). Muratovski

(2022) has stated that wicked problems require new solutions and unusual approaches to develop or maintain the global society. (Muratovski, 2022, p. 19). Discursive design and speculative design can provide an efficient vessel to re-think and reframe problem-solving goals and opportunities. They can set new parallel dimensions or work in support of the traditional problem-solving mentality. A versatile ability to deal with problems is an advantage, not only when a designer practices their profession, but also when adapting to a more research-based approach. Such action would also reduce, for example, the risk of overly similar outcomes related to traditional design process models. However, this poses the challenge of how such methodology could be utilized in connection with commercial values, in which case the goal is to create concrete, productive results. Design that is too abstract is in danger of falling back into the category of art. This challenge could be answered by introducing a discursive and speculative model that supports the values of commercial design. However, these practices should be separated during the process so that commercialism does not void the benefit produced by discourse and speculation.

The systemic design framework also focuses on expanding perspectives and thinking of alternative ways to conduct the design process. At the Systemic Design Framework's create stage, the goal is to think big and to evoke ideas that are bold and might never materialize. This kind of perspective makes people think more versatilely, and thinking is directed more broadly at different parts of the system. It can be achieved by re-using already existing materials, existing interventions, or bold, radical, and provocative ideas. These methods can be used to raise larger questions. (Design Council, 2021, p. 51). The use of particular methods to raise ideas is common with speculative design. According to Dunne and Raby (2013), fictional products displaying abstract issues can create a place for the viewer to investigate social and ethical issues in a way that is close to their everyday life. (Dunne & Raby, 2013, p. 51). To summarize, this means a balance between creativity, new ideas, questioning, and criticality. This kind of thinking is above all creative as creativity covers a much wider range of things than just creating new ideas or things. Thinking creatively can be seen as an intrinsic value in design, as a state of being, rather than as a method or a predominant way of

thinking, but creativity also includes the ability to recognize and create alternative patterns from a larger volume. Due to limited resources and the practice of framing problems, creativity is often directed only into parts of processes or used as an answer to only certain kinds of problems and questions.

One way to harness thinking is provided by Hines and Bishop (2015). In the strategic foresight's framing phase, the aim is to outline the subject boundaries by understanding the depth and scope in relation to resources and thinking. (Hines & Bishop, 2015, p. 19). Understanding the resources of one's own thinking rises to a particularly significant position here to realistically apply one's full competence. On the other hand, creativity is not only constrained by the scope and resources attached to its implementation. The presentation of creative ideas is also determined by the chosen venues. Dunne and Raby (2013) have noted that speculative designs are usually displayed through exhibitions, publications, the press, and the internet. There are concerns related to these channels due to accessibility, elitism, populism, sophistication, audience, etc. (Dunne & Raby, 2013, p. 139). Traditional design is strongly associated with commercialism and problem-solving, while speculative design is easily labelled as art or as an artistic approach in design. However, these approaches together can serve to broaden designers' or audience's perspectives and bring new or alternative ideas to the fore, especially concerning people's values, beliefs, and attitudes. Speculative design employs two-way communication. Information can be conveyed by the designer, the audience, and the community. However, when working with people's beliefs, values, and attitudes, a conflict can arise as to who is discussing and what, and whether the discussion should be inclusive.

Critical thinking can bring discipline to design, creativity, research, and traditional design. Alongside discipline, it also emphasizes a wide range of perspectives. Haber (2020) states that among other skills, a critical thinker should have the ability to look at problems from different perspectives. (Haber, 2020, p. 2). It requires practice and adaptation, and the ability to follow the critical thinking pattern. (Haber, 2020, p. 35-36). Similarly, strategic foresight also requires a diverse way of thinking. Hines and Bishop (2015) point out that different perspectives and people with divergent ways of thinking should be involved.

(Hines & Bishop, 2015, p. 119). The forecasting phase of the strategic foresight process includes creating a wide range of different possibilities. The most essential alternatives are selected to expand the organization's possibilities in the future. Anticipating alternative futures consists of monitoring the external environment and identifying indicators to conclude the course of events. The organization can act and plan according to the findings, and thus prepare for and understand different opportunities and possibilities. (Hines & Bishop, 2015, p. 127-128). Systemic Design Framework also shares the vision of diverse perspectives. The reframe stage encourages an egalitarian and regenerative environment, generated according to values, and it must lead to a collective change of behaviour. Different perspectives are synthesized and then reframed according to insight, by bringing people together. This can be used to set new goals and add new organizations or different relationships. The reframe stage enables system remapping and as a result, new questions about possibilities arise. (Design Council, 2021, p. 50). Critical thinking, strategic foresight, and systemic design framework serve as an example of how the presentation of various perspectives has been brought into the working pattern or process. People, and organizations, express many different styles of thinking. To broaden perspectives individuals can independently practice different styles of thinking, and organizations can combine their thinking resources. It is also essential in which ways thinking is emphasized during the process. Critical thinking itself gives space to topics, attitudes, and values but provides a structured thinking pattern according to which those subjects are utilized. According to Muratovski (2022), the experimental way of learning can give opportunities to solve open-ended real-world problems. It can result in problem-solving ability, a sense of ownership in relation to one's learning, and a sense of community (Muratovski, 2022, p. 22). From a systemic perspective, at the catalyse stage of the Systemic Design Framework, the new vision is made into a prototype or a mock-up for testing and iteration purposes. This allows people to add their thoughts on the outcome, and the outcome's functionality and relationship to other interventions can be tested.

Qualitative and quantitative measurements should be created to find social and environmental impacts. Stories and narratives can encourage others to join which can result in a movement of change. (Design Council, 2021, p. 51). An experimental way of implementing design can be achieved through conveying discourse and speculation, which can both broaden one's perspective. Tharp and Tharp (2018) elucidate that all artifacts can potentially convey meaning. (Tharp & Tharp, 2018, p. 8). However, only discursive objects are designed as such. (Tharp & Tharp, 2018, p. 76-77). Hence, as Malpass (2017) summarizes; critical design underlines the relationship between users, designed objects, and the environment they are set to. (Malpass, 2017, p. 39). This relationship is emphasized through socio-culturally relevant arguments, counterarguments, and questions that are attached to the objects, followed by the act of transmission. (Tharp & Tharp, 2018, p. 76). Additionally, Dunne and Raby (2013) note that speculative design communicates and suggests possible uses, interactions, and behaviours. (Dunne & Raby, 2013. p.139). Similarly, Haber (2020) speaks about the importance of language skills - the ability to transfer normal human language into premises and conclusions from which structured arguments are created. The structured arguments are then used as a basis for logical analysis. (Haber, 2020, p. 68). In this context, a discursive or speculative object can be seen as a vessel for an argument. Tharp and Tharp (2018) have defined the theoretical functionality of discursive design through communication theories. From a theoretical point of view, conveying discourse is divided into rhetorical tradition, semiotic tradition, sociocultural tradition, and critical tradition. (Tharp & Tharp, 2018, p. 103-107). This division of conveying discourse establishes a connection between communication theories and argumentation. Stories and narratives invoke people to join, which can lead to a movement of change. This kind of change increases cohesion, and as a result, a change can arise that people commit to. A change that makes people commit, together with controlling the discourse can underline the relationship between the object and the people. As stated, only objects designed to be discursive are discursive design, in other words, the transmission of discourse is intentional, goal-oriented, and planned. In this case, the discourse does not arise as if by chance, but answers a perceived

question. Discursive design can also be used to take control of discourses conveyed through design. Through controlling discourse, the user's or viewer's relationship with the product or object can be underlined. The relationship can be highlighted with socio-cultural arguments, counterarguments, or with questions and statements that have been attached to the object.

Expanding perspectives, mediating discourse and speculation, and being aware of one's own creativity and critical thinking requires self-awareness. Here, metacognition takes a central position. Haber (2020) summarizes metacognition as understanding one's thought process by reflecting on one's personal thinking. (Haber, 2020, p. 97). Discursive agenda focuses on reflection. Artifacts exist for thinking, conveying ideas, raising awareness and understanding, or for debate. These artifacts commonly have psychological, sociological, and ideological interpretations. They are usually displayed in exhibitions, print, web, film, and research. (Tharp & Tharp, 2018, p. 43-51). Metacognition is based on the understanding and awareness of one's thinking and reflection on one's thinking. When design focuses on a purely discursive agenda, the objective is to generate reflection. To create discourse and discursive objects, one must be able to also generate reflection. This act requires understanding and awareness of different ways of thinking. A discursive object requires metacognition from its producer and the viewer for it to be discursive. Discursive objects can only be understood in the context of the intended discourse. Due to this, discursive objects are often exhibited in similar environments as arts. However, discourse can be conveyed through commercial, responsible, and experimental agendas. In the environment of these agendas, discourse does not fulfil its full potential, as other factors diminish its performance.

## 4.2 EXPANDING AND STRENGTHENING CROSS-DISCIPLINARY APPROACH

In this chapter the secondary research question *2. How to expand and strengthen the cross-disciplinary approach?* is used to analyse the theories.

As Muratovski (2022) has highlighted, many universities have discipline-specific curricula, aimed at students with traditional competence. However, universities

should create an understanding of adult students, motivation, and labour market demands, and analyse how such requirements can be executed. People should learn to work beyond discipline boundaries to work efficiently. (Muratovski, 2022, p. 15). If cross-disciplinary design is examined more closely, it can be divided into the three following elements: multi-, inter-, and transdisciplinary design. Collaborative work across and between disciplines in the same field is called multidisciplinary design. When incorporating two or more different disciplines, for example, borrowing or combining methods and concepts from other disciplines, the approach is interdisciplinary design. Transdisciplinary design is about crossing the own disciplinary norms by adopting new ways of working from other fields. This approach is the most sufficient when complex problems can't be solved by specific methods of a single field, and it provides a systemic and comprehensive theoretical framework for processing various social, economical, political environmental, and institutional factors, including design. However, a transdisciplinary approach requires a sufficient level of knowledge so that the designer can work competently. (Muratovski, 2022, p. 20). Similarly, Hines and Bishop (2015) introduce an even more concrete approach, creative thinking models. They are used to gain a broader field of vision as they offer more alternatives and provide structured mental shortcuts. Creative thinking models are based on the notion of common paths in strategic innovation: in the future, someone else will end up with the same idea. The strategic relatives archetype emphasizes learning from other fields. It is based on the notion that issues and problems have been solved earlier in other fields and industries. The biostrategy archetype interprets learning from nature by replicating its networks and development. The science fiction archetype derives learning from fiction, alternative futures, and alternative realities. The value analysis archetype focuses on desired outcomes. (Hines & Bishop, 2015, p. 159-160). These creative thinking models can also be linked to speculative design, whose tradition can be thought of as cross-disciplinarian too. The science fiction archetype can be linked to design fiction according to their similarities. According to Tharp and Tharp (2018), design fiction refers to futures and science fiction. They are disturbing and strange and deal with other places, values, and times. Tharp & Tharp, 2018,

p. 100). They define furthermore that design fiction usually presents parallel alternative futures. (Tharp & Tharp, 2018, p. 86-87).

Studying the field of design follows shared traditions and conventions. This kind of homogeneity and traditionalism can lead to the fact that it produces similar thinkers who produce similar solutions. However, this can be changed by adopting a cross-disciplinary approach and adding a speculative or discursive perspective. The challenge of learning and practicing the cross-disciplinary approach is a matter of obligation: Is the responsibility on individuals, or communities, and organizations? This can be brought to focus, for example, when creating teams. It also generally requires the ability to act outside of one's discipline and to absorb knowledge on a wider scale of how things work in relation to each other. Learning such skills should already begin during design studies. As a principle, cross-disciplinarity is often used in traditional design, but its use may remain narrow, for example, to borrow individual methods instead of choosing an entire methodology according to the goal. Both personal and professional heuristics and biases influence the ability to adapt new thinking models. On the other hand, some mental and methodological shortcuts can be deployed to diversify one’s way of thinking. For example, creative thinking models are structured methods for searching for alternatives that support traditional thinking. These shortcuts are not produced by our minds, ergo they are not automatic thought patterns, but intentional implementations. Creative thinking models help to expand one’s perspective beyond the discipline’s boundaries, become aware of the discipline’s conventions, and find unforeseen solutions. Speculative design and design fiction can act as methods for bringing together different disciplines and their methodologies and can be used to argue for change.

Adopting a cross-disciplinary way of thinking requires good skills in parallel thinking, adaptation, and creativity. Hines and Bishop (2015) advocate that when creativity is applied as a strategic activity it provides alternative thinking that is different from old models. The goal is to generate new ideas, adopt new practices,

and find new opportunities. During the foresight process, creative thinking tools are used, for example, in environmental scanning, trend analysis, mind maps, and cross-impact matrixes. (Hines & Bishop, 2015, p. 57). Creative thinking tools offer more opportunities for organizational development, alternatives to act or solve a problem, and to improve a product, service, process, or system. (Hines & Bishop, 2015, p. 159). However, speaking of conventional design, Tharp and Tharp (2018) have stated that typically, conventional designers are creating solutions and results that are practical. Professional repositioning can provide a way to expand the professional dimension to think complex and controversial issues. This procedure can help to explore humanly important issues which can then be used in decision-making, community activities, activism, counselling, practical application, or in user research. When used this way, these procedures can improve the results of traditional design. (Tharp & Tharp, 2018, p. 6-10). Such an approach can provide a way to find cross-disciplinarian methods, but also to achieve cross-disciplinary goals or more versatile goals. Similarly, Tharp and Tharp (2018) elucidate that discursive design is applied in academics, companies, and other researches to generate insights. (Tharp & Tharp, 2018, p. 25). They add that it is also used in product development and branding but can stand out as its own outcome as well. (Tharp & Tharp, 2018. p. 95). Discursive design can therefore be a factor that brings together thinking between different fields. It can work either as a single method or as a broader process or methodology. To utilize the purposeful use of metacognition, one must understand their own thinking, application of thinking, and thinking skills, and the same applies to the use of creativity as a strategic activity. The aforementioned skills are not enough by themselves, as one also has to have the motivation to utilize new thinking models. For example, in the strategic foresight process, the aim is to break away from one's conceptions and be open to new solutions and possibilities. Traditional design can be viewed both through artistic creativity or as a process model, and most often it is a combination of these two. However, creativity does not flourish in routines and in the usual and traditional way of doing things. Mere knowledge of the methods is also not enough, but designers must dare to use them boldly. Using or producing methods or solutions that are thought

to be creative does not in itself make anyone a creative problem solver, but the mental inputs of creative processes do. The creativity of designers should be challenged with the question of whether the creativity is active or passive.

Cross-disciplinarian approach is essential to the systemic design framework. As Design Council (2021) indicates, the framework guides designers to work more systematically and sustainably by sharing their knowledge and taking ethics and values into account. The six principles of the systemic design framework are people and planet centred, inclusive and welcoming difference, zooming in and out, collaborating and connecting, testing and growing, and circular and regenerative. They are intended for adapting or developing new design methods and tools. (Design Council, 2021, p. 42-43). The level of cross-disciplinarity defines the efficiency and agility of finding the right models and methodology in addition to other tools. Similarly, Koskelo (2021) argues that foresight should be multi- or interdisciplinary to work as agile which means that the foresight process is always goal-oriented, and methods are chosen accordingly. (Koskelo, 2021, p. 41-44). Cross-disciplinary approaches signify the importance of choosing the right methods. By sharing knowledge and incorporating ethics and values into the process, designers can work more systematically and sustainably. Working systematically and sustainably can be seen to have absolute value. On the other hand, they can also have instrumental value in organizations, for example, to achieve goals. Despite the significance of choosing the right methods, it can often be unclear who directs which methods and processes are chosen, and whether they are chosen according to the goal or according to limited knowledge of methods. In this regard, traditional design can be seen as stiff. The challenge is, whether a designer with a traditional education and background is willing to choose such ways of working that, from their point of view, can be seen as extrinsic or unusual.

If cross-disciplinarity is considered in terms of professional roles, the systemic design framework (2021) suggests four core roles for the project participants: a systemic thinker, a leader and storyteller, a designer and maker, and a connector

and convener. (Design Council, 2021, p. 44). The role of a systemic thinker is essential in cross-disciplinarity. Design Council (2021) has defined the role as someone who sees the project from micro and macro levels. This kind of person's thinking is more systemic and is not limited by silos. (Design Council, 2021, p. 44). Such an ability to look at things from multiple perspectives requires cross-disciplinary thinking. The approach of the connector and convener is interesting as well, as it is up to them to create relationships between people and groups with different backgrounds, which can result in a bigger movement. (Design Council, 2021, p. 44). In other words, there is a need for the ability to see the project and its levels thoroughly and connect people with diverse backgrounds. In addition, Tharp and Tharp (2018) present that a designer can widen their professional role to engaged citizen, sociocultural critic, activist researcher, educator, and provocateur. (Tharp & Tharp, 2020, p. 19). Under discursive design, there are several different approaches to design and conveying discourse. As an example, Tharp and Tharp (2018) have listed these approaches to be speculative design, critical design, design fiction, adversarial design, interrogative design, anti-design, radical design, and reflective design. However, they all employ material characteristics, traditions, and features for immaterial purposes. Individual behaviour, public debate, professional practice, institutional policies, and new knowledge can be influenced by creating ideas pursuing sociocultural change. (Tharp & Tharp, 2018. p. 5-7). The concept of discursive design is conveying discourse, and it does not specify content, tone, audience of impact, or voice. (Tharp & Tharp, 2018, p. 69). Therefore, discursive design provides a platform for applying cross-disciplinarity. Malpass (2017) has stated that critical design has a broad approach to complex social and socio-technical questions and material scarcity. (Malpass, 2017, p. 6). However, Malpass (2017) has also pointed out that critical design is often seen as an art. Critical design is not adopted broadly in the design field and one of its risks is becoming a small, introverted group without self-reflective functions. (Malpass, 2017, p. 7-8). A designer can act in a variety of roles, as a project participant, a systemic thinker, a people connector, and a storyteller. It is not essential for a designer to fulfil all the roles at the same time but rather switch between roles and areas

corresponding to one's competence. The ability to shift between viewpoints requires metacognition and creativity. Design, as a field, borrows methods from other fields and designers incorporate these methods in their processes. The ability to connect disciplines and incorporate various methods is central to design, and thus designers could be described as generalists. However, the knowledge of various methods and practices is not enough, as designers need to be able to utilize design's mental modes of operation. Otherwise, designers could be easily replaced by someone with the ability to use those particular methods. Designers are expected to know a lot about different fields, understand mutual interactions and relationships, and understand things from the individual level to systemic entities.

Speculative design can also be seen from the point of view of cross-disciplinarity. As Dunne and Raby (2013) have described, speculative design seeks its inspiration from cinema, literature, science, ethics, politics, and art. Used tools and ideas have been sought from fictional worlds, cautionary tales, what-if scenarios, thought experiments, counterfactuals, reductio ad absurdum experiments, and prefigurative futures, etc. (Dunne & Raby, 2013, p. 2-3). For example, anthropologists, sociologists, psychologists, and other researchers work by analysing and synthesizing what they observe and record. (Tharp & Tharp, 2020, p. 10). However, speculative design could benefit from being combined with more robust critical thinking and scientific analysis. Through this combination of approaches, its position could be strengthened, especially regarding art-oriented criticism. As Dunne and Raby (2013) have noted, speculative design provides a parallel, separated space apart from market forces to try out ideas. (Dunne & Raby, 2013, p. 12-14). Speculative design is built on a scientific basis, such as physics and biology. The spectrum of ethics, psychology, behaviour, economics, etc. can be stretched. (Dunne & Raby, 2013 p. 71). The fact that speculative design is based on hard sciences and scientific facts increases the credibility of the practice. Ethics, psychology, behaviour, and economics offer a platform to view alternative ways of being. Design Council's (2021), systemic design framework's connections and relationships setting

focuses on relationship and empathy building during the design process. It focuses on stakeholders, community, and nature. The aim is to create trust, generate mutual understanding, develop connections between organizations, and result in new ways to work. In this context, the designer's role can be translator and mediator. Everyone affected, both inside and outside the project, is considered. (Design Council, 2021, p. 49). Supporting, Haber (2020) states that problems such as environmental or economical catastrophes are either caused or worsened by irrational ways of thinking. Critical thinking can be a key approach to finding a solution to the problem. (Haber, 2020. p. 99-100). The transition from the status quo of designers as producers of tangible outputs demands a comprehensive understanding of methods, cross-disciplines, storytelling, and the capability to bring different people and fields together.

### 4.3 STAYING ALERT AND EXPECTING CHANGE IN THE PROFESSIONAL FIELD

In this chapter the secondary research question *3. How to stay alert and expect changes in the professional field?* is used to analyse the theories.

Currently, designers are required to have skills in conducting their own research to gain more information on people and socio-cultural-economic contexts. Political and economic aspects of their work need to be evaluated so that the impact of the work is understood, and designers need to attain an understanding of emerging technologies. For this to be achieved, designers need to place people at the centre. Designers interested in disruptive innovation and complex problem-solving will benefit from generating information through evidence-based research, as it enables them to set apart personal biases, beliefs, and preconceptions. (Muratovski, 2022, p. 12). Design research is not directly its own discipline. Complex problem-solving and disruptive innovation are factors that help distinguish biases, briefs, and preconceptions, i.e. there are ways to move away from biases and beliefs. However, research without peer review, critical thinking, and metacognition can end up driving the designer's personally motivated interests. Therefore, the designer as a self-evaluator does not meet the hallmarks of academic research and this can lead to methodological

narrowness. According to Salonen and Sotasaari (2015), methodological narrowness means that some important problems remain unexplored. The existence of fads, the one-sidedness of method teaching, and research guidance's focus on familiar areas and certain procedures are partial causes for the problematic concentration of research activities. The narrowing and deviation of research are partly results of the prevailing situation, especially in universities. Discussion within the fields of research shuns interfering with starting points and breaking principles. Set goals, the given initial settings of the research projects, technicality, and status settings disturb the discussion between fields of research. It should be noted that in science, an authoritarian spirit takes hold when the discussion of methods turns to the refinement of research techniques that avoid questions of principle. (Salonen & Sotasaari, 2015, p .41). A proactive and anticipating approach regarding the future is based on wide-range and open-minded thinking, awareness of one's own thinking, and an evidence-based research approach.

Speculative design uses possible futures as a tool to understand the present. Futures are used to create a perspective, debate, and discuss people's expectations of the future. Speculative design often takes the form of scenarios that can be intentionally provocative and simplified. Scenarios are placed between the reality and the impossible. (Dunne & Raby, 2013, p. 2-3). More precisely, the preferable future for speculative design is between probable and plausible futures. The space is occupied by the government and industry for now. Most of the designers, design methods, processes, tools, what is acknowledged as good practice, design education, and valuation of design are placed in probable futures. Plausible futures on the other hand deal with foresight and scenario working. (Dunne & Raby, 2013, p. 3-6). Design fiction uses stories about alternative futures. Design fictions describe a given scenario, or they can be a part of a more complex story. (Tharp & Tharp, 2018, p. 51). Design fiction can use alternative history or scenarios where generally accepted facts are not true. (Tharp & Tharp, 2018, p. 86-87). The application of discursive design agendas can be practical. According to Tharp and Tharp (2018) two of discursive design's operational domains are research-based: applied research and basic research.

(Tharp &Tharp, 2018, p. 122). As a distinction, strategic foresight uses futures in decision-making at the present moment. The futures are considered as potential. Scenario building is followed by visioning (decision-making in the present), planning (taking tactics into action), and finally acting (plans are brought into operation). (Hines & Bishop, 2021, 221, 267). Speculative design and design fiction can also be used on questions related to the probable future. Speculative design and design fiction can be used to test final outcomes or products and test the discursive and speculative dimensions of the outcome and process. When used in the iterative design process, they can be used to create or strengthen future-proof outcomes. Speculative design and design fiction can be used as tools to stimulate creativity, and to break the boundaries of traditional design. It is possible to detach the design process from commercial frameworks, while still retaining the commercial use of the outcome. This approach can liberate one's thinking from striving for commercial outcomes. Speculative design and design fiction have the potential to offer more diverse and complex solutions alongside the traditional process.

Similar approaches can be found in foresight. In general, as Koskelo (2021) has stated, the key principles of future thinking are that the future cannot be predicted, the future is not predetermined, the future is made, and finally, there are many alternative futures. (Koskelo, 2021, p. 55). Essentially, foresight work is systematic and continuous. It requires regular updates on change drivers and scenarios. (Koskelo, 2021, p. 58). To maintain competitiveness, companies should be able to renew themselves often due to shortened development cycles of business models and innovations. Foresight can increase the ability to react to changes. (Koskelo, 2021, p. 29). It is noteworthy that changes are happening in different degrees and paces throughout society. (Hines & Bishop, 2015, p. 36). Foresight is implemented widely, but companies are failing to integrate their operations into the foresight domain. Commonly they are utilized in trend analysis, scenario creation, market analysis, consumer and customer understanding, and strategic planning. (Koskelo, 2021, p. 39). Organizations can benefit from foresight as it can stretch out the organization's time span. The desired futures and other identified elements can be recognized and thus

influenced with foresight. Identifying future business models in advance can create competitive advantages, and safety and operational preparation, which create resilience. The number of decision-making options increases, resulting in future-proof investments and acquisitions. As a result, thought leadership can be produced. (Koskelo, 2021, p. 112-115). The qualities of individuals (critical thinking, metacognition, creativity) have been considered in the context of traditional design. These individuals' abilities are also an advantage for organizations. Professionals who, for example, understand the benefits of foresight are a valuable resource. Foresight can benefit both the organization and the individual; however, it should be able to be utilized widely and systematically. If the benefits of foresight are not recognized, designers will not see the advantage of the method.

The systemic design framework's orientation and vision setting is about creating a clear, hopeful vision and a mission to reach it. The key is to understand what needs to be valued, measured, and noticed in environmental, societal, and cultural aspects. This setting is based on shared goals among the partners, and on creating a positive and value-driven space. The setting regards history, societal values, assumptions, and the system itself, and nature is positioned to be a stakeholder. Sustainable Development Goals by United Nations have been brought up as an example of a value value-driven approach. (Design Council, 2021, p. 48). Discursive design has a similar value-based approach, which can be practiced with the responsible design agenda. The agenda considers the people ignored by the market or other sociocultural structures. The responsible agenda can be used commercially, but it is based on ethics, compassion, altruism, and philanthropy. (Tharp & Tharp, 2018, p. 43-51). In the zooming in and out setting, things are investigated through micro and macro levels, between root causes and the visions of the big picture, and from the present to the future. (Design Council, 2021, p. 43). Although nature, humanity, human rights, etc. are often considered absolute values, organizations and individual professionals might possess a different value base. Different value bases emphasize the role of the designer, as designers should be able to attach absolute values to what they are doing without additional costs to include them. Alternatively, designers

should be able to show, for example, the financial and reputational benefits of underlining these values. Such a comprehensive change requires systemic change. In the orientation and vision setting, according to Hines and Bishop (2015), the basic change drivers are identified from internal and external environments during the scanning phase. (Hines & Bishop, 2015, p. 85). The scanning phase is followed up by the forecasting phase, where alternative futures are created so that organizations can be prepared for a range of different opportunities. (Hines & Bishop, 2015, p. 127-128). As Koskelo (2021) has presented, these change drivers can be identified as megatrends, trends, weak signals, and black swans. (Koskelo, 2021, p. 61). Foresight does not provide immediate results and the nature of it is ambiguous. Foresight requires more versatile thinking than just finding the right data. (Hines & Bishop, 2015, p. 20). Creativity and the resulting innovation create exceptional results. The development of individuals' creative ability leads to flexibility, self-expression, and personal reward, which can be recognition and a sense of appreciation as part of a team. Organizations are gaining resilience and a competitive advantage. (Hines & Bishop, 2015, p. 165-166). As results and achievements might not be seen immediately, the importance of critical thinking attached to the designer also increases. Design Council's (2021) systemic design framework's last setting, continuing the journey, is reflective. Continuing the journey is about how close the outcome came to the vision. The outcome is reviewed through learning and challenges. To do so the outcome must be open-ended and focused on creating. When knowledge sharing is applied in this setting, the outcome can be used in future work. (Design Council, 2021, p. 49). For creative methods and open-ended results to form, the designer, the system, and the organization should possess the characteristics related to critical thinking, creativity, and transparency.

### 4.4 PRACTISING CRITICAL THINKING IN DESIGN

In this chapter the secondary research question *4. How to practice critical thinking in design?* is used to analyse the theories.

Creativity has a clear relationship with research. According to Haber (2020), creativity is a high-thinking skill. Facts and observations usually exist in patterns.

In addition to scientists' evaluations, patterns should be also evaluated artistically so that new patterns and observations can emerge. As a result, critical thinking and creativity can bring new material for structured reasoning. In some design-based processes, the term design thinking covers experiment-based and iterative approaches and knowledge formation, discovery, and making. (Haber, 2020, p. 89-91). Similarly, Muratovski (2022) notes that creativity and critical thinking are abilities that can be learned by doing. Field research, for example, can help students develop both of these skills. Research-based education can help students build a knowledge base for every project they encounter. In this way, implicit or cognitive biases that may come with pre-established ideas can be avoided. New possibilities emerge for students who ask the right questions, practice being curious and look for answers across disciplines. If a student has been taught a specific way, adapting and adjusting to the change can be difficult. One way to deal with this problem is to shift the focus from teaching knowledge to teaching learning and utilizing critical and creative thinking as basic skills that are taught at an early stage. (Muratovski, 2022, p. 15). Critical and creative thinking skills can be an advantage in asking the right questions, which can be utilized in scientific processes. Haber (2020) describes the scientific method as follows: it includes posing a question and proposing a hypothesis. The hypothesis is tentative until enough information has been gathered, either to approve or disapprove it. Well-supported hypotheses form a so-called theory, which is strong enough for further research. The most advanced form of reasoning is when scientists examine empirical evidence produced by other scientists, then replicate the experiments and findings, and examine the results through constructive scepticism. An elementary understanding of the scientific method increases understanding beyond the realm of science. (Haber, 2020, p. 14-15). When thinking about creative approaches to research, Tharp and Tharp (2018) note that hypothesis testing is possible, for example, in the experimental agenda of discursive design when applied in design research. (Tharp & Tharp, 2018, p. 43-51). Learning and utilizing the advantages of creative approaches in research depends on the way designers learn. It is important to learn critical thinking and creativity and to recognize patterns. The challenge is the current consensus,

where education takes place under the conditions of working life. Thinking about radical new ways or models does not directly fit this picture, even if learning them would benefit everyone. Design briefs are in a similar position in design as hypotheses are in research. However, design briefs are not approached the same way hypotheses are in research, as design briefs are not set to be approved or disapproved at the end of the process. Rather, they are similar to assignments, that are used to reach certain outcomes. Constructive scepticism benefits research, but in the design process and the context of design briefs the premises of the design process are not expected to be questioned. As Muratovski and Haber stated, critical thinking is not an absolute value, and it needs to be practiced. Creativity as a term and practice is often associated with creating something, without harnessing its strategic and systemic use. However, creativity should not be directed unplanned to only produce strategic or systemic benefits. Creative methods can be used constructively to question the starting points of projects or to create a process where the final result does not depend on predetermined criteria.

In addition, Muratovski (2022) has noted that the field of design should continue producing its own base own knowledge, better expertise, and new skills. To achieve this, design should follow a system of orderly behaviour; understand and investigate new knowledge, ways of working, and philosophies of thinking, resulting in maintaining the academic status. (Muratovski, 2022, p. 37). In support, Haber (2020) has listed the components of critical thinking to be structured thinking (formal logic and informal logic), language skills, and argumentation. Haber also suggests that creativity and personal dispositioning are important skills related to critical thinking. The goal is to clarify to others what we are thinking or communicating, make our reasons and beliefs transparent, and have the ability to determine if reasons for belief are justified. Logic is usually structured in a sequential manner: argument, premise, conclusion, inference, logical form, validity, soundless. Reasoning on the other hand is divided between deductive and inductive reasoning, of which deductive is considered stronger in reasoning, while inductive reasoning is closer to everyday life. (Haber, 2020, p.

37-41). One methodological example is the Delphi method. Based on the research led by Peter Francione, a structured decision-making and forecasting process, known as the Delphi method, was created. *The Delphi report was established from The Delphi method. The Delphi report defines critical thinking as purposeful and self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based.* (Haber, 2020, p. 105). Structured thinking, argumentation, and reasoning could provide design with a scientific and stable basis for versatile thinking, methods, and the development of new skills. This approach would propose a return to academic learning, where thinkers, instead of doers, are created. Instead of focusing on the practice of 'doing', students would benefit from learning critical thinking, creativity, scientific methods, and curiosity, which can all be harnessed to change one's activities. Competence in the aforementioned skills could create a strong basis for learning for design students and shift the focus from learning practical applications to acquiring learning skills. If the field of design or designers are not able to produce their own research, thinking, knowledge base, and practice, there is a risk of being absorbed into other fields in the middle of big systemic changes. If design as a field is not able to reason and maintain the existence of the design field as a distinct practice, it is not able to produce self-supporting professionals in a changing world. This can already be seen in the popularity of design adaptation in other fields.

If criticality is considered at a more general level, Malpass (2017) notes that conventional design lacks connections to critical practice, which can be observed from the absence of exogenous research related to critical practice. (Malpass, 2017 p. 9). The practice of critical design is separate from critical theory and the Frankfurt School, as it thrives on critical thinking, manifested by scepticism, questioning, and not taking things for granted. (Dunne & Raby, 2013, p. 34-35). Tharp and Tharp (2018) have pointed out that speculative design is not strict about its critical positioning and is rather curious than confident. (Tharp & Tharp, 2018, p. 86). It is noteworthy that speculative design was separated from critical

design due to criticism related to elitism: convincing people with knowledge they don't have and intellectual carelessness in the context of academic fields and their connection to critical theory. (Tharp & Tharp, 2018, p. 86). According to Malpass (2017), in critical design, the critique and argumentation are conveyed through a designed object and its narrative use. (Malpass, 2017, p. 1-2). Critical design and critical theory are connected through strategic and sporadic application. (Malpass, 2017, p. 10-11). Design itself is positioned as a concern. (Malpass, 2017, p. 39). Critical thinking, strategic change, and speculative design can offer a route to the expansion of possibilities to take action as the field of design changes.

According to Tharp and Tharp (2018), on a practical level, discursive framing can distort, emphasize, suggest, speculate, incite, criticize, magnify, reflect, and reveal. However, this requires a shift in the viewers' position to an investigative anthropological role. (Tharp & Tharp, 2018, p. 13). Discursive objects are intellectual pursuits for their audience by reminding, informing, provoking, inspiring, and persuading. (Tharp & Tharp, 2018, p. 26). The viewer usually examines the discursive object through six stages: encounter, inspect, recognize, decipher, interpret, reflection. Especially the recognition, decipher, interpret, and reflect stages manifest in critical thinking. Tharp and Tharp (2018) have described these stages as recognizing the object's discursive agenda, deciphering the semantics, interpreting the conveyed message, and reflection through critical assessments or personal reflection. (Tharp & Tharp, 2018, p. 114-119). Hines and Bishop (2015) have explained Sutton's practical methods to generate impractical, ridiculous, and dumb ideas or methods, to point out flaws in the assumptions, beliefs, facts, and decisions in business meetings. Counterintuitive ideas help to avoid group thinking by nurturing the diversity of beliefs and ideas. In this way, thinking that is too homogeneous can be avoided, and new opportunities can be identified. (Hines & Bishop, 2015, p. 170-171). The Foundation of Critical Thinking has described the personal traits of critical thinkers to be intellectual humility, intellectual courage, intellectual empathy, intellectual autonomy, intellectual integrity, intellectual perseverance, confidence in reason, and fairmindedness. (Haber, 2020, p. 92-94).

Leadership and storytelling setting in systemic design framework emphasizes self-care and self-reflection activities and learning during the process. (Design Council, 2021, p. 48). Similarly, the first stage of the design activities, explore, suggests reflecting on one's position and searching for alternative or marginal perspectives. The stage encourages the identification of a variety of different opportunities. (Design Council, 2021, p. 50). Also, Hines and Bishop (2015) have noted that the willingness to question and think about how things could be different offers space for creative discussion. If it is difficult to participate in discussions about oneself, the results can be achieved with a scenario plan or role models. (Hines & Bishop, 2015, p. 175). The role of the leader is to create an environment where people can think and imagine alternative solutions and are allowed to question things. It is not essential who is in charge, rather that they have the necessary skills for the role. The person in the position of this role must understand the system and processes, provide methods, and share and understand professional roles.

Foresight requires the ability to recognize patterns, non-linear and complex systems, and understand the mutual interactions between elements. (Hines & Bishop, 2015, p. 33). By accepting the complex nature that foresight has, simple interpretation can be avoided. (Hines and Bishop, 2015, p. 35). The challenges faced by foresight are often related to this complexity. To support this view Koskelo (2021) has listed that foresight's potentiality is reduced when the benefits are not clear or they are not identified, the timespan is too short, there's over-optimism due to the current state, there is not enough time resources or no competence to handle or apply foresight information, the organizational culture and management are unfavourable, the abstract nature of foresight is not understood or by wrong metrics and no receptivity to change. (Koskelo, 2021, p. 50-54). The ability to recognize patterns, critical thinking, and non-linear thinking are crucial parts of the ability to recognize the comprehensiveness of foresight and the thinking skills related to it. The ability to use methods in atypical environments and quickly internalize new ways of working requires thinking skills and knowledge of the operating environment. Haber (2020) has anticipated that high-quality reasoning will be in demand by employers. (Haber, 2020, p. 169-

170). However, regarding the correlation between education and competence, there are conflicting views between education and employers on how to increase critical-thinking ability. Nonetheless, they share the view that critical thinking should be increased. (Haber, 2020, p.101-102).

## 5. SYNTHESIS: THEORETICAL FRAMEWORK

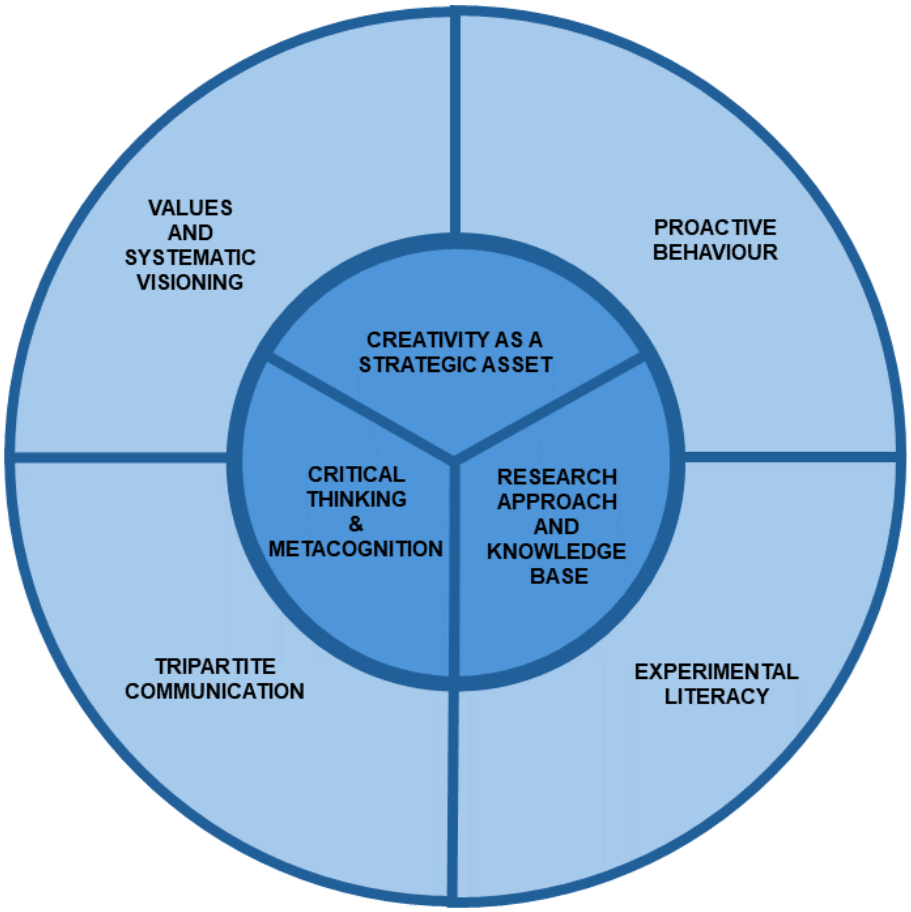
Based on the theoretical analysis, and the concepts and ideas that emerged from it, the designer's role and dimensions should be expanded. The context chapter (chapter 2) and analysis support the conjecture that designers should expand competency to become professional thinkers as an extension of traditional methodological competence. The role of 'remarkable people, presented by Hines and Bishop and originally defined by G.I. Gurdjieff, could be a definition and a metric to aim for to broaden the dimensions of the role of designers. According to Hines and Bishop (2015), remarkable people are people with many skills and broad knowledge of different expertise. Specialists with subject-matter expertise can support the broad knowledge of remarkable people. Kees van der Heijden states remarkable people produce insight that can change the direction of activities and challenge assumptions to bring out new ideas. However, when changing the direction of activities, remarkable people might end up taking the activity in the wrong direction and into intellectual pursuits unrelated to the activity itself. (Hines & Bishop, 2015, p. 118). In this synthesis, the aforementioned role of remarkable people and the expanded role of the designer are based on the following concepts of the 7-field framework.

### 5.1 7-FIELD FRAMEWORK

The 7-field framework consists of the most important abilities and dimensions of future designers, which are creativity as a strategic asset, research approach and knowledge base, critical thinking and metacognition. Jointly they form a tripartite, mutually dependent relationship where each element complements one another. The 7-field framework was created to be a basis for credible, reasoning-based, and adaptative design activity. In addition to the tripartite, the following abilities

and dimensions are emphasized in the framework: proactive behaviour, experimental literacy, tripartite communication, values and systematic visioning.

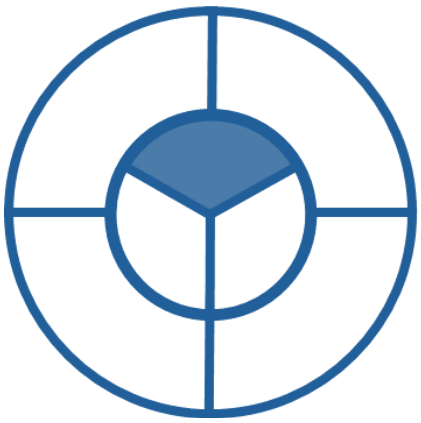
**Figure 19**
*7-Field Framework*




*Note. Design by Anton Wikstedt, 2024.*

### 5.1.1 CREATIVITY AS A STRATEGIC ASSET

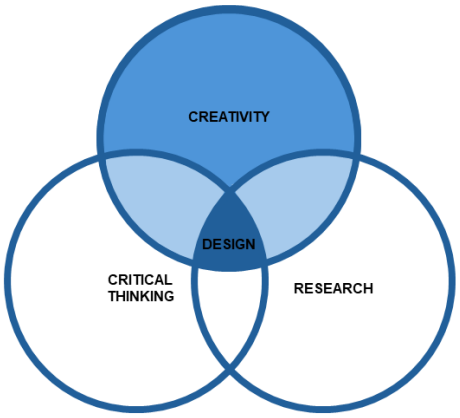
**Figure 20**
*7-Field Framework: Creativity as a Strategic Asset*



*Note. Design by Anton Wikstedt, 2024.*

As Haber (2020) has noted, creativity is a high thinking skill that can be used to observe new patterns to supplement traditional scientific evaluations. When creativity is combined with critical thinking it can produce new material for structured reasoning. Such results are already visible in design-based processes; design thinking's experiment-based use, and iterative approaches to knowledge formation, discovery,

**Figure 21**
*Venn-diagram: Creativity*



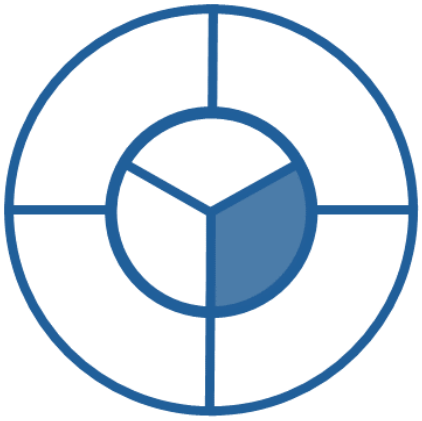

*Note. Design by Anton Wikstedt, 2024.*

and making. (Haber, 2020, p. 89-91). However, creativity is not just a random burst of artistic actions based on intuition. Hines and Bishop (2015) have posed that creativity needs to be complimented with rigor. It helps to create outcomes that are not too obvious and avoids outcomes that do not propose any insight. Creativity, when combined with rigor, ensures that the topic and crucial information are not ignored, and creativity is goal oriented. (Hines & Bishop, 2015, p. 172). In practice, this means that rational analysis of information is combined with imagination, desires, hunches, and beliefs. (Hines & Bishop, 2015, p. 174). In the same way that creativity helps to find patterns in data, it acts as a conduit for finding ways to accomplish design work. Muratovski (2022) has advocated the importance and efficiency of working beyond the discipline boundaries. (Muratovski, 2022, p. 15). For designers to achieve full creativity and methodological competence, cross-disciplinarity should be applied. It requires skills in parallel thinking and adaptation. Hines and Bishop (2015) pose that when creativity is a strategic activity, it distributes alternative thinking, generates new ideas, facilitates the adoption of new practices, and provides new opportunities. (Hines & Bishop, 2015, p. 57). This lays the ground for a cross-disciplinary approach. According to Muratovski (2022), cross-disciplinary is defined as follows: 1) multidisciplinary - a collaborative working beyond different disciplines on the same field, 2) interdisciplinary - combining two or more disciplines, borrowing or incorporating methods and concepts and 3) transdisciplinary - adopting new ways of working from other fields to solve problems that require systemic and comprehensive theoretical framework on social, economical, political environmental, and institutional factors. Transdisciplinary requires a sufficient level of knowledge to function competently. (Muratovski, 2022, p. 20). This cross-disciplinary division creates a link to the research perspective. Designers will benefit the most from internalizing all the cross-disciplinary approaches, which will make their working environment easier

to manage. Hines and Bishop (2015) present a similar approach through four creative thinking models. Strategic relatives archetype: learning from other fields as supposedly issues and problems have been solved earlier in other fields and industries. The biostrategy archetype: learning from nature by replicating its networks and development. The science fiction archetype: learning from fiction, alternative futures, and alternative realities. The value analysis archetype focuses on desired outcomes. Creative thinking styles offer alternatives to act on or solve a problem, and improve a product, service, process, or system. (Hines & Bishop, 2015, p. 159-160). The cross-disciplinary approach and creative thinking tools offer more opportunities for the development of individual practitioners and organizations. This creates a space where alternative methods and practices can be added to create insight for strategic creativity. For example, speculative design and design fiction are harnessed for the process of creation to generate unexpected results and outcomes. According to Hines and Bishop (2015), the development of individuals' creative ability leads to flexibility, self-expression, and personal reward, which can be recognition and a sense of appreciation as part of a team. Organizations are gaining resilience and a competitive advantage. (Hines & Bishop, 2015, p. 165-166). Tharp and Tharp (2018) have expounded that results that are disturbing and strange and point to other places, times, and values, can be created. (Tharp & Tharp, 2018, p. 100). This also provides more latitude in the perception of time. As Tharp and Tharp (2018) have highlighted, design fiction usually presents parallel alternative futures. (Tharp & Tharp, 2018, p. 86-87). Creativity, in essence, is a skill of diverse thinking. It is the ability to recognize anomalous patterns as a supplement to finding obvious and easily perceivable patterns. This ability can be applied to both artistic work and research methods. Creativity includes the ability to process research-based hard data with creative methods. To deploy creativity as a full strategic activity it needs to be integrated with research and critical thinking.

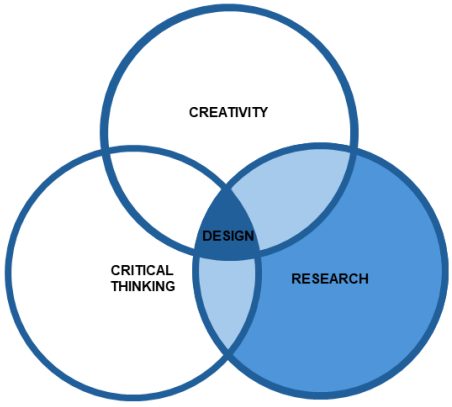
### 5.1.2 RESEARCH APPROACH AND KNOWLEDGE BASE

**Figure 22**
*7-Field Framework: Research Approach and Knowledge Base*



*Note. Design by Anton Wikstedt, 2024.*

**Figure 23**
*Venn-diagram: Research*




*Note. Design by Anton Wikstedt, 2024.*

Research increases professional credibility and makes actions easier to justify through transparent, repeatable, and generally accepted methodology in science. Through these scientific methods, design practices can be brought under peer review more effectively. Muratovski (2022) stresses that the field of design should continue to produce its own base of knowledge, better expertise, and new skills, which is possible to accomplish by following a system of orderly behaviour: understanding and investigating new knowledge, ways of working, and philosophies of thinking. By following this system of orderly behaviour, design can maintain its academic status. (Muratovski, 2022, p. 37). The system can be implemented through a traditional method, such as the scientific method. Haber (2020) has described it as a process where first a question is posed, and then a hypothesis is proposed. The hypothesis is considered tentative until information either approves or disapproves it. Well-established hypotheses can form a base for a theory that encourages further research. Reasoning is considered to be most advantageous when scientists examine empirical evidence, that is produced by another scientist, by replicating the experiments and findings and examining the results through constructive scepticism. A comprehensive understanding of the scientific method enables the gathering of understanding beyond the realm of science. (Haber, 2020, p. 14-15). In addition, Muratovski (2022) has stated that evidence-based research is important for designers in disruptive innovation and complex problem-solving as it enables one to set apart personal biases, beliefs, and preconceptions, and see the world

beyond aesthetics and functionality. (Muratovski, 2022, p. 12). However, research alone is not the key to success in design. Research needs to be combined with the ability for critical thinking and strategic creativity. Through this approach, methodological narrowness can be avoided, and the approach itself can be further enhanced by research triangulation. As Muratovski (2022) has highlighted, design, for now, is taught mostly in arts-based programs separate from hard sciences. This creates a challenge for the designer to adopt a research approach. (Muratovski, 2022, p. 36). Both the industry and the designers themselves can create professional agility and advancement through the research approach: by gathering data and reasoning. Research should be an integral part of the design practice. Hence, creativity, critical thinking, and research emerge as key factors for designers' professional competence and development.

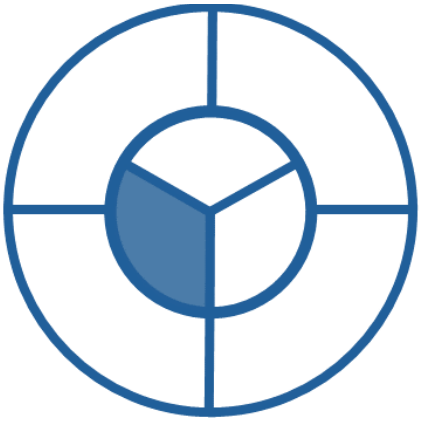
Research methods and foresight can make the designer's approach more proactive. As Hines and Bishop (2015) have expounded, the ability to recognize patterns, non-linear and complex systems, and understand interaction relationships is essential in foresight. (Hines & Bishop, 2015, p. 33). Consequently, Koskelo (2021) advocates that the foresight process is consistently goal-oriented, and methods are chosen according to the objective. (Koskelo, 2021, p. 41-44). When foresight is included in the research approach, and through that also included in the design process, an alternative to the current reactive state can be achieved. As a result, proactivity turns into a strategic asset.

Muratovski (2022) poses that to tackle wicked problems, people need new solutions and unusual approaches. (Muratovski, 2022, p. 19). Commercial design is engaged with problem solving but discursive design agendas can provide an alternative to this. According to Tharp and Tharp (2018), discursive design posits itself as a problem finder or a problem communicator, so it has a better chance of dealing with wicked problems. (Tharp & Tharp, 2018, p. 78-79). Discursive design's experimental agenda enables the testing of hypotheses. (Tharp & Tharp, 2018, p. 43-51). The ability to approach problems versatile is essential. Research cannot start from the assumption that any activity can provide the right solution to a problem.

As Haber (2020) has stated, high-quality reasoning will be highly evaluated by employers in the future. (Haber, 2020, p. 169-170). The research approach, in this context, means establishing a more comprehensive research tradition in the field of design. Establishing a research tradition includes choosing a methodology according to aims and goals, creating more credibility in reasoning, traceability and transparency of results, and creating new knowledge for the design field and individual projects.

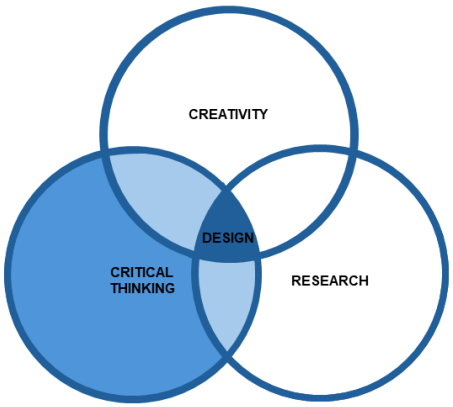
### 5.1.3 CRITICAL THINKING AND METACOGNITION

**Figure 24**
*7-Field framework: Critical thinking and Metacognition*



*Note. Design by Anton Wikstedt, 2024.*

**Figure 25**
*Venn-diagram: Critical Thinking*




*Note. Design by Anton Wikstedt, 2024.*

Creativity and research need rigor and reasoning. This can be promoted by critical thinking and metacognition. According to Haber (2020), the components of critical thinking are structured thinking (formal logic and informal logic), language skills, and argumentation. In addition, skills such as creativity and personal disposition are considered crucial. (Haber, 2020, p. 37-41). Critical thinking can be connected to creativity and form a basis for research. When metacognition is added, it is possible to achieve personal dispositioning. Haber (2020) has described metacognition as the understanding of one's own thought process by reflecting on one's personal thinking. (Haber, 2020, p. 97). According to Haber (2020), logic can be structured as follows: argument, premise, conclusion, inference, logical form, validity, and soundless. Reasoning consists of deductive and inductive reasoning. (Haber, 2020, p. 37-41). As Muratovski (2022) has stated, critical thinking is an ability that is learned by doing. Biases and pre-established ideas can be avoided when critical thinking and creativity have been

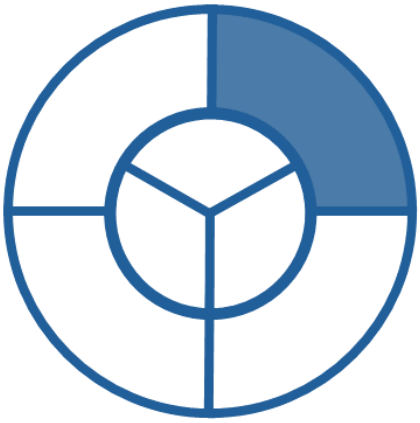
practiced. Individuals who practice being curious, ask the right questions, and look for answers across disciplines are those for whom new opportunities open. The foundation of learning is to learn how to learn instead of gathering knowledge (Muratovski, 2022, p. 15). Therefore, critical thinking and metacognition are important resources that direct how the research approach and creativity are utilized. When an individual or organization practices versatile structured thinking and reasoning, thinking can be comprehensively harnessed as a goal-oriented, strategic asset. For example, with structured thinking and reasoning, the design process can be used to create structured arguments. As Haber (2020) highlights, irrational ways of thinking can worsen complex problems. In this respect, critical thinking could be a pivotal approach to finding solutions to problems. (Haber, 2020, p. 99-100). Critical thinking consists of practicing and adapting habits that follow the critical thinking pattern. (Haber, 2020, p. 35-36). A focal ability is to look at problems from different perspectives. (Haber, 2020, p. 2). Along with the design practice, critical thinking can complement the proactive design approach. Hines and Bishop (2015) emphasize that strategic foresight requires diverse ways of thinking. (Hines & Bishop, 2015, p. 119). Similarly, the importance of having a wide range of perspectives is pointed out in the systemic design framework by the Design Council (2021); different perspectives are synthesized and then reframed from insight by bringing people together. (Design Council, 2021, p. 50). The personal traits of a critical thinker are intellectual humility, intellectual courage, intellectual empathy, intellectual autonomy, intellectual integrity, intellectual perseverance, confidence in reason, and fairmindedness. (Haber, 2020, p.92-94).

As mentioned by Tharp and Tharp (2018), speculative design is not strict about its critical positioning and is more curious than confident. (Tharp & Tharp, 2018, p. 86). Speculative design often lacks rigorous discipline, and does not, as such, provide a critical thinking pattern, but it still offers useful elements for critical thinking. Malpass (2017) describes critical design, which shares the same potential as speculative design, as a practice where critique and argumentation are conveyed through the object's narrative use. (Malpass, 2017, p. 1-2). This

provides a way to convey critical thinking and argumentation either through the shaped object or again, through the shaping process itself.

### 5.1.4 PROACTIVE BEHAVIOUR

**Figure 26**
*7-Field Framework: Proactive Behaviour*



*Note. Design by Anton Wikstedt, 2024.*

Proactivity is a multidimensional asset, and it has already been introduced in the research and critical thinking sections. Proactivity can be approached through foresight because of their common future-oriented dimensions.

Hines and Bishop (2015) advocate that foresight expands possibilities in the future. It is used to identify indicators and conclude the course of events, which can be then utilized in understanding and preparing for a range of opportunities. (Hines & Bishop, 2015, p. 127-128). When futures are discussed in the form of scenarios and vision creation, the data about the future can be brought into decision-making. (Hines & Bishop, 2021, 221, 267). As Koskelo (2021) describes, foresight working is systematic and continuous. (Koskelo, 2021, p. 58). In this respect, foresight shares the iterative nature similar to design processes. However, as a distinction, Hines and Bishop (2015) state that foresight does not provide immediate results and it has an ambiguous nature. Because of this foresight requires versatile thinking. (Hines & Bishop, 2015, p. 20). According to Koskelo (2021), the ability to renew oneself and increase the ability to react to changes is the way to maintain competitiveness. (Koskelo, 2021, p. 29). Foresight can expose desired futures and other identified elements to influence and stretch out the time span of success. Thus, foresight supports competitive advancement, resilience, future-proof investments, acquisitions, and thought leadership and it increases the number of possible options. (Koskelo, 2021, p. 112-115).

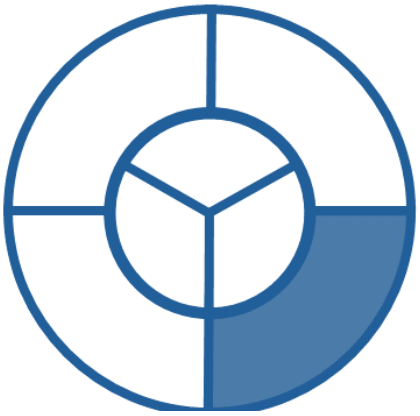
Speculative design and design fiction provide an additional approach to proactivity, and they are connected by futures. According to Dunne and Raby

(2013), speculative futures are used as a tool to understand the present. Futures are used to create perspective, debate, and discussion about people's expectations regarding to the future. (Dunne & Raby, 2013, p. 2-3). Similarly, design fiction uses stories about alternative futures. They usually describe a given scenario or support stories that are more complex. (Tharp & Tharp, 2018, p. 51). As a distinction to speculative design, design fiction can use alternative history or scenarios in which generally accepted facts may not be true. (Tharp & Tharp, 2018, p. 86-87).

A designer who adopts a proactive and anticipative approach in their work can improve their possibilities of reacting and influencing the future. Future challenges and opportunities can be approached by improving skills and abilities regarding proactivity as a part of practicing design. This approach improves flexibility, resilience, safety, sustainability, and competitiveness.

### 5.1.5 EXPERIMENTAL LITERACY

**Figure 27**
*7-Field Framework: Experimental Literacy*



*Note. Design by Anton Wikstedt, 2024.*

The experimental approach to design work enables one to detach from the prevailing state of conventional design, such as capitalism and consumerism. Tharp and Tharp (2018) have posed that conventional design is categorized by useful, usable, and desirable outcomes in the context of capitalism and consumerism. (Tharp & Tharp, 2018, p. 90). Conventional design complies with cultural, social, technical, and economical expectations. (Malpass, 2017, p. 46). Furthermore, Tharp and Tharp (2018) pose that design studies are still structured according to a category-based lineup. (Tharp & Tharp, 2018, p.44). When the work is more experimental and detached from the typical constraints of the field, exceptional outcomes, methods, and answers can be created. Muratovski (2022) has argued that the experimental way of learning gives opportunities for solving open-ended real-world problems, which produces problem-solving abilities, a sense of ownership of one's own learning, and builds

community feeling. (Muratovski, 2022, p. 22). Dunne and Raby (2013) state that speculative design provides a parallel and separated space from market forces, where to try out ideas. (Dunne & Raby, 2013, p. 12-14). Speculative design is built on a scientific basis, such as physics and biology. The spectrum of ethics, psychology, behaviour, economics, etc. can be stretched. (Dunne & Raby, 2013 p. 71). In support of this approach, Muratovski (2022) has interpreted the importance of soft skills (such as critical thinking, empathy, languages, philosophy, ethics, and communicational skills) and global competencies (such as cultural awareness, languages, teamwork, and adaptability) can hold a key position in identifying the problem and understanding the global concerns addressing them. (Muratovski, 2022, p. 18).

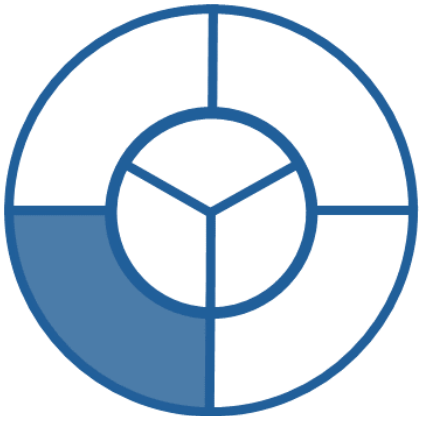
Using experimental ways in design work can serve to broaden the perspectives of designers or others involved. Experimentation can bring new or alternative ideas to the fore and create unexpected outcomes, especially when dealing with challenges that require new or alternative perspectives and outcomes.

As Tharp and Tharp (2018) state, commercial design focuses on problem-solving. As a result, challenges, and solutions are defined through the commercial design's capability to solve them. Discursive design on the other hand is positioned as either a problem finder or problem communicator. Due to this, it has better capabilities to deal with wicked problems. (Tharp & Tharp, 2018, p. 78-79). In support, Muratovski (2022) contends that wicked problems require new solutions and unusual approaches for the global society to maintain and develop the quality of life. (Muratovski, 2022, p. 19). Designers should be able to approach challenges from many different perspectives. Instead of only solving problems, designers should develop the ability to convey information and efficiently find problems. So-called alternative design practices (to conventional design), such as discursive design and speculative design can used to re-think and reframe problem-solving goals and opportunities, by providing a parallel approach to the traditional problem-solving mentality. According to the Design Council's (2021) systemic design framework's first stage, create, the goal is to think big and create ideas that can be bold and unrealistic. They are used as a catalysis to raise larger questions. The stage emphasizes the importance of searching for alternative or

marginal perspectives to identify a variety of different opportunities. (Design Council, 2021, p. 50-51). Similarly, Hines and Bishop (2015) have explained Sutton's practical methods to generate impractical, ridiculous, and dumb ideas or methods, to point out flaws in the assumptions, beliefs, facts, and decisions in business meetings. Counterintuitive ideas help to avoid group thinking by nurturing the diversity of beliefs and ideas. In this way, thinking that is too homogeneous can be avoided, and new opportunities can be identified. (Hines & Bishop, 2015, p. 170-171). They summarize that counterintuitive ideas help to avoid group thinking by promoting the diversity of beliefs and ideas, and as a result, new opportunities can be identified. (Hines & Bishop, 2015, p. 171). The willingness to question and think about how things could be opens a space for creative discussion. (Hines & Bishop, 2015, p. 175). In addition, Dunne and Raby (2013) pose that abstract issues can create a space for the viewer to investigate social and ethical issues in a way that is close to their everyday life. (Dunne & Raby, 2013, p. 51). According to Tharp and Tharp (2018), professional repositioning helps people to think complex and controversial issues. This allows humanly important issues to be brought up and used in decision-making, community activities, activism, counselling, practical application, and user research to improve the results of the traditional design. (Tharp & Tharp, 2018, p. 6-10). Tharp and Tharp (2018) elucidate that discursive design is applied in academics, companies, and other research settings to generate insights. (Tharp & Tharp, 2018, p. 25). By practicing versatile, experimental, and alternative ways of operating, additional perspectives can be brought into the design processes and research approaches. In addition to hard skills, designers should generate skills outside the traditional ways of doing things. Designers should dare to use methods and skills boldly, as creativity and revolutionary ideas do not flourish in routines. Through this change of perspective, creative process can become proactive instead of passive.

### 5.1.6 TRIPARTITE COMMUNICATION

**Figure 28**
*7-Field Framework: Tripartite Communicator*



*Note. Design by Anton Wikstedt, 2024.*

Communication can be divided into three different methods: the designer's general communication, discourse conveyed through the concrete design work, and the audience's or participant's reflection which transfers back to the designer. In addition, Haber (2020) highlights the importance of language skills: the ability to transfer normal human language into premises and conclusion which creates a structured argument. Those statements can create the basis for logical analysis. (Haber, 2020, p. 68). Design itself can be implemented as a vessel for a structured argument through conveying information. Critical thinking and metacognition are the basis of conscious communication.

Communication is a key skill when creating relationships between people and groups (such as organizations). One of the most crucial tasks of a designer is to act as a link between different stakeholders. For example, the Design Council's (2021) systemic design framework includes a role that emphasizes creating relationships between people and groups and unites and merges in order to create a bigger movement. The purpose of the activity is to get people to commit and work together towards a result. (Design Council, 2021, p. 44). Furthermore, connections and relationships are intensified during the process. Empathy and relationships are built alongside the process, and the perspectives of stakeholders, communities, and nature are involved. The purpose of the process is to create trust, mutual understanding, and connections which results in finding new ways to work. (Design Council, 2021, p. 49). According to Tharp and Tharp (2018), discourse can be conveyed from a theoretical perspective through the following traditions: rhetorical tradition, semiotic tradition, sociocultural tradition, and critical tradition. (Tharp & Tharp, 2018, p. 103-107).

As stated by Tharp and Tharp (2018), the audience, viewers, project participants, and other people involved, encounter the design process and its outcome through

six practical stages: encounter, inspect, recognize, decipher, interpret, reflection. (Tharp & Tharp, 2018, p. 114-119). The recognition, decipher, interpret, and reflect stages are particularly connected to critical thinking. Design Council's (2021) systemic design framework's catalyse phase emphasizes the importance of people adding their thoughts to the outcome. Mock-ups and prototyping can be used to test out ideas and their connections to other interventions. To test out the social and environmental effects (of the ideas), qualitative and quantitative measurements should be created. Stories and narratives can encourage others to join which will result in a movement of change. (Design Council, 2021, p. 51). This leads to Tharp and Tharp (2018), who state that discursive design focuses on reflection. Artifacts exist for thinking, conveying ideas, raising awareness, creating understanding, or for debating. They commonly have psychological, sociological, or ideological interpretations. Discursive design can be applied in research. (Tharp & Tharp, 2018, p. 43-51). A discourse-meditated relationship is built through socio-culturally relevant arguments, counterarguments, and questions that are attached to the objects. This discourse-mediated relationship leads to the act of transmission. (Tharp & Tharp, 2018, p. 76). People can commit to the design process or its outcome through reflection. Design's ability to influence is highlighted when conveying a message: design has an active goal of influencing people through design.

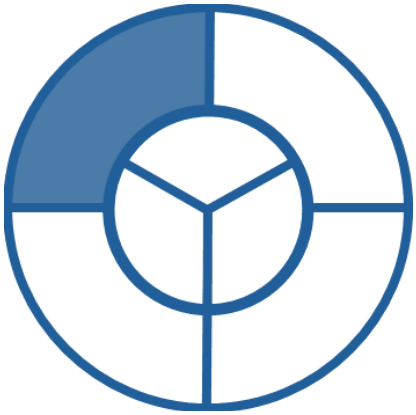
Although discursive design usually focuses on a physical artifact, it does not have to exist physically and can be immaterial. The advantage of discursive design is that it is ambiguous. According to Tharp and Tharp (2018), discursive design does not specify the content, tone, audience of impact, or voice. (Tharp & Tharp, 2018, p. 69). This ambiguity leaves space for interpretation. Design, when used effectively, conveys communication and discourse by connecting people. The desired message can also be conveyed through the process or the outcome. Design harnesses two-way communication: messages are conveyed and interpreted between the audience, other participants, and the designer or the outcome itself. A designer always aims to convey something through their work. According to Tharp and Tharp (2018), designers can expand their professional role to engaged citizen, sociocultural critic, activist researcher, educator, and

provocateur. (Tharp & Tharp, 2020, p. 19). Designers can employ material characteristics, traditions, and features for immaterial purposes. It is possible to influence individual behaviour, public debate, professional practice, institutional policies, and new knowledge, which can result in a sociocultural change. (Tharp & Tharp, 2018. p. 5-7). In practice this means distorting, emphasizing, suggesting, speculating, inciting, criticizing, magnifying, reflecting, and revealing. However, this requires a shift in the viewer's position to a more investigative and anthropological role. (Tharp & Tharp, 2018, p. 13). Discursive design conveys intellectual pursuits for the audience by reminding, informing, provoking, inspiring, and persuading. (Tharp & Tharp, 2018, p. 26). In addition, Design Council's (2021) systemic design framework emphasizes reflection on its final setting, where the outcome is reviewed through the original vision. The outcomes should be open-ended and aim for creating and sharing knowledge that benefits future work. (Design Council, 2021, p. 49).

Through understanding and harnessing design's ability to influence, a designer can convey immaterial characteristics, such as values, through their work. Material characteristics can be used for immaterial goals, and discussions, behaviour, and practices can be influenced. The ability to influence, communicate, and convey immaterial characteristics are essential skills for a designer.

### 5.1.7 VALUES AND SYSTEMATIC VISIONING

**Figure 29**
*7-Field Framework: Values and Systematic Visioning*



*Note. Design by Anton Wikstedt, 2024.*

Design Council (2021) guides, in the systemic design framework, designers to work more systematically and sustainably by sharing their knowledge and taking ethics and values into account. (Design Council, 2021, p. 42-43). The framework's orientation and vision setting focus on creating a clear, hopeful vision and a mission to reach it. Essentially this means understanding what needs to be valued, measured, and noticed in environmental, societal, and cultural aspects.

The setting is established on shared goals among the partners and a positive and value-driven place. The setting includes history, societal values, assumptions, and the system itself. Sustainable Development Goals by United Nations have been brought up as an example of a value-driven approach and nature should be raised on a stakeholder position. (Design Council, 2021, p. 48). Values are conveyed through discursive design's responsible agenda. According to Tharp and Tharp (2018), the responsible design agenda focuses on people who are ignored by the market or other sociocultural structures. The outcomes of the responsible design agenda are usually commercially available, but ethics, compassion, altruism, and philanthropy form their core. (Tharp & Tharp, 2018, p. 43-51). Commonly, the responsible agenda cannot be applied in all design processes as such, for the designer should consider the effects their work has on people, nature, and other structures.

Since values are essential in design and value building is an integral part of the whole design process, it is practical to bring values as a part of visioning, where goals and plans are created. For example, Design Council (2021) presents that the zooming in and out setting of the systemic design framework suggests an investigation through micro and macro-levels, from root cause to big visions and from the present to the future. Design Council, 2021, p. 43). The systemic design framework describes that one of the core roles is a systemic thinker. According to Design Council (2021), systemic thinkers see the project from micro and macro levels, and they are not limited by silos. (Design Council, 2021, p. 44). However, systemic thinking requires an understanding of its limitations as a counterweight. Hines and Bishop (2015) state in the strategic foresight process' framing phase, that is important to outline the subject boundaries by understanding the depth and scope concerning resources and thinking. (Hines & Bishop, 2015, p. 19).

When a designer acts as a systemic thinker and understands the limitations of the role, they can harness values as a part of the design process itself. Through this approach, values can be brought into visioning and transferred forward and beyond the process, into the environment under the influence of the process and outcome. Additionally, designers should be able to demonstrate the financial and reputational benefits of raising these values.

# 6. CONCLUSION

The following elements of the research are considered in this chapter: research objective, findings, significance, contributions, limitations, and future directions. Here the results of the study, the context of the study, and the research questions are brought together.

## 6.1 RESEARCH OBJECTIVE

This study is theoretical research about the repositioning of the designer's role and professional dimensions amid anticipated structural change. This research object was also the goal of the main research question. The purpose was to determine which professional dimensions and abilities are crucial in the future and organize them into a theoretical framework. The study was corroborated by four secondary research questions based on cross-disciplinarity, anticipation, critical thinking and research, and discourse and speculation. The secondary research questions divided the approach into four different viewpoints in the theoretical analysis phase. The literature used in the theoretical perspectives was essentially filtered through the secondary research questions, creating interactions and collation between the theories and concepts. Through this process, the concepts and theories could be comprehensively analysed in relation to each other in the analysis phase. The analysis was followed by a theoretical synthesis where key findings were arranged into new concepts and placed into a theoretical framework which is called the 7-field framework.

The approach of this study was broad in the sense that it did not specifically define who is a designer or what design is, as the theories and context determined the outcome of the study. The definition and influence of design thinking, in relation to conventional design, was not defined either because the concept of design thinking is not otherwise considered or relevant in this study. The goal of this openness was to avoid a too precise research setting, which could also affect findings and results. This broad approach was chosen to avoid the status quo of design and the principles and limitations of traditional design to have a delimitating effect on the study. If the research questions and objectives are only studied through the status quo of the field, the results might only support futures

that happen per the current situation, excluding possible futures without design that adheres to the current state. Although the viewpoint of this study is critical, it is not based on the notion that conventional design would be impractical, useless, or outdated. The goal was to find new and broad perspectives by breaking away from the conventional thinking related to the field. In this study, conventional design's adaptability and the quality of the designers it produces are defined by data relating to structural change (chapter 2). However, this topic is not the subject of this study and could be studied and defined further.

## 6.2 FINDINGS

The research findings correlate with the scenario presented in the context chapter (chapter 2). A framework formed by analysis and synthesis corresponds to both the given context and the research goal. The study demonstrates that traditional design education and the conventional practice of the profession in its current state are not prepared for the change mentioned in the context chapter.

The research produces the 7-field framework, which consists of key abilities that support adaptation. These abilities correspond with the future scenario presented in the context chapter. However, the effective application of the framework outside of individual use and in the practices of the design field requires a change in the educational and professional traditions. At the moment, the possible change in the professional competence of designers depends on individuals who adopt new approaches and on how well recognized and received those individuals are in the professional field. If this potential competence is not supported during the designer's education or recognized at a professional level, those abilities will not be considered valuable skills worth advancing. The 7-field framework is not composed of new concepts, but the concepts have been aggregated to meet the field-specific need for change. The framework focuses on the intellectual qualities of a designer and provides an immaterial, thinking-model-based approach. The central idea is that the designer should be aware of their thinking and understand their position, impact, and multidimensional challenges and opportunities. Hence, the designer must know how to learn. The

key findings of the research were categorized as follows: creativity as a strategic asset, research approach and knowledge base, critical thinking and metacognition, proactive behaviour, experimental literacy, tripartite communication, and values and systematic visioning. These seven findings structure the 7-field framework.

The most pivotal findings were creativity as a strategic asset, research approach and knowledge base, and critical thinking and metacognition. These findings share a strong mutual connection and cannot be completely separated from each other, and they are the core of the framework. These three core values of the framework create the basis for credible, high-quality, conscious, and creative professional activity. The other findings (proactive behaviour, experimental literacy, tripartite communication, and values and systematic visioning) offer a more precise definition of how to conduct the profession on a more practical level, and they support the core findings. The role of remarkable people is a concrete and practical example of how the framework can be applied in a professional role.

**Creativity as a strategic asset:** This finding emphasizes the importance of creativity. Creativity is connected to research approach and knowledge base, and critical thinking and metacognition. These approaches provide rigor and relevance to design and in addition, research and critical thinking especially benefit from creativity. Creativity provides the ability to identify atypical structures and evaluate emerging patterns creatively, which support complex problem-solving. Creativity can provide unexpected and diversified outcomes. It supports the cross-disciplinary design approach and can be used to find needed working models and solutions from other fields. Creativity is a strategic and systemic ability when it is used appropriately and comprehensively.

**Research approach and knowledge base:** This finding is an essential method for providing new evidence-based knowledge, peer evaluation, and orderly behaviour, and can be used to create a more comprehensive knowledge base for the field of design. Research forms a key asset for maintaining design fields' academic status. The research approach increases the ability to solve complex

problems. The ability to think beyond mere problem-solving is linked to the research approach. The aim of the research approach is not only to approve or disapprove hypotheses, or to just solve problems, but to also provide a vessel for problem communication and problem finding. Thus, hypotheses can also be tested through this approach. Creativity, as a strategic asset, supports research by bringing to it the ability to recognize patterns that deviate from the traditional understanding of science. Critical thinking and metacognition form the basis of structured thinking and reasoning in the realm of research.

**Critical thinking and metacognition:** This finding highlights the importance of critical thinking pattern and metacognition. The finding manifests in structured thinking, argumentation, the ability to turn normal human language into premises, personal dispositioning, and reasoning. In addition, critical thinking and metacognition provide a space for reflection which can, for example, minimize the risk of biases and preconceptions. Critical thinking can enable the ability to see problems from many different angles, provide an orderly manner of behaviour to research, and be harnessed to drive research. It can also bring discipline to creativity and can lead to curiosity and the search for cross-disciplinary solutions which results in new possibilities.

**Proactive behaviour:** This finding emphasizes a versatile, ambiguous, systemic, and continuous proactive approach to design. It is based on foresight frameworks and methods. Future threats and opportunities can be identified and brought into decision-making. This finding guides one to recognize how sources can be directed according to the possible futures. However, to introduce proactivity and future thinking more versatilely to design the perspective should also be broadened towards speculative design and design fiction practices. Through this approach, it is possible to obtain data about the future and examine people's attitudes, beliefs, and values regarding the future. The proactive approach is primarily directed at anticipating the entire system, but it can also bring an advantage to individual design projects and the assessment of individualistic development needs.

**Experimental literacy:** This finding promotes the importance of the experimental approach. It is about breaking away from familiar settings to discover new knowledge, tools, methods, and practices and create expectational and unexpected outcomes. The experimental approach develops problem-solving skills and plays a pivotal role in recognizing one's skills. It can create a sense of togetherness when practitioners take learning into their own hands. The experimental approach is also about finding alternative ways of doing things. For example, wicked problems need unusual approaches to be handled. General problem-solving also benefits from viewing the problems from different perspectives. Experimentation as an approach enables the testing of alternative practices to re-think and re-frame problems. Creativity does not often flourish in routine. Bold and unrealistic options can help to think big, make unusual findings, and create unusual outcomes. Through this method, group thinking can be avoided, and diverse ideas can be used to find new opportunities.

**Tripartite communication:** In this finding, communication is divided into three parts: the designer's general communication, the discourse conveyed through the concrete design work, and the audience's or participant's reflection back to the designer. Communication is seen as part of a structured argument, and it is crucial for designers to form relationships between stakeholders and to get people to commit to the work or join a movement. Communication also means the discourse conveyed by the designer through their work. Designers' communication includes a wide range of content, such as tone, the audience of impact, and voice, and the designer's work always affects someone. Designers can expand their professional role to the engaged citizen, sociocultural critic, activist researcher, educator, and provocateur. Activities and implementations that can result in sociocultural change (such as individual behaviour, public debate, professional practice, institutional policies, and new knowledge) can be influenced. Designers can convey values and vision in their work more effectively and combine the immaterial and material dimensions of design.

**Values and systematic visioning:** This finding emphasizes values and vision. The key is to find, recognize, and understand values and include them in the vision. Such action requires the ability to investigate and evaluate things on both systemic and grassroots levels. This finding promotes the requirement to understand the cause-and-effect relationship between individuals and systems and the skills to combine them with societal and environmental aspects and stakeholders. Visioning is proactive; it moves in time from history to the futures. Values and visioning enable the promotion of the benefits of sustainability and responsibility in design work.

The following tables further demonstrate how the result of the study corresponds with the changes presented in the context chapter (chapter 2).

**Table 1**

*Correspondence between the research findings and context 1*

| |
|---|
| Muratovski (2022) states that the field of design has shifted towards large social processes, including the study of **human action in social situations**. People-centric solutions emphasize that **design is a service for humanity**, including **listening**, **asking**, **understanding**, and **creating new possibilities and alternative realities**. (Muratovski, 2022, p. 43). |
| Creativity as a strategic asset: *creating new possibilities*<br>Research approach and knowledge base: *asking, understanding*<br>Critical thinking and metacognition: *understanding*<br>Proactive behaviour: *new possibilities*<br>Experimental literacy: *alternative realities*<br>Tripartite communication: *listening, asking, understanding*<br>Values and systematic visioning: *design is a service for humanity* |

*Note. Data collected by author. 2024*

**Table 2**

*Correspondence between the research findings and context 2*

| |
|---|
| Businesses and society are dealing with a **growing number of complex problems**. Designers can respond to these questions by **growing their cross-disciplinary knowledge** and **designers today are expected to work in** |

| |
|---|
| **situations where they were not considered to be a part of the past**. (Muratovski, 2022, p. 34). |
| Creativity as a strategic asset: *complex problems*<br>Research approach and knowledge base: *complex problems*<br>Critical thinking and metacognition: *complex problems*<br>Proactive behaviour: *growing number of complex problems, expected to work in situations where they were not considered to be a part of the past*<br>Experimental literacy: *cross-disciplinary knowledge*<br>Values and systematic visioning: *designers expected to work in situations where they were not considered to be a part of the past* |

*Note. Data collected by author. 2024*

**Table 3**

*Correspondence between the research findings and context 3*

| |
|---|
| **The design reflects the societal changes occurring in it**. For designers, it means **acting and collaborating with other fields** to **not be marginalized or dropped behind**. When designer **places themselves outside of their comfort zone**, they **generate possibilities to change the traditional design outputs within artistic developments to outcomes meaningful to society**, **the environment, and the economy**. (Muratovski, 2022, p. 36). |
| Creativity as a strategic asset: *acting and collaborating with other fields*<br>Research approach and knowledge base: *acting and collaborating with other fields*<br>Critical thinking and metacognition: *places themselves outside of their comfort zone, generate possibilities to change the traditional design outputs*<br>Proactive behaviour: *not be marginalized or dropped behind, generate possibilities to change the traditional design outputs*<br>Experimental literacy: *acting and collaborating with other fields*<br>Tripartite communication: *collaborating with other fields*<br>Values and systematic visioning: *design reflects societal changes occurring in it, outcomes meaningful to society, the environment, and the economy* |

*Note. Data collected by author. 2024*

**Table 4**

*Correspondence between the research findings and context 4*

| |
|---|
| The requirement for being a successful designer is to **understand socio-technical and socio-economic systems**. **In the future technical development will change the field** and may **require the designer to change their role from producer and creator to curator**. Designers who **have well-developed critical thinking skills and are highly analytical have high competence in framing complex problems and are about to be a valuable resource**. (Muratovski, 2022, p. 12-13). |
| Creativity as a strategic asset: have well-developed critical thinking skills and are highly analytical have high competence in framing complex problems and are about to be a valuable resource<br>Research approach and knowledge base: *understand socio-technical and socio-economic systems, have well-developed critical thinking skills and are highly analytical have high competence in framing complex problems and are about to be a valuable resource*<br>Critical thinking and metacognition: *understand socio-technical and socio-economic systems, require the designer to change their role from producer and creator to curator, have well-developed critical thinking skills and are highly analytical have high competence in framing complex problems and are about to be a valuable resource*<br>Proactive behaviour: *understand socio-technical and socio-economic systems, In the future technical development will change the field*<br>Experimental literacy: *require the designer to change their role from producer and creator to curator,*<br>Values and systematic visioning: *understand socio-technical and socio-economic systems* |

*Note. Data collected by author. 2024*

**Table 5**

*Correspondence between the research findings and context 5*

| |
|---|
| As automation proceeds in many fields, **the ability to move from one job to another and embrace the new environments becomes a competitive advantage for individuals**. **The demand for soft skills is increasing in all fields and it includes critical inquiry**, **social perceptiveness**, **active listening**, **and complex problem-solving**. (Muratovski, 2022, p. 14). |
| Creativity as a strategic asset: *complex problem-solving*<br>Research approach and knowledge base: *complex problem-solving*<br>Critical thinking and metacognition: *the ability to move from one job to another and embrace the new environments becomes a competitive advantage for individuals, The demand for soft skills is increasing in all fields and it includes critical inquiry, complex problem-solving*<br>Proactive behaviour: *the ability to move from one job to another and embrace the new environments becomes a competitive advantage for individuals*<br>Experimental literacy: *the ability to move from one job to another and embrace the new environments becomes a competitive advantage for individuals*<br>Tripartite communication: *active listening* |

*Note. Data collected by author. 2024*

**Table 6**

*correspondence between the research findings and context 6*

| |
|---|
| The World Economic Forum has predicted 8 characteristics in the future of learning content and experiences regarding to the 4th industrial revolution. Education 4.0 report consists of:<br>• **Global citizenship skills**<br>• **Innovation and creativity skills**<br>• **Technology skills**<br>• **Interpersonal skills**<br>• **Personalized and self-paced learning**<br>• **Assessable and inclusive learning**<br>• **Problem-based and collaborative learning**<br>• **Lifelong and student-driven learning** |

| |
|---|
| (Muratovski, 2015, p. 14-15). |
| Creativity as a strategic asset: *innovation and creativity skills, problem-based and collaborative learning*<br>Research approach and knowledge base: *technology skills, assessable and inclusive learning, problem-based and collaborative learning*<br>Critical thinking and metacognition: *interpersonal skills, problem-based and collaborative learning*<br>Proactive behaviour: *innovation and creativity skills, technology skills, lifelong and student-driven learning*<br>Experimental literacy: *innovation and creativity skills, technology skills, personalized and self-paced learning, problem-based and collaborative learning, lifelong and student-driven learning*<br>Tripartite communication: *global citizenship skills, interpersonal skills*<br>Values and systematic visioning: *global citizenship skills* |

*Note. Data collected by author. 2024*

**Table 7**

*Correspondence between the research findings and context 7*

| |
|---|
| Designers with technical skills will continue to be in demand in the industry, However, **society needs a new generation of designers who can design products and communication but also living systems. For many designers**, **this means a shift from an artistic service provider to a strategic designer or professional thinker with the capability to work across disciplines**. (Muratovski, 2022, p. 19). |
| Creativity as a strategic asset: *designers who can design products […]* but also living systems*, strategic designer or professional thinker, capability to work across disciplines*<br>Research approach and knowledge base: *designers who can design […] but also living systems, strategic designer or professional thinker, capability to work across disciplines*<br>Critical thinking and metacognition: *professional thinker, capability to work across disciplines* |

| |
|---|
| Proactive behaviour: *society needs a new generation of designers, For many designers, this means a shift*<br>Experimental literacy: *capability to work across disciplines*<br>Tripartite communication*: designers who can design […] and communication*<br>Values and systematic visioning: *society needs a new generation of designers* |

*Note. Data collected by author. 2024*

**Table 8**

*Correspondence between the research findings and context 8*

| |
|---|
| The importance of design has begun to be emphasized by businesses, policymakers, and academics, where design is **seen as a tool for innovation**, **productivity**, **and economic growth**. As a result, **design skills can be seen as present in new technologies**, **new industries**, **and new services** as well as **a resource of supply of differently qualified people with the ability to promote innovation**. (Muratovski, 2022, p. 34). |
| Creativity as a strategic asset: *is seen as a tool for innovation, productivity, and economic growth*<br>Research approach and knowledge base: *innovation,* present in new technologies, new industries, and new services<br>Critical thinking and metacognition: *a resource of supply of differently qualified people with the ability to promote innovation*<br>Proactive behaviour: *innovation,* present in new technologies, new industries, and new services<br>Experimental literacy: *innovation, a resource of supply of differently qualified people with the ability to promote innovation*<br>Values and systematic visioning: *a resource of supply of differently qualified people with the ability to promote innovation* |

*Note. Data collected by author. 2024*

**Table 9**

*Correspondence between the research findings and context 9*

| |
|---|
| Furthermore, speaking of conventional design, Tharp and Tharp (2018) have listed eight characters that also involve contradictory challenges. The characteristics are **functionalism**, **formalism**, **commercialism**, |

| |
|---|
| **individualism**, **rationalism**, **positivism**, **realism**, and **ethnocentrism**. (Tharp & Tharp p. 33-38). |
| Creativity as a strategic asset: *functionalism, formalism*<br>Research approach and knowledge base: *rationalism, realism*<br>Critical thinking and metacognition: *commercialism*, *individualism, rationalism, positivism, realism, ethnocentrism*<br>Proactive behaviour: *rationalism, realism*<br>Experimental literacy: *commercialism, rationalism, realism, ethnocentrism*<br>Tripartite communication: *ethnocentrism*<br>Values and systematic visioning: *positivism, ethnocentrism* |

*Note. Data collected by author. 2024*

### 6.3 SIGNIFICANCE

Design education and practice are usually based on process models and designers' professional skills. Designers' professional skills are often based on individual methods they have learned – this can be seen as gathering a "toolbox" for their personal use, which determines their ability to solve challenges. Design projects made with the same process and with the same methods can often provide predictable outcomes that are similar to each other. However, the perspectives presented in the context chapter (chapter 2) support the notion that designers should expand their framework so that they can thrive in the future work environment. The designer's professional role is anticipated to move towards a professional thinker with a great ability to deal with wicked problems. At worst, the current system offers ad-hoc solutions to multi-faceted problems, and design professionals do not direct their talents to the internal development of the field or the creation of a common knowledge base in the field. Designing without extensive research, discipline and a common knowledge base can suffer from credibility challenges and if it does not meet the challenges of development, professionals from other fields can replace designers in their tasks. The ability to change and stay up to date is currently mainly based on the designer's personal motivation, but there is generally no prevailing interest in the field to drive systemic change in response to structural changes.

The 7-field framework is based on the idea of a self-directed, self-sufficient, and self-developing designer who successfully practices their profession and further develops the field of design, contributing to the creation of a common knowledge base and research. The framework corresponds to the scenario, presented in the context chapter (chapter 2), about the industry's anticipated development and future requirements.

The assessment of the significance of the results is challenged by the anticipating nature of the research. The results simply haven't materialized yet, so they are difficult to demonstrate factually. However, the analysis carried out in the study showed that design education and professional practice in their current form are not particularly prepared for structural changes. The theoretical research approach can be considered to be this study's secondary significance. This is not directly related to the quality of the study, but it offers diversity to the theses of design, where theoretical reviews are not common. Most commonly, design-oriented research is either ethnographic, qualitative, visual research, or applied research. This raises the question of whether more theoretical research is needed in the field. The results of this study support the notion that theoretical research can improve the results of methods already in use (research triangulation). Furthermore, this study has demonstrated the need for common knowledge and research base in design. This study has also demonstrated the need for both theory and practice.

## 6.4 CONTRIBUTIONS

Design has relatively well-established processes and methods. These processes and methods are the result of the history and tradition of the field. However, this can lead to methodological narrowness, a state where design or designers no longer develop themselves outside of their own methods and practices. This narrowness affects the perception of what is generally considered good design. As a result, design offers a narrow range of repetitive and low-quality outcomes. In this narrow state, its response to challenges is reactive. The state of the field of design can currently considered to be reactive. Based on this study, structural

change is already happening, and the challenges caused by it are solved on a case-by-case basis. New perspectives are considered, but they are practiced within the framework of conventional design to solve problems with the means of conventional practice. This study suggests a different approach to the described situation. The approach is more hermeneutic and prefers a more research-oriented practice. This study also looks beyond the problem-solving mentality of design. Even though problem-solving is essential in design, some complex problems require different approaches. For that reason, this study considers problem-finding and problem-communication as suitable approaches.

This study is not based on the assumption that the current state of conventional design would be legitimate or stable. Design is thought of as an adaptable and self-developing field, that produces thinkers whose creativity is precisely guided, active, and expedient. The study challenges (the current field of) design to change and demonstrates the fact that design and designers should be constantly vigilant of the field. Both individuals and the field itself should be resilient and constantly in development.

Systemic and strategic approaches in design have traditionally been linked to the frameworks of business, economics, and other commercial values. This study extends the framework in the direction of discursive and speculative design. These practices carry methods that have been applied partly in the field of conventional design, but their comprehensive internalization is a skill of fewer professionals. Discourse as a dimension is always related to design, but only a few use it intentionally. This study also examines speculative design from a more systemic and strategic point of view and brings it closer to critical thinking.

This research is primarily based on the intellectual and immaterial dimensions of designers. Ways of thinking are considered to be designers' most important capital and the ability to stand out from other professionals is highlighted.

## 6.5 LIMITATIONS

The main limitation of the study was the methodology. The study was theoretical research and thereby research triangulation was not considered

comprehensively. However, empirical components are not completely absent as they are included as secondary data in the studied theories. The theories were chosen according to the saturation, thus supporting each other in shared concepts and conclusions. However, they provided a variety of solutions for the problems observed. Based on the research methodology, the approach can be narrowed to four main topics based on the (secondary) research questions and the theoretical perspectives: cross-disciplinarity, anticipation, critical thinking and research, and discourse and speculation. These approaches expand the perspective beyond conventional design, and this possibility of expansion is based on the key findings identified in this material. Theoretical perspectives were based on the key theorists of their fields and disciplines. The production of these key theorists can be considered to be comprehensive and is supported by the secondary material produced by others. However, this study did not examine theories outside the production of these key theorists and thereby more marginal voices have been excluded from the results. Such marginal voices can sometimes either bring new perspectives to the discussion or be the first signs of a larger change. All studies also have structural limitations: this study has been completed as a master's thesis which has been limited to a certain number of academic credits and thus the study is adjusted to a certain amount of work. Although good scientific practice has been followed in the research, the quality of the research is certainly affected by the author's position as a novice researcher; the researcher applied theoretical research as a method for the first time in this study.

### 6.6 FURTHER DIRECTIONS

This theoretical research has been carried out with the goal that it can be followed by empirical research. This approach has been chosen in support of the author's aim to continue studies at a doctoral level. A more comprehensive research approach and a thoroughly considered research triangulation would emphasize the reasoning of the research results and contribute to the significance of the study. Further research could be expanded into a wider range of research literature, authors, and perspectives or alternatively provide results on how to adopt the 7-field framework in practice. The capability of conventional design and

design thinking to change and adapt should be studied further. A more practical research approach could be utilized to study emerging design trends such as sustainable and regenerative design, biotechnology, quantum computing, augmented reality, and virtual reality. Design as an adaptive, self-developing, and responsible field could be an interesting research object considering the future of the field, and those themes would especially benefit from being explored through the point of view of digital transformation.

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