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The Shapes of Trust

On weaving trans-sectoral relationships through design

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Abstract

This journey unfolds in the wake of polycrisis, the systemic entanglement of multiple planetary crises, calling for systemic transformations of how we make sense of the world, decide upon it, and work (on) it together. By venturing in socio-material arrangements as the settings where systemic transformation can be worked on, the research engages with the two disciplinary fields that hold a strategic “grip" on them: design and policy. In current multi-stakeholder and multi-sectoral entanglements, both design and policy are looking into collaborative practices, transforming their own ways of embracing, navigating and staying with complexity. Particularly, design’s expertise is being lately recognised as contributing to policy transformation. By taking a practice-based approach, the research identifies three facets that make-up collaborative practices as experimental areas for design and policy to intertwine: *the qualities of consultation*; *the qualities of evidence*; *the qualities of infrastructuring*. The research builds on Designing for Transforming Practices approach, testing it under the lens of design for policy within the experimentation areas. Through a three-lens compass, crafted upon the areas, the research makes sense of five applied project-cases, looking into how design (and policy) might contribute to fostering trans-sectoral collaborative practices. The research extrapolates common qualities as well as discrepancies, aiming at formulating a set of coordinates along which modes of sense making, modes of decision making, and modes of bridging can be worked on to foster trans-sectoral collaborative practices to achieve systemic transformation. By a further reflection, patterns of trust building are harvested, framing it as the emergent response of collaborative practices elicited by aesthetic engagement and embodied participation. The Shapes of Trust are the forms we *weave* collaborative practices into in the mission-driven innovation framework; the forms that, through design, follow presence, dialogue, and reflexivity, while being nurtured by scaffolds fostering mutual recognition, co-response-ability, and co-development.

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If I was to set-off alone, I would never reach a single shore.
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To good-ol' mariners, the spark watchers

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To those who started it all, the spark bringers

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ever longing,
ever connected
under the same sky.

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My deepest desire is that this work will touch you, fellow wanderer, and will make you resonate with the same sounding harmony that seduced me in such a polyphony of hearts.

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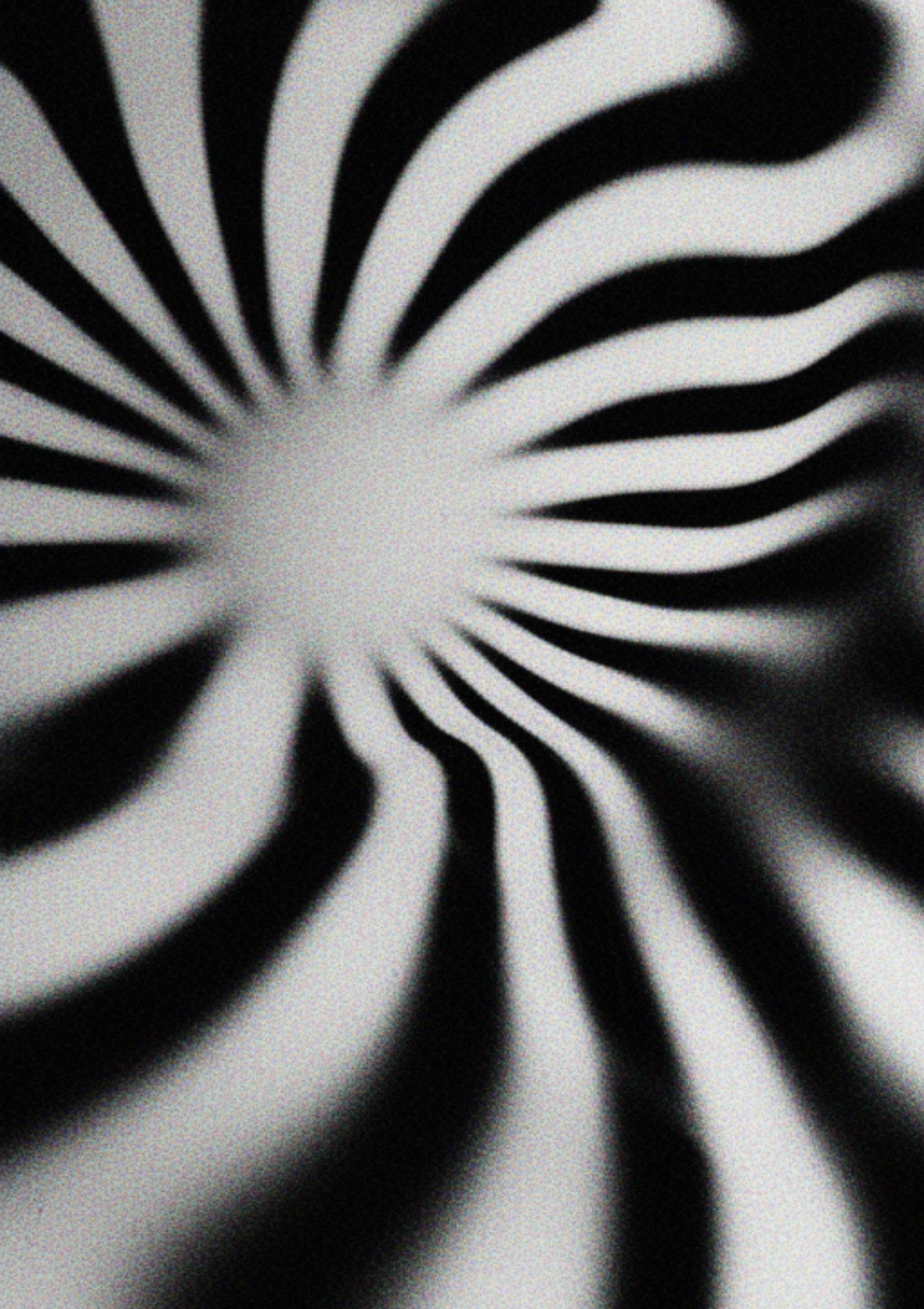


STEP 0_

INVITING

Motivation

This journey started when the world stopped.

The outbreak of Covid-19 gave us the ghostly impression of what would Earth-without-us look like: desert cities, stranded aircrafts, and empty supermarket shelves reframed and positioned human existence within the giant mesh of planetary flows and forces.

Pandemics was just one of the many hyper-objects hovering hauntingly over earthly skies, and yet it was the only event sparking the *feeling* of the Planetarium: the inhuman realm of the metabolic processes and torrential force fields that our planet essentially is. When *globalisation*, namely the establishment of "a global episteme and aesthetics, driven by the necessity of acceleration" (Hui, 2020), peaked in mobilizing and channelling materials, goods, and energy above and beneath the earth, *planetarisation* occurred. However, it was when the world froze to handle contagion, that *planetary awareness* on the inherent fragility of artificial, somewhat accidental, human systems, awakened. As such, planetary thinking soon turned out as "not Zen enlightenment or Christian revelation. It [was] the recognition that we are in and will remain in a state of catastrophe" (Hui, 2020). Escalating climate emergencies, raging wars, and rising walls, are eroding Earth into a spectral landscape, where humans ultimately embody the Nietzschean "most unfortunate, most delicate and most transitory [of] beings".

Suddenly, the dark forest hypothesis — the conjecture that potential threats maintain their undetectability by humanity — became about Earth itself: to navigate this hostile territory meant to tune in and augment human capability to discreetly follow different traces. As reading planetary changes through computational models encompasses "seismic activity, the health of forests, maps of contaminant flow, and the tracking of organisms from dragonflies and turtles to seals and elephants" (Gabrys, 2016), humanity learns about events out of its own scale of existence: i.e. a hot summer turning arable land dry, exposing the erosion

of the soil; ocean acidification leading to an explosion in the population of jellyfish.

Digital media elaborate data for humans to perceive the planet from different perspectives, revealing Earth's *dark* yet *vibrant matter,* gaining cognition of the more-than-human in a human de-centered world. (Bennett, 2010; Haraway, 2013; Haraway, 2016). More-than-human geographies and cosmograms depict climate change as a force that crosses political boundaries, overshadowing human prosperity. In this sense, the climate state, the most complex of natural phenomenon, becomes the State of the Climate, the most dividing of political objects. In the New Climatic Regime (Latour, 2018), climate change is not exclusively a scientific phenomenon; it is our contemporary geopolitical setting. As a result, "we don't defend nature. We are nature defending itself" (Fremeaux & Jordan, 2021).

Here, the strive for survival by the modernist exercise of privilege and mastery over planetary processes fails before the un-sustainability of globalised modes of being in the world.

To say it with Bruno Latour (2014), today "we are divided". More precisely, "not only are we divided among different parties, different factions, religions, ideologies; but also, and maybe more deeply, each of us is divided inside ourselves". And in these divides we are mourning a trifold loss: in the ecological divide we are confronted with the loss of nature, in the social divide we dwell in the loss of community, and, lastly, in the spiritual divide we trudge in the loss of meaning (Scharmer, 2018).

The existential fog thickens as discourses in environmental studies teem with the sixth extinction — the ultimate catastrophe —, feeding the melancholic narrative of retreat: the retirement in deintensification, deceleration, deprivation portray an overly tired Sisyphus, desperately committed to buying time, devoted to *futuring* (Fry, 2009), to carve extra-time out to heal the wounds of exacerbated extraction and accumulation.

Would this be the opportunity to take a step towards alternative narratives on growth and prosperity?
The ambiguity of wicked challenges forces the refuge in *contingecy*, the only thing we can know about reality with certainty, as philosopher Quentin Meillasoux understands it. And yet, this then brings out a bigger question: **how do we navigate the contingency and urgency of the Planetary, communally?**

This journey opened onto a disclosed world.
With his worried words, Bruno Latour (2014) opens a lecture about how we lost the feeling of interdependence.
Contemporary crises, the matters of fact that might turn into matters of concern, are driving society towards fragmentation, dispersed in the entanglements of social and environmental injustices.
Mechanistic and dualistic worldviews played their part.
Slowly and silently we lost the grip on the real, and we understood it by the harshest of its revenges (Bratton, 2021). When lock-downs were enforced, retreat in isolation inflicted the final blow to a species in the middle of an existential crisis. With urgency marking time, the quickest response to contagion came with a *bodily price*: social distancing has exacerbated the ubiquitous condition of separation, climaxing in the consequent *numbness* of the muscle of reciprocity.
Then, we physically lost touch with the real.
In the touchless society the hyper-mediated everyday life was enacted by figures of isolation, of absolute loneliness; in the touchless society people didn't just disconnect from the world, they couldn't touch each other, disclosing themselves from the each other.
Losing touch meant losing a *bodily engagement* with someone or something. And even if we augmented our sight through computational eyes, we just had our life hyper-mediated by arrangements promoting distant observation, "detached distances with others and the world, to see everything by being attached nowhere". This speaks to the ancestrality of our body and the sophisticated, features it evolved to be

capture *sinaesthetic stimuli* and make sense of the world: while vision allows a disengaged observation, it is in touch that a deeper engagement is allowed, activating an interplay of direct concern with the body and the matter at hand.
Venturing into discourses on touch and the material-embodied relationality it entails, had this journey open onto a world in need of healing the sense of reciprocity: touch "makes us confront [with] our need for each other" (Dumm, 2008), and, as Judith Butler puts it, it is in touch that "we are done and undone by each other".
And yet, "we are divided", to quote Latour once again, in such a way that it seems impossible for us to sit down at the same table and reach any kind of agreement on out common futures? **Are we still practicing *tactfulness, — tatto, in Italian —,* the sensorial politeness that speaks to matters of diplomacy and dignity, to escape polarisation and mystifications?**

We are floating in ontological, epistemological and ethical distances, out of reach of any handshake, any mutual seal of accord.

How can we shorten the distance and invite proximity? Distancing and retreating produced epistemological numbness or anaesthesia, namely the alienated torpor, the indifference about missed engagement in real situations.

**I set-off on this journey to practice connection in a disconnected world and deep dive into epistemological distances—between subjects and objects, self and the world — through my disciplinary field,
design.**

**Design,
the practice of form in transformation,
of engagement through embodiment,
of making things possible,
together.**

Research Questions

At the heart of this research is design — as both a practice and a research endeavour — aiming at working (on) systemic transformation.
By practicing connection in a disconnected world, this work acknowledges the complexity we are immersed in, taking the stance of staying with the trouble: in times of polycrisis, contributing to the body of practical knowledge on how to promote transversal collaboration seem more urgent than ever. As such, the research engages directly into real-life project-cases, this practice-based research aims at answering its guiding questions from the field. Notwithstanding the impact that practices alone bring in, research questions are an additional direction to look into the practices and formalise the intent inspiring this research journey.

RQ_How might design for systemic transformation contribute to fostering trans-sectoral collaborative practices in socio-material arrangements to achieve collective thriving?

_RQ1__ What is design for systemic transformation and what concepts and perspectives is it informed by?

- What is systemic transformation? Where does it occur?
- How is it addressed in design and/for policy practices?
- Why systemic transformation? What is intended to be achieved?

_RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

- How do applied cases relate to each other? What are the common grounds? What are the discrepancies?
- What emerging findings relevant to working (on) systemic transformation does a further reflection invite?

Aim

The Shapes of Trust aims at contributing to the identification and articulation of key areas of intervention, for disciplines working with(in) socio-material arraignments to meet, intertwine and shape together ways of making sense of our complex worlds and deciding together upon it, by learning from the practices of each other.
As such, this work will be practice-based, engaging with real-world project-cases. Here, the design practices will be providing the lively matter to be looked into. The aim is to extrapolate the qualities that make design's contribution to collaborative practices in complex environments distinctive, contributing into the articulation of the potential strategic expertise that design holds as a disciplinary field, as well as the limitations and criticalities connected to it.
The broader aim of the research is to contribute to the establishment of a trans-disciplinary body of knowledge involving design and policy, tagging along the ongoing discourse on setting trans-disciplinary agendas to work (on) systemic transformation.
Framing this research as a journey means considering the process of exploration, practice and final reflection as valuable as the destination itself. However, a destination, although blurred on the horizon, is useful to set this work's overarching aspiration: contributing to inclusive and sustainable societal transformations, for collective thriving might emerge at last.

FRAMING

O1: Framing and positioning systemic transformation in design and policymaking.

A1: Conducting a literature review on sustainability studies, system thinking and how they relate to disciplines working with(in) socio-material arrangements — design and policy.

O2: Outlining trans-disciplinary conceptual coordinates as guiding principles to inform and carry out practice-based research cases.

A2.1: Reflecting on the literature review

A2.2: Preliminary outline of design for policy conceptual coordinates

PRACTICING

O3: Conducting research through applied design cases to extrapolate practical knowledge on designing for scaffolding collaboration in multi-stakeholder and trans-sectoral environments.

A3.1: Engaging with and carrying out research programs or projects unfolding in multi-stakeholder environments.

A.3.2: Reflecting on engaged with and carried out research programs or projects according to the coordinates outlined in A2.2.

REFLECTING & NOTICING

O4: Elaborating insights from the results building on the findings coming from conceptual analysis, on-field cases, and reflective practices.

A.4.1: Reflecting on the cases with the conceptual framework developed in A2.2

A.4.2: Extrapolating insights and formulating knowledge for the targeted disciplines — design and policy.

Methodology

This journey unfolds along “the sometimes uncomfortable marriages of design and research” (Glenville in Rodgers & Yee, 2023), which tend to be considered as separate blocks, while being inherently connected. As authors pinpoint, both design and research can be framed as nouns and verbs, bringing a considerable influence on the shape of design research: for example, with design treated as a noun, one would encounter a research endeavour focusing on the designed artefact or output; whereas, design as a verb would focus on the activity of designing, one that translates into “form-giving” and “sign-leading” when venturing into its European etymos (“disegnare” or “designare” in Italian; “vormgeving” in Dutch; “formgivare” in Swedish; “Gestaltung” in German).
The present doctoral research is practice-based and applied. As such, it is not going to include a dimension, to exclude the other. Rather, this research is going to take design as both a noun and an activity.
Practice-based research implies the performance of the activity of designing — “practicing design” — with the researcher observing and acting within (as part of) the context (Glenville in Rodgers & Yee, 2023). This connects to what eminent design scholars have been carving out and polishing in the last forty years as the facets of the multi-faceted prism design research — as a practice-based enquiry — is. By taking the modes of enquiry identified by Christopher Frayling’s — “research into design”, “research for design” and “research through design” (Frayling, 1993) — as the facets of reference, this doctoral dissertation aligns with the “research through design” methodology, whose working definition is drawn from Wolfgang Jonas’ (2023) formulation on Frayling’s original constructs:

Research THROUGH design: An embodied/situated/intentional observer inside a design/ enquiring system, generating knowledge and change THROUGH active participation in the design/enquiring process. Research is defined/determined by ethical assumptions regarding the purpose of designing.
→ Design as projective/human-centred/innovation/emancipatory/political/ social process, etc. Research is conducted in the medium of design,

> guided by the design process, aiming at transferable knowledge and innovation according to various internally determined criteria.
> (Jonas in Rodgers & Yee, 2023)

As such, the doctoral research has been conducted by identifying a theoretical framework — also informed by the researcher's own background and interests (see notes on researcher's positionality further in this chapter) —, that provided research questions with working definitions, coordinates, and criteria, to be further experimented on field, namely while taking part in hands-on design research projects and practicing design in real contexts. Thus, the case-based setting is at the core of the research, anchoring its findings to the strand of design research, where design aligns with the Humanities (Buchanan, 2001), and, particularly, with the social sciences and related field research approaches (Koskinen et al., 2013), rather than the techno-scientific disciplines. Specifically, Koskinen et al.'s (2013) framing of field approaches in design research practices links back to Jonas' research through design formulation, with reference to the situatedness of the designerly-and-researcherly endeavour:

> "Many design researchers have borrowed their methods from interpretive social science rather than experimental research. If there is one keyword to describe the field approach to design, it must be "context". Field researchers work with context in an opposite way from researchers in a lab. Rather than bringing things of interest into the lab for experimental studies, field researchers go after these things in natural settings, that is, in a place where some part of a design is supposed to be used. Researchers follow what happens to design in that context. They are interested in how people and communities understand things around designs, make sense of them, talk about them, and live with them. The lab decontextualizes; the field contextualizes".
> (Koskinen et al., 2013)

As a result, this doctoral research builds on the overlapping of the research context and the field of practice, since practicing design while researching design nurtures the opportunity to gain literacy not only within the domain of academia, but also in the field of design practice (Vaughan in Vaughan, 2017).

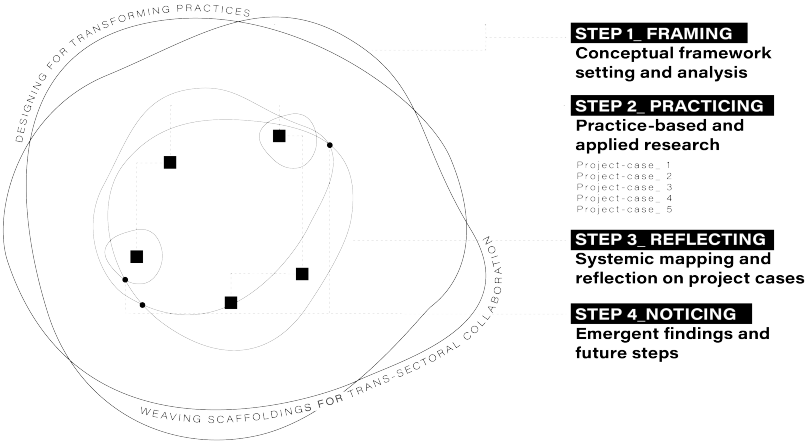


Figure 0.1. Overview visualisation of the research's methodology. Original elaboration by Coppola.

With practice-based and applied research at its core, this work stems from the methodology illustrated in Figure 0.1., articulated along four main steps:

1. **Conceptual framework setting and analysis** aims to present a set of key guiding concepts about the topics of reference; the framework is based on a variety of sources, such as articles, books interviews, and practices varied out in the fields of reference.
2. **Practice-based and applied research** displays the four project-cases this work is mainly based on; each project-case will be introduced through their own range of research questions, approaches, methods, materials, and outcomes.
3. **Compared mapping and reflection** on project cases discusses the project-cases in light of a mapping/comparability compass - a tool prototyped after the practicing phase and informed by the conceptual framework; the model supports the reflection on cases by highlighting common features, as well as discrepancies, connected to design practices addressing trans-sectoral collaboration.

4. **Emergent findings and future steps** wraps-up the work presented so far, sitting on the patterns emerging from a final reflection. Limitations of the research as well as remaining gaps and future steps are here presented.

On positioning the researcher

While being inherently linked to problem exploration — the setting of a problem — and experimentation — the framing of a problem (Gedenryd, 1998, referencing Schön, 1983), designing is nevertheless a creative act: as Tonkinwise (2017) pinpoints by building on Cross (2006), "the idea-generating aspect of Designing involves, it is claimed, non-rationalizable abductions or creative leaps. [...]"; moreover, Tonkinwise further argues, "design tends to discover new things in the process of making new things, but these findings remain context specific".

These statements wrap-up and bring to the foreground the reflective character of design as a creative practice, especially when it is carried out (with)in research endeavours. The designerly ways of knowing (Cross, 2006) are highly context specific, not only because they spark from designs and design activities that are inherently bound to the situation to which they respond; in addition, they depend on the socio-cultural background of the design-practitioner-and-researcher, on their sense making patterns and their subjectivity.

Here, the adoption of Jonas' (2023) formulation of research through design to the means of this doctoral research finds its motivation. Building on Frayling (1993), Jonas encompasses and aligns with classical formulations from a renewed perspective: he focuses on the design researcher's positionality, arguing how, in research through design, being at the same time the practitioner and the researcher in a design inquiry implies that "the disembodied Cartesian enquirer is replaced by an embodied, social, intentional enquirer". The role and the position of the design researcher is, in fact, a fundamental notion to sit on to better tune

to the qualities of the process and knowledge that each approach is meant to lead to. Schön's Reflective Practitioner (1983), indeed, is completely immersed in their action, "revealing a capacity for reflection on their intuitive knowing in the midst of action and sometimes use this capacity to cope with the unique, uncertain, and conflicted situations of practice". This resonates with the growing strive to clarify positionality in practice-based research (Gillard et al. 2016; Horlings et al. 2020), lately energised by a relational and integrative inquiring stance to better attune with the still unsung, inner poetry of the real world. Consequently, the resulting echo reaches design researchers and their indissoluble reflective endeavour, which makes them — and the knowledge they produce — part of the whole enquiring process, that results in embodied experiences inevitably infused with their own values and normative positions. Wolfgang Jonas (2015; 2023) articulates this positionality and brings it into the design research discourse, formulating Frayling's three constructs under the lens of objectivity/disembodiment and subjectivity/embodiment, and highlighting the subsequent kind of knowledge they contribute to.

As such, it is crucial for this doctoral research to elaborate on the first boundary of this research, which is the positioning of the researcher. As such, who is writing, the doctoral student Maria Claudia Coppola, will further introduce herself in the spirit of situated knowledge (Yee in Vaughan 2017), to inform the research itself and the reader according to the needs of qualitative and reflexive research.

I will start by changing the tone of the writing, switching into the "I" form, to let subjectivity come to the foreground. The switch from a rather impersonal writing style — that is convenient to a doctoral dissertation — to an "I" manifesting its presence, allows to clarify my contribution to design project-cases, as well as to matters of design research, whose advancement is hoped to be met through this doctoral research. Therefore, the switch to the "I" will denote, remark, and clarify the presence of a personal perspective onto a specific passage, whether it being recalled while discussing project-cases, articulating related

findings, extrapolating and formulating final insights and contributions through reflection.

After this dutiful premise, I will now provide a brief background to my design research practice, looking back on how I ventured into design territories until today, by the hybrid undertaking of studying, researching, and practicing design.

I followed a fairly standard route into design, informed by very personal inputs, just like any other design-practitioner-and-researcher.

I have always been and still am a curious individual, seduced into complexity and its countless forms since ever. My personal enthusiasm for future literacy — I am always being a voracious reader of science fiction, either utopias, dystopias, and their political implications; my fascination with western and non-western philosophies — with specific regards for metaphysical studies; and, lastly, the deep connection with nature, with all its beings and things, initiated in childhood and always nurtured in one form or another wherever I would go: briefly said, these are the lenses building-up the kaleidoscope I equip anytime I would venture into design. These are the "content-related biases", that would be inevitably present into my practice of design in the first place, as well as design research soon after. Particularly, the seduction into complexity sparks from the context in which I was born and raised: southern Italy can give tough, experienceable lessons of power structures, making evident the urge to address patterns over symptoms in fragile systems, whose resilience starts in the need take alternative stances to make sense of the real world, targeting wicked, structural, multi-layered challenges from different-as-usual perspectives.

After completing humanities studies in high school, I left my hometown in southern Italy, spending fifteen years in Florence, my adopted city. Here, I completed a Bachelors of Arts in Industrial Design at the University of Florence; then I enrolled and completed a Master of Arts in Design, not before having given a try to the Academy of Fine (Digital) Arts, where I soothed my need to engage with hands-on practice for a three-year period. My theses portfolio speaks of the underlying attempt to approach

complexity, while looking for harmonious — and at times naive —ways of doing and being in the world: for the BA thesis I prototyped a product-service system to raise biodiversity awareness; for the MA thesis I ventured into service design, strategic design, and co-design processes, to outline a hub-model dedicated to train skills for designing future scenarios through participatory processes in public-private partnerships, on a regional level. During the concluding semester of the MA degree, I was introduced to design research, resonating with it right after. I am an individual that is strongly driven by purpose. The decision to pursue a PhD with the embryonal research question of addressing complexity and promoting societal transformation by co-designing public values, stemmed from the motivation of growing as a citizen — before any other societal role — and contribute — if I would have been acknowledged with the ability to — to the community of design researchers, as well as design practitioners, and civil society at large. I saw how pursuing a PhD could have been a way to tune-in my inclinations to my aspirations, with the possibility to return a hopefully helpful contribution to communities: what was particularly seducing me into design research, was the opportunity to becoming more aware and reflective of the design activities I was already undertaking; my mission was — and still is — to unpack the whys and the hows, and serve them to whoever would venture into similar journeys through complexity.

As of today, I consider myself a “design-practitioner-trained-in-research", as beautifully formulated by Yee (2017); thus, I am willing to keep on tread the path of research, making it practice-based.

On positioning the research

Framing this doctoral research as a practice-based endeavour, entails acknowledging the need to clarify the positioning of all the perspectives that make-up the main boundaries of the research.
After having unpacked the first boundary in the positionality of the researcher, this section clarifies a second and third boundary that contribute to delimiting the research's overarching span.
The second boundary delimiting the research is connected to the context of practice, embodied in the scale and outreach of the institutions, organisations, as well as the practitioners, researchers and professionals involved in the project-cases.
In fact, since the research aims at engaging with matters and challenges of systemic — organisational, institutional, and, ultimately, societal — transformation, identifying the most suitable context that would provide opportunities to practice design at different scales is crucial. Here, it is relevant to pinpoint that this doctoral research started out in Italy and developed considerably in Sweden, where it gained access to regional, national and European-scaled projects, providing opportunities to engage with practice-based design research endeavours. Within this context, it is thanks to RISE, Research Institutes of Sweden, if practicing conditions for this doctoral research became a reality. Particularly, dutiful acknowledgements are due to the "Prototyping Societies" Unit and its Design Team, composed by design researchers Rosa van der Veen, Jeroen Peeters, and supervised by senior researcher — and co-supervisor of this work — Ambra Trotto: they have been the pulsating core making the whole research possible. Based in Umeå — and connected with the nearby Umeå Institute of Design and Umeå Municipality, the Unit has been nurturing in the last decade the formation of favourable settings to promote systemic transformation, by engaging with local stakeholders — both private and public bodies — and infusing collaborative processes to tackle broader challenges with prototyping stances in the real world.

The Design Team in the "Prototyping Societies" Unit has been working on hands-on project-cases by testing out and building on a specific body of knowledge, originally developed at the Technical University of Eindhoven (TU/E), under the supervision of Caroline Hummels and Ambra Trotto. Designing for Transforming Practices (Hummels, 2012; Hummels et al., 2018; Hummels & Lèvi, 2021; Trotto et al. 2021) — later spelled as Designing for TP — is the third and last boundary, that outlines the theoretical and practical setting this doctoral research builds on and, hopefully, aims at contributing to.

Originated in the Netherlands and practiced in Sweden, Designing for Transforming Practices is a body of knowledge that has been developed by the research team — Caroline Hummels, Ambra Trotto, Jeroen Peeters, Pierre Lèvy, Rosa van der Veen, Maarten Smith, Sander van der Zwan, Gabriele Ferri — located at the Department of Industrial Design at the Eindhoven University of Technology, "Design for Transforming Practices" — Designing for TP is a design approach that acknowledges the need for transformation of everyday practices, in order to release current tensions in paradigm shifts and disclose pathways for socio-culturally, environmentally, and economically thriving futures. The work originally from the school of thought and practice of Professor Kees Overbeeke, who has been dedicated to unpack ways for designing "Quality through Aesthetics of the Impossible" (2007).

Throughout the last decade, Designing for Transforming Practices has grown into a body of knowledge, that starts in a phenomenological framework: here, aspects of ecological psychology and enactivism, infuse the designerly practice of aesthetics that is to be carried out on field, in the real world, so to contribute in shaping socio-material arrangements, namely the constitutive entanglement of the social and the material in everyday settings of collective — and thus organisational — life. As socio-material arrangements envelope collective life, the focus on practices is a way to engage directly with the

"temporary, yet relatively steady, ways of living and working with others (Wittgenstein, 1993), in which human activities are inextricably

> interwoven with material arrangements — in particular people, artefacts, organisms and nature —, and which are informed by roughly defined aspirations, certain "rules" and specific ethics and values (Schatzki, 2010), which in its turn will be asking again for adjustments of arrangements and activities".
> (Hummels, 2021)

By focusing on the scale of practices, Designing for TP identifies a working ground for design research practices to enter and contribute to the dialogue between the situated and immediate concreteness of specifically designed arrangements and artefacts, and the bigger scope of living, namely informing/infusing those arrangements and artefacts with the abstractedness of aspirations — desirable values — the societal fabric is made of. Further discussion and unpacking of key concepts driving Designing for TP will be found in the conceptual framework chapter of this doctoral research. However, it was crucial to briefly anticipate the approach here, since it informs the concepts as well as the practices carried out in this research's project-cases. Given my standpoint in the context and in the research teams I am grateful having the opportunity to work with, Designing for TP has provided the theoretical, methodological, and practical scaffold to carry out applied designerly endeavours in field research.

The insights coming further in this dissertation would not have been feasible without the possibilities granted by the research teams working on Designing for TP. As a final remark, the latest developments of TP are embodied in the establishment of a learning community — d.centre|EU —, led by Ambra Trotto and Caroline Hummels (2023). d.centre|Eu directly builds on TPs and expands it, by unpacking coordinates to understand design's transformative contributions. In light of the how grateful I am to the mentioned research teams, I hope this work would contribute to d.centre|EU's ecology of making-knowing-and-learning practices.

STEP 1_

FRAMING

STEP 1_ WHAT THIS CHAPTER IS ABOUT

Chapter 1 corresponds to the first methodological step that makes out this doctoral journey. As such, it will present key guiding concepts, formulated and discussed as the conceptual framework that informed the practice-based activities carried out later in the journey.

"Framing" is about outlining the main research (and practice) areas, by the means of a literary review on key topics. Far from being comprehensive, the review aims at communicating the key perspectives of how systemic transformation, trans-sectoral collaboration, and sense making processes are addressed in design and/for policy practices.

The framing character of the chapter aligns with the scope of the first research question, which is articulated as follows:

_RQ1__ What is design for systemic transformation and what concepts and perspectives is it informed by?
_What is systemic transformation? Where does it occur?
_How is it addressed in design and/for policy practices?
_Why systemic transformation? What is intended to be achieved?

1. Understanding systemic transformation

1.1 Thinking with systems

When addressing systemic transformation, a complex series of operations are started.

Firstly, there is the acknowledgement of the need to take an expanded perspective over the matters at hand. Thinking the world in systems has a prolific scholarly tradition, which, however, started to gain recognition fairly recently. The way sustainability has been addressed in western societies makes the most evident case of how system thinking took root slowly. By breaking it down into its environmental, societal, and economical facets, sustainability discourse became the most immediate challenge to be confronted with systems, their components, and, most importantly their entanglements. Acclaimed systems scientist Donella Meadows defines a system as

"an interconnected set of elements that is coherently organised in a way that achieves something" (Meadows, 2008).

The key to start "Thinking with Systems", Meadows (2008) argues, is to acknowledge the paradigmatic shift from an industrial world to a post-industrial one, which brings a set of consequences, not least re-tuning the modes through which we have lived, acted, and made sense of the world until now.

In enquiring the background of the western ways of thinking, anthropologist Arturo Escobar (2018) addresses what is broadly identified as the rationalistic tradition, also referred to as Cartesian, or objectivist, and often associated with related terms such as mechanistic worldview, reductionistic science, positivistic epistemology, and, more recently, computationalist model. In this framework, the Enlightenment's scientific fascination for observing, explaining, and mastering the secrets of nature culminated in the Humboldtian quest to measure the world, which, as of today, reached the greatest scale: in planetary computation, as Benjamin Bratton (2016) calls it, every being and thing participates to this somewhat accidental, tireless planetary-scale technostructure of computation. This almost inconceivably vast and complex interlocking system — or system of systems — of sensors, satellites, cables, communications protocols, and software, captures and stores each mark, movement, decision performed on its silica sensing layers. This approach comes from a stance of knowing that has been inherited from the rationalists tradition, establishing a way of thinking the world to "bits and pieces" (Orr, 2002), to be handled by scientific analysis, compartmentalisation, or reductionism.

As modern ontological and epistemological traditions reflect in what Gregory Bateson referred to as "an illusion of separation from nature" (Bateson, 1982), the "modern curriculum" fragments the world disciplines and sub-disciplines, silos and sub-silos (Orr, 2002). As a result, knowledge that is available to decision makers fails to cover and address the complexity of today's interrelated social and ecological

problems. This is because mechanistic worldviews are rooted in the quantitative, in the measurement, in the assessment of what can be rationally codified and transferred under the apparent consolation coming from the classical Newtonian framework: the lower the scale, the lower the error. It is within this reduction to atomistic scale that the mechanistic worldview consequently informed the economic system we are immersed in: a divisive offspring that follows the logics of decoupling and extraction; that works life out of the fundamental intelligence of life; that explains life without life.

It is thanks to the New Paradigm Sciences — a body of knowledge championed and initiated by the two bastions of 20th century, quantum theory and general relativity—, that our universe finally appeared at out eyes in its inherent, restless, and quiet strive towards a unified architecture of wholeness, with its entangled modes of fine tuning and mutual responding that are present in all in all expressions of life and at all scales of existence. Some of the leading pioneers who have worked to build the foundation of this way of understanding our universe by tapping into the blindspots of the in-betweens, include Albert Einstein, David Bohm, Gregory Bateson, Ilya Prigogine, Elisabeth Sahtorius, Jean Houston, Stuart Kauffman, Ervin Laszlo, Alexander Laszlo, Jude Currivan, Fritjof Capra, and Roger Penrose, among many others.

Understanding life as an architecture of wholeness (Bohm, 2005; Capra & Luisi, 2014) helps us frame our relationships with complexity, to delve deeper into the nature of living systems.

> "What can be studied is always a relationship
> or an infinite regress of relationships.
> Never a 'thing'"
> (Bateson,1978).

In fact, while in human-made systems increasing *complicatedness* links to increasing destructiveness, in living systems it is all about *complexity: complexity* nurtures those systems' inherent strive for development, a development that follows the *qualities* of the components and relationships making out the system over the *quantities* of the system's

components and relationships*;* living systems grow along *self-regulating* and *self-adapting* endeavours, that are finely tuned to a kind of development that is fundamentally *qualitative,* and, as such, it is far from being predictable or controllable.

> "A sustainable society would be interested in qualitative development, not physical expansion. It would use material growth as a considered tool, not a perpetual mandate. It would begin to discriminate among kinds of growth and purposes for growth. It would ask what the growth is for, and who would benefit, what it would cost, and how long it would last, and whether the growth could be accommodated by the sources and sinks of the earth" (Meadows et al., 2018).

In this piece from the revised version of Limits to Growth, authors pinpoint the need for a qualitative shift in growth to steer human-made systems from social and environmental destruction to ecological sustainability, that cannot be reduced to solely meeting targets and fulfilling goals. In fact, under the (neo)positivist or mechanistic worldview contemporary challenges like climate change have been framed and approached starting from the biophysical discourse, which interpreted them as external, technical challenges (Leichenko & O'Brien, 2019). As such, they invited and strengthened the dominant, mechanistic-worldview driven incremental and instrumental policy approaches, which, eventually,

> "have failed to generate action at the rate, scale or depth that is needed. In fact, even though sustainable development has been championed as the ultimate process towards larger societal change, it eventually feeds into the polarisation that the mechanistic systems create" (Wahl & Smitsman, 2018).

Especially when it is reduced to a narrative of maintaining, sustaining, safeguarding the planetary boundaries, while enclosing societal development within them (Raworth, 2017; Rockström et al., 2009). In other words, when sustainable development becomes the regulating anti-pole to quantitative — extractive, expansive —growth, it is playing the counterpart in a dualistic system, sealing away a third way of non-

polarised, converging, and comprehensive discourse. In fact, when efforts to resolve sustainability crises feed into the polarisation dynamics that created it, those efforts will not be able to transform the underlying systemic dynamics. This has, in turn, hindered or at least narrowed the possibilities for deeper change that tackles the root causes of the problem (Köhler et al., 2019; Leal Filho & Consorte McCrea, 2019; Upham et al., 2019). However, the perspective emerging from the establishment of the New paradigm Sciences is disclosing pathways to introduce the theme of *complexity* and train the *sensitivity* in *handling it*.

> "We can't control systems or figure them out.
> But we can **dance** with them!"
> (Meadows, 2008; emphasis added).

As Meadows puts it, *complexity* is an invitation to step out from the controlling paradigm, and start taking the stance of waiting, noticing, letting oneself being surprised to learn and unlearn, while shaping and being shaped by the entanglements the whole world is immersed in. Dealing with complexity is, thus to "staying with the trouble" , as Donna Haraway (2016) beautifully condenses:

> "Trouble is an interesting word. It derives from a thirteenth-century French verb meaning "to stir up," "to make cloudy," "to disturb." We—all of us on Terra—live in disturbing times, mixed-up times, troubling and turbid times. **The task is to become capable**, with each other in all of our bumptious kinds, **of response**"
> (Haraway, 2016; emphasis added).

In Haraway's work, become capable to response is comprehensive of a more-than-human perspective over everyday life, where beings and things intertwine their existence seamlessly, with wellbeing turning out as an emergent property of those carefully tuned entanglements of lives. However, we are confronted today with the entanglement of crises. Complexity theorists Edgar Morin and Anne Brigitte Kern coined the term "polycrisis" over two decades ago. They argued that the most *vital* problem of the day was not any single threat but the

> "complex intersolidarity of problems, antagonisms, crises, uncontrollable processes, and the general crisis of the planet" (Morin & Kern, 1999).

The term has been lately populating research and policymaking discourses, calling for the need to be better defined:

> "in this spirit, we define a 'global polycrisis' as the causal entanglement of crises in multiple global systems in ways that significantly degrade humanity's prospects" (Lawrence, Janzwood, & Homer-Dixon, 2022).

An addition might revolve around tweaking humanity's prospects into a more comprehensive notion of "life's prospects". However, the message remains: we are looking for definitions and coordinates that describe a world of systems, of entanglements — in flourishing and withering, in sparking and extinguishing —; what is left to address is the *urgency* of *how* to stay with the trouble.

1.2 About transformation

> "We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path" (United Nations, 2015)

When it comes to crises, and even polycrises, change becomes the keyword to be looked into. Lately, we are not only articulating change in all its possible declinations — structural, organisational, functional, formal — and scale of impact — incremental, radical, subtle, disruptive —; rather, we are more frequently introducing "transformation" as an essential notion to be thinking with and to be worked on, to the point that "transformation has become the new buzzword in contemporary sustainability debates" (Blythe et al., 2018).
Narratives of polycrisis degrading life's prospects underpin calls for transformations, which policymakers have endorsed at the highest level:

think of the launch of sustainable development goals (SDGs) under the auspices of "transforming our world", with the "2030 Agenda for Sustainable Development" calling for transformative goals, targets, and visions, while suggesting that achieving these ambitious aims will require "structural transformation".

In these regards, the paper by Blythe et al. (2018), is illuminating and provides this research with the grounding notions to approach the theme of transformation. Authors, building on Karen O'Brien (2012) argue that despite "transformation" is being increasingly present in internationally agreed goals and policies, setting the tone of discourses about international sustainable development agendas an, thus, shaping sustainability research, policy, funding, and interventions, there is still a "lack of a critical, integrated body of research on transformation is both surprising and disconcerting" (O'Brien, 2012). Certainly, the semantic shift that is occurring at the highest levels — international agendas, with research and policing endeavours engaged in shaping and developing them — signals a paradigmatic shift towards common futures through identifying what is desirable and by defining the kinds of knowledge that informs and supports "transformational" change.

> "In contrast to resilience – defined as persistence – or adaptation – defined as incremental change –, transformation is often described as significant reordering, one that challenges existing structures to produce something fundamentally novel […]. The notion of transformation contributes to an emerging body of research and practice built on doing things fundamentally differently, **fostering systemic reform**, **and creating genuinely alternative futures** […]"
> (Blythe et al., 2018; emphasis added).

The momentum building around the possibility for paradigm shifts at multiple levels and in the way these shifts are imagined, studied, carried out and supported is rich with experimentation opportunities to translate *transformation* from "an academic concept into an assemblage of normative policies and practices, and how this process might shape social, political, and environmental change" (Blythe et al., 2018). Unlike adaptation or resilience, the lack — or, to better say, the embryonal nuclei

— of a systematic body of knowledge on transformation, signals that we are just starting navigating, and, most importantly, *practicing* it. It also tells that transformation entails venturing in complexity, harnessing its ambiguity, and training the sensitivity to *work on complexity while being immersed in it*.

Here it is relevant to remark that — at the moment of writing this theses — such practices still rest on a in-the-making body of knowledge, in a way that they are associated with sets of practices or strategies that are still waiting for wider recognition. As such, scientists, policymakers, and practitioners face ambiguities in the framing, justification, and practice of transformation, eventually encountering tensions and implementation challenges.

1.3 Framing systemic transformation

Resistance due to lack of widespread literacy on both system thinking and transformation can be addressed in different ways.

> "Transformation is rarely a clear-cut, one-step change. Rather, transformation is messy, fraught, contested, and happens at different scales and in different domains"
> (Westley, 2017, in Blythe et al. 2018).

While this remark certainly brings again complexity, and part of its qualities, to the fore, it also suggests that taking a specific perspective over transformation might help in providing anchor points or handles to orientate one's route in systemic entanglements, carried out with the aim of shaping them differently from their current state.

As such, this doctoral research aims at working (on) systemic transformation, by taking a specific perspective of both systems and transformation: one that is based on relationality as a paradigm shift in being, thinking, and acting in the world.

As for framing systems — and thus the "systemic" quality —, they are here framed according to the New paradigm Science introduced in paragraph 1.1. Building on the "architecture of wholeness" (Bohm, 2005), this doctoral work understands systems in light of the so called "Intelligence of Life" (Orr, 2002). As such, a guiding concept is the focus on the relationships — namely the interactions, the flows of energy, resources and information relationships that a system is made of. This understanding of systems is supported and nurtured by staging the whole thinking behind the conceptual framework this thesis is built on into the paradigm of relationality.

In their extensive paper, West et al., (2020) argue how turning to relational thinking in systemic challenges — i.e. sustainability — works as powerful leverage point to address them in practice. Authors provide a clarifying illustration, showing how four main relational themes flow into sustainability discourses, disclosing "transformative opportunities" — they name them just like that — for science, research and policy agendas committed to work on, with, and within complexity. Particularly, in their argument, process-relational philosophies, post-structuralism, and pragmatism inform sustainability-sensitive fields — including but not limted to science and technology studies (STS), human/cultural geography, sociology, psychology, political ecology, organization studies, policy studies, social and political theory, indigenous studies, environmental humanities. As a result, author identify key relational themes like:

_ the perspective on continually unfolding processes over objects, bringing in the sensitivity over the aspect of temporality and becoming;

_ the focus on constantly reframing language and concepts;

_ the practice of ethics of care, that is a set of mutualistic and reciprocal relationships;

_ the acknowledgment of the centrality and inescapable influence of the embodied character of how we experience complexity in everyday life.

All these themes, authors argue, flow into sustainability discourse, reorienting it along a new paradigm, one that allows the emergence — and thus noticing — of transformative opportunities, such as:
_ more holistic, dynamic accounts of human-nature connectedness;
_ more empirical accounts of knowledge production, prompting more situated and diverse knowledges for decision-making;
_new domains and methods for sustainability interventions that nurture relationships in place and practice.
Taking a relational perspective over systems seems to naturally meet the sensitivity that is required to approach systems as understood as "living entanglements" (Walsh et al., 2021). It is not surprising, in fact, to encounter depictions of "vibrant matter" (Bennett, 2010) and "entanglements of matter" (Barad, 2007) in these regards: both Bennet and Barad highlight both the *agents* and their *agency* — their power over, power to, power with, power within; *see chapter 2* —, as they carry out their existence by being inherently immersed into an intricate system of relationships. These connections are weaved in light of *interdependence*, the mode in which each agent relies on each other in relationships that are mutually constitutive, influencing and being influenced by the agency of one another (Haraway, 2016). As such, the concept of "wholeness" finally gains depth, as it is now graspable how relational thinking does not reject the idea of *entities* as singular components of a system per se, but rather *reframes* our understanding of them. While modernist thinking articulates that entities are distinct and essentially static, and conventional system thinking suggests that entities are distinct but move and interact with each other, relational thinking proposes that what we perceive as entities are themselves already constituted by a dynamic movement, something like a body of actions and events that moves in time and space, *making and unmaking* nodes, stabilisations or patterns of relations, produced within dynamic intersecting processes (Ingold, 2011).

As for framing the systemic (in) transformation in light of relationality — and, particularly, with the aim of further *work* (on) systemic transformation —, it directly builds on how systems are framed.
In the first place, when approaching themes of transformation, it is quite straightforward to venture in frameworks and understandings of the object of transformation as an external entity: we need to transform economies, procedures, organisational models, and so on. However, transformation is not only about affecting the surroundings that an entity in a system is immersed in; rather, transformation is also about a whole set of hidden, *inner* aspects held in the core of entities immersed in the system (Wamsler, 2021). In "Linking internal and external transformation for sustainability and climate action: Towards a new research and policy agenda", Wamsler et al. (2021), provide an illuminating argument about how western conventional and dominant traditions in science and policy has been framing the urge of transformation as a set of endeavours and commitments to be exerted — or, to an extent, even imposed — on given *externalities,* through which a given challenge was making itself manifested — i.e. climate change as the externality to be addressed to tackle matters of environmental, social and economic sustainability. However, authors argue, challenges at this scale are the outcome of "the way we all live; an unintended consequence or visible manifestation of the life that our minds have created" (Wamsler et al., 2021).

> "In line with this new perspective, scholars and practitioners are increasingly highlighting that the existing external orientation needs to be complemented with an internal focus to support a more profound cultural shift, and transformation towards sustainability. This view is supported by systems theory, which sees internal dimensions (values, beliefs, worldviews/ paradigms and associated internal capacities) as a deep leverage point for change, as they tackle the root causes mentioned above" (Wamsler et al., 2021).

As authors pinpoint, contributions in the internal component — inner change —, which comprises inner worlds, inner being, interiority or mindsets and refers to people's values, beliefs, worldviews/paradigms and associated internal — i.e., cognitive/emotional and relational —

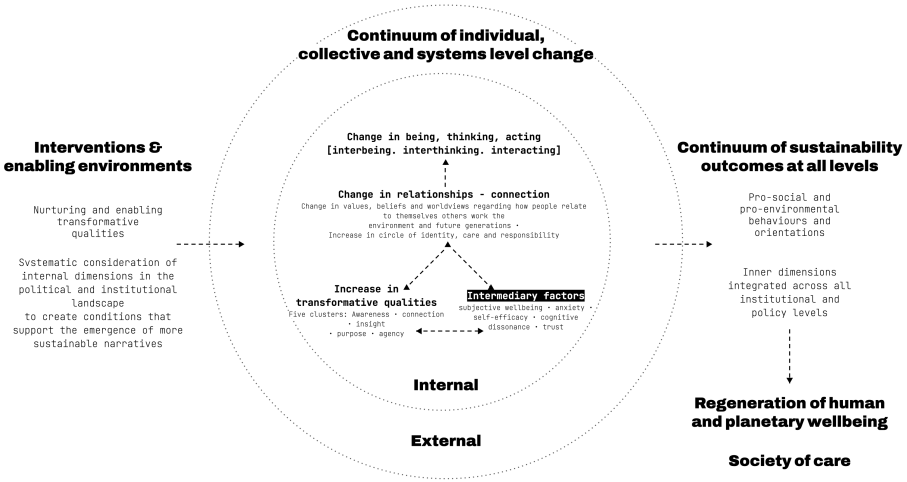


Figure 1.1, Model of change for internal–external transformation towards sustainability, providing a roadmap for future systematic research, policy and practice. Visual restyling by Coppola; original model by Wamsler et al., (2021).

qualities and or capacities, are hardly investigated. Nonetheless, they influence not only behaviours and attitudes towards climate-related challenges, but also current climate-related negotiations and the decisions and actions of policymakers. This is an ontological and axiological issue, as it relates to assumptions regarding methodological choices, and what a particular type of knowledge should be tapped into when supporting the need for a more explicit inclusion of "inner dimensions" in policymaking.

Wamsler et al.'s paper (2021) becomes soon key to this doctoral thesis, as it not only provides a systematic review assessing scopes, perspectives and approaches to track linkages between inner and outer transformation and how they are portrayed in current research. Additionally, and more importantly, authors propose a roadmap that is aligned with the conceptual setting of "systemic transformation" this work is based on.

Conceived to advance future systematic research, policy and practice, the roadmap value lies

> "in its potential to transcend different professional and disciplinary framings and silos that tend to focus on partial aspects, disciplinary critiques, competition and delimitation. The aim is, instead, to create a broader, overarching framework that allows for cross- and transdisciplinary co-creation. Achieving this requires change to contemporary knowledge production systems, which are predominantly reliant on a positivist mode of thinking. Hence, the model is ontologically and epistemologically grounded in interdisciplinarity, multidirectionality and interdependency, acknowledging the complexity of transformation processes" (Wamsler et al., 2021).

The model highlights the importance of certain transformative qualities, pushing for an agenda inviting the setting of conditions — scaffolds, safe spaces — to nourish, train and transfer those qualities.
Despite being hardly investigated, recent experimentations embodied in the case of Inner Development Goals (IDGs), as a framework complementing Sustainable Development Goals (SDGs). Here, it is quite evident how the goals and KPIs related to external change (SDGs) have been perceived as insufficient alone; hence, the need to tackle inner change by articulating a set of goals to develop inner capacities — modes of being, thinking, relating, collaborating, acting (IDGs). Born as a not for profit and open source initiative, IDGs signal a significant turn, delving into notions of integrated development, encompassing emotional, psychological, social, and spiritual well-being. These aspects, through these kind of initiatives, build recognition on conventionally overlooked, yet influential dimensions to be played with when addressing systemic transformation. The heightened interest in more integrative approaches — to be then formulated into frameworks for decision-makers — to understand and engage with systemic transformation as the result of the interplay of inner and outer dimensions, is the essential point of departure from which this work draws its conceptual working framework.

2. Working (on) systemic transformation

2.1 Socio-material arrangements: where systemic transformation gets actionable

As the urge for systemic transformation grows in science, research, and policy discourses, it soon becomes crucial to identify the knobs to be turned, the handles to be loosen; in other words, turning from theory to action called for a recognition of the need to look for *real-world* contexts on which kicking-off *real-world* transformative pilots.

Soon, a whole vocabulary related to creative practices — i.e. *imagining, shaping, crafting, prototyping* — started to populate high level institutional discourses, in addition to the already rich bottom-up traditions of creative experimentations and appropriations (see paragraph 2.2). In fact, from an European perspective, this is easily traced back into the recent launch of programs and initiatives, explicitly dedicated to foster the power of creativity in the European landscape: think of the New European Bauhaus (2020), the Next Renaissance (2021), the EIT Culture and Creativity (2022).

In a Manifesto for the European Green Deal (2020), an interdisciplinary team represented by Christian Bason (policy designer and researcher), Rowan Conway (strategic designer and researcher), Dan Hill (strategic designer and researcher) and Mariana Mazzucato (public policy and economy of innovation scholar) condensate the most urgent concern in the post-pandemic era in being about

> "how we make shared decisions about shared futures, how we use public space to understand public purpose, how we contest and co-create" (Bason et al., 2020).

The complexity we are confronted with in times of polycrises, the entanglements of agents and agencies, of actors and stakeholders, of interests and desires, they all inform the need to work (on) systemic transformation. And the shift to making it actionable starts from an institutional call about *imagining things and making them happen,* as in *staged in real life context*.
Certainly, such an institutional recognition brings in two main dimensions worth reflecting on:
_ to urgently work (on) systemic transformation, institutions acknowledge the need to speed up their processes, loosen their fixed approaches, and engage in iterative, ongoing prototyping endeavours — i.e. learning by doing stances, running pilots in real-life contexts, staging large scale System Demonstrators (Hill, 2022).
_ to urgently work (on) systemic transformation means venturing *practically* in complexity, taking action into it. This requires the need to tap into the specific expertise that is held by creative practitioners, with particular regards for design practitioners.
Taken together, these two dimensions allow to identify and outline the setting in which systemic transformation can be worked (on). A phenomenon that is that complex, ambiguous, long-termed, and blurred, like systemic transformation needs to be grounded on a *touchable layer,* one that can be acted upon, and that, in turn, can respond by acting back, with us keeping track of such a response. Framed loosely as

everyday life, this research turn to political philosopher Jacques Ranciére's (2013) definition of everyday life: building on political philosophy and aesthetics, Ranciére introduces the concept of everyday life as the stage of "distribution of the sensible"; a layer in which we experience — sense — everyday life, how it is organised and allocated in society. The way in which the sensible is distributed determines what is visible, audible, and intelligible, thus shaping inclusion and exclusion, social cohesion and desegregation. As such, it raises a political standpoint. And transformation is not less so: to work (on) transformation means to intervening in the distribution of the sensible: imagining alternative arrangements and bringing them into real-world contexts, materialising those visions of change into new socio-material arrangements.

The notion of socio-material arrangements is key to this research, since it provides the conceptual framework that is slowly building-up with a coordinate that identifies the context, the setting, in which working (on) systemic transformation takes place. This notion resonates with the work of a previously introduced scholar, Jane Bennett, linking directly to the discourse of creative practices. In Bennett (2010) in fact, each element/agent composing socio-material arrangements has its own socio-political vibrancy, that affects the vibrancy of other elements/agents. The affective qualities of elements is tightly connected to phenomenological accounts of aesthetics, through which tangible and physical objects, surfaces, as well as the less tangible and sensory aspects – such as sounds, smells, and lighting (Böhme, 1993; Edensor, 2010; Riedel, 2019) play a key role in delivering a specific affect to our senses; hence letting us perceive the distribution of the sensible emerging from a given socio-material arrangement. This, moreover, leads to enrich human interactions with different qualities – ranging from convivial and inclusive, to hostile and exclusive – as surrounded by and emergent within particular socio-material arrangements, replete with textures and atmospheres.

As such, imagining and shaping socio-material arrangements means engaging with and enacting the "affective ontology of enchantment": as

Bennett (2010) puts it, if disenchantment assumes disengagement from the material world, enchantment, by contrast, imagines affective engagement with the wondrous nature of matter — as it comes distributed into the sensible layer of everyday life. Here, enchantment is "a state of wonder", a temporal and physical "suspension" that emerges from "active engagement with objects of sensuous awe". Here, Bennett contends that sensing is vital to the "enactment of ethical aspirations," hinging upon multiple emotional and physical bodily responses, acts, and maneuvers. Her "Enchantment of Modern Life" (2001) reasons that the affective experience of daily enchantment and consequent attachment to the material world will produce ethical outlooks in accordance with this positive perspective. Her text does not sit on what social or political changes would occur; rather, it articulates how productive, and ethically driven change can transpire from it. Bennett's political project and vibrant language generate a valuable reconsideration of aesthetic engagement and response (Dewey, 1934) with the world, bringing creative practices on the spotlight in the systemic transformation discourse.

Just like anticipated with Rancière, the distribution of the sensible delivers the *spell of the sensous* (Abram, 2012); it seduces, it talks to one of the dimensions to be talked to when working (on) systemic transformation: the innermost self. This is attainable by practicing "*aisthesis*", the greek word for "sensuous sensing" and, therefore, "sensuous knowing".

Thus, socio-material arrangements can be taken as the setting of systemic transformation; a setting that can be shaped, carved, crafted, experienced, and grasped by tapping into the disciplinary fields that master knobs and handles of such arrangements. Both design and policymaking can thus make their entrance, in their capacity of *affecting* socio-material arrangements.

2.2 (Systemic) transformations as the fifth order of design

> "Designers are inventors of scenarios and strategies [that] play in the territories of the imagination to create new stories, new fictions, which will add to the thickness of the real" (Branzi, 1999).

Participating in the thickness of the real is a poetic way to frame design's distinctiveness as a disciplinary field. As Tonkinwise (2017) pinpoints, design differentiates itself from other creative practices in having a problem — or, rather, a question-oriented imperative. By holding an expert grip on the experiential layer of everyday life, design brings problems — or, rather questions —, sparking from a specific agenda, into the real world (Julier, 2013; Papanek, 1971). It does that by conceiving, delivering, and staging *prototypes* — design's devices of reference — and enacting related processes — *prototyping*.

Such designerly devices and processes have historically marked design's distinctiveness as a creative practice and industry, evolving hand in hand with design's agenda throughout its historical shifts.

The act of prototyping —of designing tangible experiences to be brought within everyday life, in order to simultaneously provoke discussion, derive insights, and shape the directions of possible futures— is fundamental to design practice (Björgvinsson et al., 2012a), in a way that prototypes work as "staging ground[s] that help visions of society take form by activating the civic imagination [and engage it] through making and the use of made things" (DiSalvo, 2022). With the urge of working (on) systemic transformation pushing for a pragmatist turn in institutional an public interest discourses (Dixon, 2020), a wave of *diffused prototyping* is recently being filling public space: here, design enters socio-material arrangements, *shaping* — in addition to just distributing — the sensible. As such, design not only adds thickness, but it also smoothens, sharpens, and polishes socio-material arrangements. As such, the political consequences of design practices are far from being neutral.

Buchanan's notion of the Four Orders of Design — communication, products, services, organisations — highlights how design practices evolved quickly, with prototypes being about one or, more accurately, a combination of two or more of the orders: think of examples of higher-in-complexity design practices like product-service systems design, interaction design, systemic design.

This work will not deep dive into the expansion of design practices' orders extensively; however, a brief discussion might help in understanding design's current relationship with systemic transformation.

By framing design as a problem/question-driven practice, the agenda underlying that vector will considerably yet subtly influencing the *affect* that is going to be staged in socio-material arrangements.

Historically, we have witnessed how design, while engaging with the problems of industrial societies, participated into the hyper-capitalist paradigm, to an extent that it has been accounted as an accomplice of the negation of futures for future generations: Tony Fry's (2010) understanding of certain design practices as *defuturing* ones, echoes with Papanek's (1971) admonition on design being one of the most harmful practices, when coupled with agendas in which form follows exclusion, exploitation, and extraction. As a result, after a certain strand in design practice contributed to the bigger "design crime" (Foster, 2003), part of the design community started questioning the output of their endeavours, as well as the political weight of their own tools, methods and approaches to the matters at hand. In fact, as design began to confront larger-scale initiatives with more networked technologies in contexts of increasingly non-homogenous cultures, designers started to look into alternative modes of practicing, one that would recognise the complexity that is inherent living and adaptive systems, like socio-material arrangements.

Thus, we see post-industrial design engaging with social practices. This requires comprehensive understandings of *people, as they go about their distinct everyday lives:* think of human-centred design sparking from the need to shift from making things to making something (Sanders &

Stappers, 2014); or the latest more-than-human design, recognising the agency of beings and things in socio-material arrangements (Forlano, 2017; Giaccardi & Redström, 2020; Light et al., 2022; Wakkary, 2021). According to Julier (2013), crisis in the neoliberal paradigm coincides with such a spark of "activist impulses" in designers, so that they start to embed their practices

> "into everyday life through intervention with *real people* in *real places*" lending their "power of resistance from being precisely a designerly way of intervening into people's lives" (Markussen, 2013; emphasis added).

Such a "social turn" promoted a do-gooder or idealist wave in design — think of practices of design for social innovation (Chick, 2012; Manzini, 2015; Resnik, 2019), service design for public interest (Sangiorgi, 2011; Junginger, 2013), design for democracy (DiSalvo, 2022; Manzini, 2015; Manzini & Margolin, 2017; Rezai & Erlhoff, 2021), design for policy (Bason 2014; Kimbell, 2015; Blomkamp, 2018; Kimbell & Vesnić-Alujević, 2020); all supported by a growing body of practical knowledge on staging participatory and collaborative processes to be embedded in those socially driven approaches (Sanders & Stappers, 2014; Bjögvinsson, Ehn & Hillgren, 2012; Ehn, Nilsson & Topgaard, 2014). As such, some designers ventured in social research (Tonkinwise, 2017) and grew into so-called "social designers", namely designers committed to participate into the co-creation of public values, to be infused in more conscious configurations of socio-material arrangements.

In this regards, Otto von Busch and Karl Palmås (2023) consistently trace a binomial tendency in dealing with these matters from a design perspective: the idealist drive to promote and embed universally desirable and benevolent values in design explorations, and, on the contrary, the realist strive to access the depths of reality and navigate the harshness of its power structures. In fact, designers increasingly recognised the need for more cautious, and responsible ways to think and practice design; the aim is to address transformation of "the entrenched cultures of unsustainability" (Escobar, 2018) we are

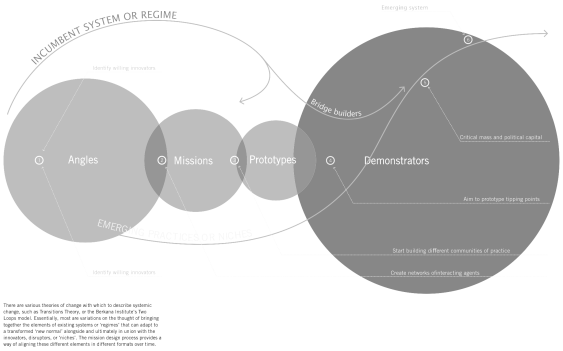


Figure 1.2. Model describing the mission-oriented innovation approach and displaying the positioning of prototypes and demonstrators as catalysers of transformation. Original model by Hill, (2022).

confronted today. Works by interdisciplinary thinkers like Arturo Escobar and his "Design for the Pluriverse" (2018), Daniel Christian Wahl's "Designing regenerative cultures" (2016) and Virginia Tassinari's "Re-framing the politics of Design" (2023) contribute in informing new design tools and methods, by inviting, among the others, more power-sensitive practicing stances: this is an ongoing call that part of the design community steadily answered to, acknowledging how the discipline grew its — epistemic, ontologic and ethical — agency under a paradigm where form followed the function of a mechanistic and utilitarian worldview, ending up in being ill-equipped to act in and affect the core of socio-material arrangements: power structures, relationships, and dynamics. Particularly, the commitment to embed design's practices into everyday life by working with real people in real places soon met with the need to address social change by acting both on different timeframes and different scales of socio-material arrangements. As a result, we witness the establishment of approaches like transition design (Irwin, 2015; Irwin, Kossoff, & Tonkinwise, 2017), and mission-oriented innovation design strategies (Hill, 2022): these approaches are centrally and explicitly concerned with Theories of Change, acknowledging that we are living in transitional times, hence the need to designerly respond and work (on) systemic transition to achieve more inclusive, equitable, and sustainable

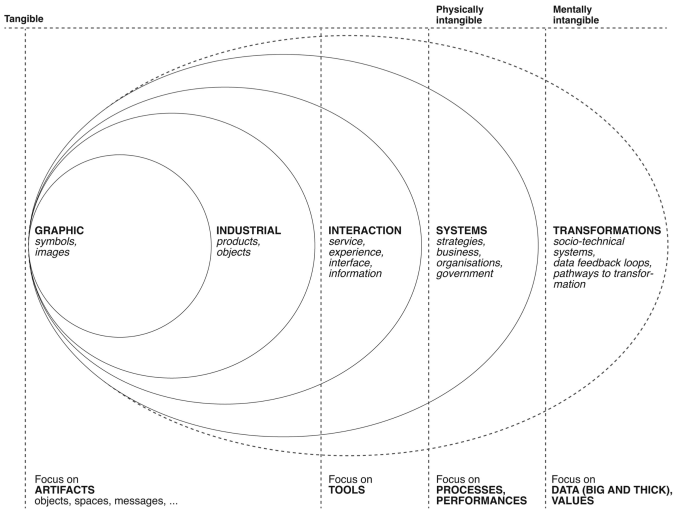


Figure 1.3. The Five-Order Model of Design. Original model developed by Mortati (2022).

futures. Throughout the last decade, systemic transformation as entered the discourse in design research and practice (Sangiorgi, 2011; Jonas, 2015; UK Design Council, 2011; 2013; 2021), pinpointing the need to grow in scale and work on systemic change. These approaches mainly build on interaction and systems orders (see Figure 1.2), with the connotation of gradually moving from industrial settings to public-interest driven ones.

As of today, working (on) systemic through design can be framed as a launched field of practice, to the point that transformations in themselves start to be included among the orders that design as a disciplinary field is able to include when assembling its prototypes. According to design scholar Marzia Mortati (2022), design is moving beyond the development of systems and environments where people relate to each other; rather, "it is devising learning systems in which new and different types of agents act". Here, Mortati is referring to transformations as "mentally intangible" artifacts, something that is perceived as socio-materially ubiquitous, yet extremely immaterial. This echoes with how Bason et al. (2020), when

addressing the need to implement design modes and practices to start an European prototyping wave in the New European Bauhaus, pinpoints how design has a role in shaping the

> **"dark matter of organisational culture, policy and regulation, procurement logics, evaluation models, societal value and values"** (Bason et al., 2020; emphasis added).

In light of the conceptual framework built so far, this doctoral research would propose a framing of *transformations* — in the sense of being one of the possible objects (orders) of design — that is halfway between Mortati's (2022) and Bason et al's, (2020) arguments. Building on the previously introduced scholars, this work addresses *transformations* — from a design perspective, namely a disciplinary field that has a grasp on socio-material arrangements — as orchestrations of *conditions;* the careful staging of certain settings or grounds, featuring specific qualities that would allow, foster, or even resist endeavours of transition-towards-transformation practices. A last note can be made going back to Mortati's model (2022), sitting particularly on the "mentally intangible" connotation of transformations. In light of the arguments advanced so far in this research, that feature might be speaking of transformations as "emergent objects", namely something that is not directly possible to design, but that can be elicited by playing with those elements that, in the given socio-material arrangement, invite some sort of *grasping*. A similar framing can be found in the extensive report by strategic designer Dan Hill (2022), which builds on the mission-driven paradigm in innovation. To Hill, missions provide a sort of "boundary object" to be thinking with and prototyping about together: gathering around a shared mission means providing the system of actors working towards systemic transformation with a bigger-scoped direction; their concerted efforts in that direction will eventually generate a systemic response; as a result, systemic transformation will occur.

Hence, a formulation of design's connection to (systemic) transformation can be proposed as follows: design has been lately accessing an expanded playfield within which it can work (on) systemic transformation;

here, it looks for the handles and knobs — be they products, services, processes, policies, agendas, etc... — of socio-material arrangements to elicit a response from said arrangement, to eventually guide its transition along pathways of transformation; thus, systemic transformation occurs as an emergent result of said tuning practices.

2.3 Design and policy: the question of making and aesthetics in socio-material arrangements

Socio-material arrangements can be grasped, touched, felt, sensed, experienced through the skilful assemblage of tangible and intangible artefacts. Here, several disciplinary fields have access to the knobs and handles to shape *desirable* — a quality that reminds of the political responsibilities behind such practices — distributions or configurations of the sensible. In this sense, to say it with Amarillo (2014), it is clear how both design and policy are among those disciplines who have the power, the methods and tools to *touch* everyone's daily lives. Policies can be though of as intangible artefacts; however, the way they are delivered — think of public product-services systems and the interactions they *afford* — are a traditional point of departure to start understanding the material translation of policies into everyday life. However, there is today much more than that.

Following Amatullo (2014)'s thought, design's application to the policy process is being "slowly coming into focus in an unmapped frontier" to help policy-making to become a more tangible process for people to experience and influence it. While initially design consultancies worked with the public sector mainly in developing service design projects (Sanders & Stappers, 2008; Puttick et al., 2014; Bason, 2018), design in public policy has only recently gained traction (Bason, 2014; Howlett, 2014) in structured innovation units (Vaz-Canosa and Prendeville, 2019;

Olejniczak et al., 2020; Alvarez, Auricchio & Mortati, 2022): examples provided by Policy Labs or public innovation/city hubs in Europe like the UK Design Council, the Danish Design Centre and the Swedish Vinnova support how design is being increasingly considered in its strategic significance at an institutional level. The establishment of these places arose from the need to engage with more profound public issues in a collaborative endeavour by both designers and public sector experts in shaping finance, governance and social innovation oriented around public purpose (Bason, 2018). According to the extensive report redacted by the UK Arts and Humanities Research Council (2020), a substantial bank of knowledge can be easily traced in both "policy" and "design" as separate disciplinary fields and concepts, whereas the body of knowledge bridging them and stemming from their encountering appears limited, blurred, still in the making. Formulations like "design for policy" or "policy design" (Bason 2014; Junginger, 2014; Kimbell, 2015; Blomkamp, 2018; Kimbell & Vesnić-Alujević, 2020).

With the growing interest in *publics,* design's interest in the ill-defined domain of policymaking (Kimbell, 2015) came soon after. Here, design established first contact points by providing toolkits and methods to address the criticalities that policymaking was confronting — namely, the need to dispose of approaches to handle the *complexity* inherent to socio-material arrangements. As such, political scientists (Howlett, 2020; Peters et al., 2018) as well as design scholars (Junginger, 2013; UK Design Council, 2013; Kimbell, 2015; Kimbell & Bailey, 2017; Blomkamp, 2018; Van Buuren et al., 2020) trace the growing channelling of design practices in public sector innovation, highlighting a particular interest in the ones dedicated to modes of engagement with people, their interests, desires, aspirations, and frustrations: approaches such as, but not limited to, design thinking, participatory design, and co-design have been constituting the most immediate exchange of practices — and thus trans-disciplinary meeting point — between design and policymaking (Malpass & Salinas, 2020).

When venturing into trans-disciplinary fields, some precautions seem mandatory; and this is strenghtened here, as the trans-disciplinary body of knowledge arising from the integration of design and policy practices and processes are still in their embryonal stage.
As such it is relevant to this research to sit on the "design thinking" case, taken as a demonstrator of a *difference in disciplinary translation,* that might hinder the inter-disciplinary knowledge exchange.
Since the very first interactions between design and policymaking, political scholars have been referring to the innovation brought in by design as "design thinking". The aim was to encapsulate the contribution that design was introducing, by sharing a way to harness creativity — the "mother" source of innovation — as a process (Blomkamp, 2018; Howlett, 2019; Van Buuren et al., 2020). However, as Villa Alvarez, Auricchio & Mortati (2022) pinpoint, it is important to underline how, at the same time, a harsh internal debate between design researchers, scholars and practitioners was being carried out around the recognition and salidation of "design thinking" as a truly distinctive design approach. Such a blurred state raised distinct and, at times, ambiguous interpretations of what "design thinking" was supposed to be, discussing to which extent it should have — or not have — been considered *different — a distinct way of doing and thinking, a specific approach, process or methodology* — from design *tout court*, rather than intended as the designers' project culture or a cognitive approach to problem-solving imperatives (Kimbell, 2011).
Design thinking has prevalently grown in design-based innovation and management studies, rather than originating in design studies. As such, it turns out as a form of design that lacks practice (Kimbell, 2009), the *material aspect;* however, it does recognise a form of experimentalism — to be later turning into "prototypism" — as a strategy that entails simultaneous problem-definition and solution-exploration. As such, we can see here the point of departure: policymaking was not interested in the material aspect, since it was being understood as limited to the delivery of product and services. Certainly, these outputs were essential

in delivering policies into socio-material arrangements; however, they would come into play only after having dealt with agenda setting, stakeholder consultations and policy formulations — according to the conventional model of policy cycles (Howlett, 2020). Policymakers were in need to innovate their sense making and decision making processes; they were looking for ways to deal with complexity; hence, the naive interest in design thinking, that is the innovation and management studies take on the practices and processes enacted by designers while working (on) systemic transformation.

However, just like in each attempt of transposition, something peculiar got lost in translation.

Even though the pragmatic aspect was preserved, since it gained recognition in experimental stances, piloting and prototyping approaches; what went missing was the stratified notions behind the "material" feature of practices. As Cameron Tonkinwise (2011) discusses by listing a series of works — like Roger Martin's "The Design of Business" or Tim Brown's "Change by Design" — management scholars stopped at the "concreteness" inherent to experiments and prototypes, dismissing the quality of that same concreteness. It is here that aesthetics got lost, because of a different framing of its contribution to practicing design:

_for designers, it pertains to form-giving in the sense of affecting, distributing, and inviting certain responses (with)in socio-material arrangements;

_ whereas for managers, first, and policymakers, then, it pertains to form-giving in the sense of shaping the pleasing appearance and tactile feel of an object.

Such a difference in framing comes from the dominant western strand in art-based discourses, to which aesthetics and the notion of "beauty" are only interested in and subject to moral judgement. This strand's linkage to arts had aesthetic thinking (and practicing) confined into notions of aesthetic appeal, with the consequence of being overlooked in favour of "strategic" aspects perceived as more relevant — and similar — to

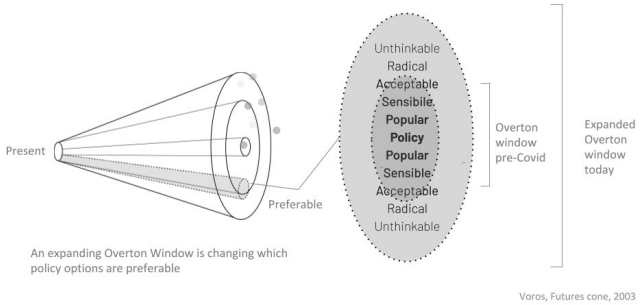


Figure 1.4. Combining futures cones from Speculative Design with the Overton window. Original model by Siodmok (2020).

managerial thinking; hence the *difference-in-translation* connected to design thinking (and practicing).

However, previously introduced concepts and argumentations, strengthen the positioning of this work along the centrality of aesthetic thinking and practicing in design, through which it holds an expert, distinctive grip onto socio-material arrangements. Since design shapes matters — tangible and intangible ones — into forms, it is actually exploring to what extent socio-material arrangements are sort of *malleable*: to say it with Bennett (2010) and Ranciére (2013) once again, this speaks of design's capacity to cast the enchantment of the sensuous through deliberate strategies, aiming at imagining, shaping, and rearranging the distribution of the sensible.

Otto von Busch and Karl Palmås (2023) consistently trace a binomial tendency in dealing with these matters from a design perspective: the idealist drive to promote and embed universally desirable and benevolent values in design explorations, and, on the contrary, the realist strive to access the depths of reality and navigate the harshness of its power structures. Building on political studies, these scholars outline idealism as a trader of *possibilities*, whose soft spot is in the argument of their attainability; whereas realism, on the other hand, trades in *impossibilities*, in highlighting the limited space of the feasible, pointing to all the ways in which the real world crushes the ambitions of the idealists. Scholars pinpoint how both idealists and realists engage in games of

imagination and, thus, design, since design as the *science of the artificial* "is concerned with how things ought to be" (Simon, 1996), thus being wedded to the notion of *intentionality* in enacting visions of wellbeing, justice and communal flourishing. Hence, what drives politics, realist thinker Raymond Geuss (2008) argues — and we could certainly add design here —, is

> "the fantasy of [the world's] plasticity, of a potentially infinite process of change and improvement, of the unlimited transformation of the world into something more perfect and more to our taste" (Geuss, 2008).

By creating "worlds within the world, mutually transforming each other" (Fry et. al, 2015), design discovers itself capable of influencing the emergence of not just entities and interactions within political life, but *political* entities and interactions.

Hence, **the *malleability* of socio-material arrangements** speaks to both design and policy, with them being the disciplinary fields navigating the real, concrete complexity that said malleability brings in place: in light of the need to work (on) systemic transformation, both design and policy are constantly in dialogue with the idealist drive and the realist strive over which configurations would be *preferable* and *desirable*, which might co-exist and mutually nurture each other, which communities — of beings and things — are they proposed by and which groups are going to be affected by them in the short and in the long-term.

Thinking with malleability of socio-material arrangements allows both design and policy to take a standpoint from which they might challenge the *politically unthinkable* by infusing everyday life with the *experientially desirable*.

2.3.1 A dutiful update

While writing this dissertation, a consistent report titler "Design & Policy: Current Debates and Future Directions for Researchin the UK" (2023) has been developed and published. The report (Kimbell et al., 2023) proposes a research agenda aiming at deepening the understanding of:

_ the extent of design in policy-making;
_ how design's distinctiveness can be applied through different types of design;
– its impact;
_ different relationships between design and policy, created through a range of types of research (including cross-disciplinary research integrating design and policy studies) and by mobilising UK central, city-regional and local government as collaborators and sites of co-produced research.
The report presents an extensive state of the art regarding design and policy, starting by the recognition of how

> "the articulation 'design for policy', developed over the past decade, is problematic, while there is a longer history of 'policy design' in studies of public policy and public administration". (Kimbell et al., 2023)

Such a standpoint contributed in infusing this work with renovated energy, as it communicated a form of *liveliness* in the research debate around the matters addressed by this doctoral research. Moreover, the report recognises an untapped potential of design in relation to policy-making, which can be attributed to a number of variables, including but not limited to the way designers communicate their unique propositions, their agency in policymaking processes, their radical novelty — which might divert rather than bring focus to what the process needs to address. The report portraits design's ability to cut across and integrate between policy silos, which was seen both as a strength and a weakness: building on Mortati's framing of design ubiquitousness as the same as being absent from the scene, the report also pinpoints how, when anchored and directioned, design can turn into a

> "multidisciplinary nervous system for civil servants and others, promoting ways of working that are collaborative and constructive across silos and professions". (Knight in Kimbell et al., 2023)

The report discusses how there are different ways of understanding design and, further, recognises the need to know more on the different approaches to characterising and evaluating the possible contributions that design expertise might make to policymaking, under what conditions and with what consequences.
In this regard, Kimbell et al. (2023) try to clarify the possible relations between design and policy in research and practice, by developing a set of propositions that distinguish three relationships between design and policymaking: the final aim is to formulate an agenda for further research and aid reflection on practice.

For design as a tool for policy-making

Understanding the policy process as a technocratic endeavour within a given world-view, with design seen as a supportive tool for achieving existing policy goals, implies a narrow recognition of the kind of expertise or knowledge that may be valuable, and which is perceived to be held by policy-makers and professional designers. Such relationship may be manifested in practice through design tools or toolkits, which are premised on an established problem and clear solution, and which set out a series of universally applicable, clear and linear steps or formulas of how to do design. This relationship is informed by and aligned to what may be termed first and second-generation design literatures. This approach is clearly the most prevalent form of 'design for policy', but risks playing into the idea of design as a set of tools to be picked up and put down, with limited scope within the policy process.

For design as a practice of improvisation within policy-making

The sense of policy-making as an improvisational process which has to respond to and negotiate between different world-views and where design is used to help navigate an unfolding policy landscape, suggests a recognition of specific and explicit forms of knowledge, and the value of including those with lived experience of a given policy issue within the policy process. Such relationships are often negotiated within spaces such as living labs, and may be aligned to literatures on participatory design. This use of design within policy is expanding, but its value may depend on how a given policy issue is framed, and its openness to re-framing.

For design regenerating policy-making

The sense of policy-making as a process which necessarily has to be open to challenge and the re-framing of existing thinking in order to meet unprecedented challenges, implies a recognition of the need to engage with hidden and marginalised perspectives and forms of knowledge, including those previously or regularly excluded from policy-making. Design here has a critically disruptive or generative purpose. This may be aligned with literatures on anticipatory or speculative design and may be manifested, for example, through the use of creative practices for transformational futuring. This use of design within policy is the most nascent, perhaps because of the implicit political challenges it poses, which may put off incumbent policy-makers charged with making policy work as it is.

Figure 1.5. Exerpt from the report by Kimbell et al. (2023).

The establishment of a trans-disciplinary body of knowledge (and practice) is just starting to condensate. Building on the three propositions introduced previously — design *as a tool for / a practice for improvising / a practice to regenerate policymaking* —, the table deep dives into the gaps that are in need to be addressed. This is relevant for the doctoral research, as it clearly formulates — from an accurate standpoint — the need to engage with certain kinds of knowledge or modes of co-constructing knowledge, or, even more, disclose hidden and occluded knowledges that eventually participate in practices driven by the interplay of design and/for policy.

IMPLICATIONS	Whose/what knowledge	Who are the designers?	Examples	Relationship to design research literatures
Design as a tool for policy-making	Narrow recognition of different forms of knowledge useful to the policy process	Policy-makers and professional designers	Design toolkits	First and second-generation design methods, service design
Design as a practice of improvising within policy-making	Inclusion of specific and explicit kinds of knowledge/ co-construction of knowledge	Policy-makers and designers, plus users/ those with lived experience of a given policy issues	Living labs	Participatory design, service design
Design regenerating policy-making	Hidden, unknown, occluded knowledges	Inclusive/wide recognition of different knowledges and perspectives	Creative futuring	Anticipatory/ speculative design, service ecosystem design, transition design

Table 1.1 Original table from the report by Kimbell et al., 2023.

3. Outlining a conceptual framework to design for systemic transformation

3.1 Thinking and practicing with Designing for Transforming Practices

On top of the conceptual analysis developed so far, this research takes a specific starting point, that is embodied in the design approach of Designing for Transforming Practices (TP). Developed throughout the last fifteen years, and briefly introduced earlier in the Methodology section (see Step 0), Designing for TP (Hummels, 2012; Hummels et al., 2018; Hummels, 2021; Trotto et al. 2021) is a body of practice-based

knowledge that works (on) systemic — or, to say it with authors, "societal" — transformation through design. Bloomed from the work of the research team — Caroline Hummels, Ambra Trotto, Jeroen Peeters, Pierre Lèvy, Rosa van der Veen, Maarten Smith, Sander van der Zwan, Gabriele Ferri — located at the Department of Industrial Design at the Eindhoven University of Technology, and in collaboration with RISE Research Institutes of Sweden — "Design for Transforming Practices" — TP is a design approach that acknowledges the need for transformation of practices in order to release current tensions in paradigm shifts leading to social-culturally, environmentally and economically thriving futures.
Why taking the perspective of Designing for TP in this doctoral work?
The motivations behind such a departing standpoint are twofold: conceptual and practical:
_on one hand, Designing for TP resonated with the themes that this doctoral research was aiming to address, providing it with the opportunity to enrich the pathway traced by the main research question with a fresh designerly and practice-based perspective over systemic transformation:

RQ_How might design for systemic transformation contribute to fostering trans-sectoral collaborative practices in socio-material arrangements to achieve collective thriving?

_ on the other hand, the research team behind Designing for TP — and, particularly, one of its senior researcher and supervisors, Ambra Trotto — got engaged with this work, providing it with applied design research cases, to be carried out according to a practice-based research methodology.
As such, the thinking and practicing with Designing for TP means, in this research, to rely on a set of concepts and key working principles as a grounding perspective. Notwithstanding the value of all the facets composing it, Designing of TP will be presented here in light of what has

been resonating more with the research question, articulating it along with a number of scholarly sources that have been introduced so far. Grounded in practices, Designing for TP aligns with the notion of socio-material arrangements as the settings in which activities of designing practices — and practicing design — unfold, infuse, pollinate, respond (Trotto et al., 2021).
An operative framework (Hummels et al., 2018) describes how Designing for TP works at different scales and layers in which *change* can occur.

- "**Realise change** focuses on the elements necessary to create not merely one design proposal, but even landscapes of designs, that can offer the conditions for people to transform.
- **Work change** focuses on the ways of working towards change. It offers a process for the development team to become competent in the transformation economy and paradigm, and design and research activities to realise designs for transformation.
- **Be change** is about embodying the transformation. Feeling the change, living it and being it. It refers to the people we are designing with and for, to enabling them to transform, to be changed. This will relate to the specific societal challenge we are designing for, but it also relates to general change. Next to this, be change also refers to the members of the development team; to incorporate change, live it, be it and embody the values related to the underlying transformation paradigm"

(Hummels et al., 2018).

The three levels work as a compass to navigate the layers of transformation, in which the framework provides specific coordinates and activities.
Here, it is relevant to note how Designing for TP meets what Wamsler et al. (2021) — see paragraph 1.3 — articulate, in their proposition of a research and policy agenda to achieve sustainability, as the need to making *external transformative endeavours going hand in hand with internal transformative ones*. By displaying at its core the inner ring describing modes to **be change**, Designing for TP not only acknowledges the importance of addressing the individual, intimate perspective; but also leverages on design's expertise in leveraging "sensorial engagement" for people to both experience and embody change.

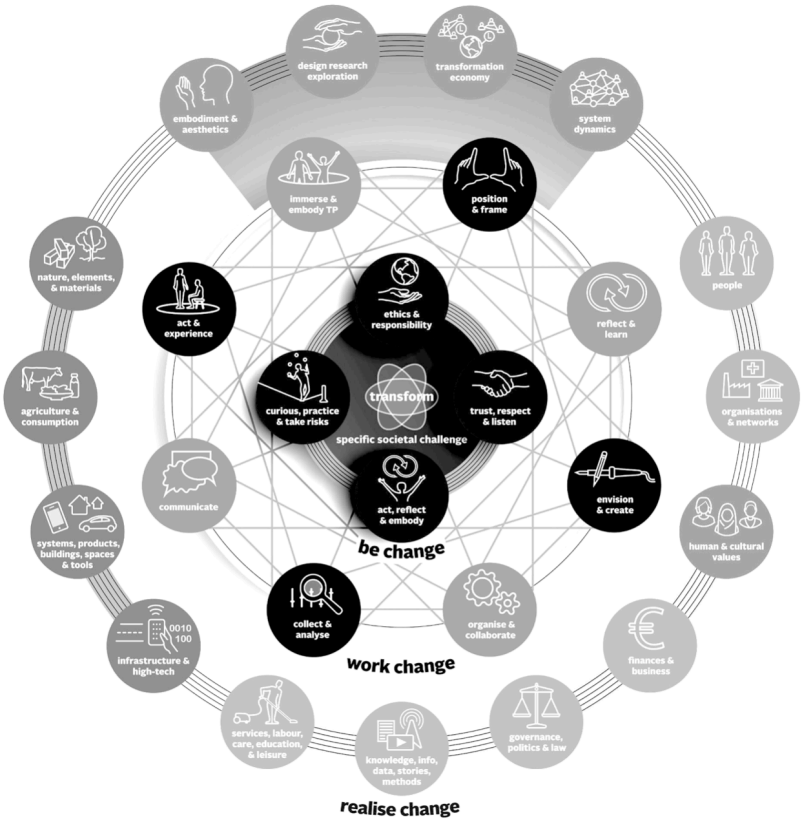


Figure 3.1 Representation of the activities and elements supporting Design for TP (Hummels et al., 2018)

This also refers to the recognition of agents and agencies as potential "pathfinders of change" (Trotto & Hummels, 2023): as such, to say it with organisational studies scholar Otto Scharmer (2018), the path towards transformation start in *being change*, namely the

> "source from which we operate in the system, […] the interior condition of the intervener. [Our] success of actions as change-makers does not depend on what we do or how we do it, but on the inner place from which we operate. […] The quality of results produced by any system depends on the quality of awareness from which people in the system operate.

> The formula for a successful change process is not 'form follows function', but form follows consciousness"
> (Scharmer, 2018).

Scharmer's framing echoes with what Trotto et al. (2021) unpack as first, second and third person perspective lenses:

> "**The 1st person perspective lens** invites to design for oneself, considering one's own experiences, social involvement, and action possibilities. It is empowered by intimate rationales.
> **The 2nd person perspective lens** invites to design for a specific person or a comprehensively accessible group of people, considering their experiences, social involvement, and action possibilities.
> This approach is still situated yet encompasses richer observable and describable experiences.
> **The 3rd person perspective lens** suggests a more global consideration on society and ecosystems, away from any specific and situated cases. It demands for expertise and a rather objective view on ecosystems.
> Taken separately, these three lenses provide different sets of values to work with towards transformation. Combined, they provide new values contributing to each and all perspectives"
> (Trotto et al., 2021).

By moving from different perspective lenses we can continuously orientate the point of view from which we look at the system (Trotto et al., 2021). This connects with how involved actors will be asked to continuously revisit the challenge at hand, from their personal perspective as well as from the perspective of the organisation and community that they represent. As such, the collaboration is enacted not to address a problem; rather, problems are continuously reframed, as long as they emerge along the process, contextualised in the system that engenders them, and addressed in a systemic way. Here, Designing for TP proposes the *zooming-in and zooming-out movement* as a practice to have both the inner and the broader look over the system.

Continuing in the reading of the framework, the outer ring about modes to **realise change** highlight the importance of **the notions of *making*** in Designing for TP.

Here, authors (Trotto et al., 2021) seem to build on what ancient greeks understood as "*poetics*": stemming from the word ποιητικός (poiētikos), a derivative of ποιεῖν (poiein), it addresses the *act of making*, in the sense of form-giving. Hence, in this framework, *making* is tightly connected with

the experiential implications that forms and shapes bring in. In this sense, we have an additional connections strengthening the discourse around design's involvement in the distribution of the sensible, namely it's capability to participate into the articulation of socio-material arrangements.

This strongly echoes with what discussed before along the "institutional momentum" that prototypes and prototyping as "making" processes are living in the public discourse. In fact, we have seen how they are being widely recognised as drivers of systemic transformation in mission-oriented innovation landscapes (Hill, 2022; Bason et al., 2020; Mazzucato, 2018): here, prototypes — ranging from product-service systems to processes, until embodying entire systems themselves — are entering real life contexts as *actionable grounds* to address bigger-picture challenges directly, with a *making* stance — that is by working on the immediate, sensible layer of everyday life. Design scholar Johan Redström (2020) discusses the growing interest in prototyping as a design practice, framing how it opened up for transcending most, if not all, practical and not least conceptual limitations associated with any particular *act of making*. The shift initiated a transformation of making by means of a reorientation from *production* to *knowledge creation*: in other words, by understanding prototypes and prototyping as devices to make and most importantly *learn by making,* they become devices of knowledge production (Valentine, 2013; Hill; 2022) means strengthening the concept that "design does not rest on an idea that we already know how to do things, but rather on doubt, unstable ground, and a profound willingness to question what making things is all about" (Redström, 2020). What Redström is pinpointing, then, is that we are witnessing the shift in framing "making" as act that *makes things* to an act that *making things possible*. With designing stances diffused throughout the sensible layer of communal life, and public space turning into a laboratory where unprecedented social modes, conversations and meanings are *collectively prototyped* (Manzini, 2015), designing is, at the same time, the catalyst of collective, *desirable* social dreaming (Dunne & Raby, 2013)

and a means to explore the possible conditions that might make those visions experienceable.

And it is right on the note of **desirability**, that Designing on TP introduces to "beauty" as one of its key guiding principles. Just as evocative and inspiring as it has been finding "beautiful" among the founding values of the New European Bauhaus (2021), Designing for TP take a specific perspective on it, one that builds on phenomenological approaches to aesthetics. In fact, starting from Merleau-Ponty (1962), and Dewey (1934), and informed by recent studies dedicated in unpacking aesthetic of interactions (Overbeeke et al. 2003), and aesthetic engagement in designerly practices (Hummels, 2000; Hummels, 2012; Peeters, 2017), **beauty is an emergent property**, that arises during the dynamic interplay between an agent and an artefact in a given context (Hummels, 2000). Petersen et al. (2004) elucidate this by saying that

> "our ability to engage in an aesthetic experience is based on our social context, manifested in a personal bodily and intellectual experience prolonged beyond the immediate experience. According to the thinking in pragmatist aesthetics, aesthetic is not something *a priori* in the world, but a potential that is released in dialogue as we experience the world; it is based on valuable use relations influencing the construction of our everyday life" (Peetersen, 2014).

Such a notion of beauty taps into an affective perspective of aesthetics: affect arising from interaction connects with the *qualities* of the aesthetic experience and its overall flow. As such it aims to elicit a deep involvement in the interaction, whispering to both the body and the mind (Locher et al., 2010; Berleant, 2010; 2011; 2015). Thus, designing an aesthetic experience means taking care of both cognitive and bodily (embodied) cognition, elicited by the environment.

This is strongly echoed by design researcher Minna Eronen's layered understanding of the environment — see Figure 3.2 — and the possibility to act upon it designing by the aesthetic qualities of said environments: building on ecological psychology and, particularly on Böhme's relational aesthetics (2017), Eronen unpacks how design can act upon how the way

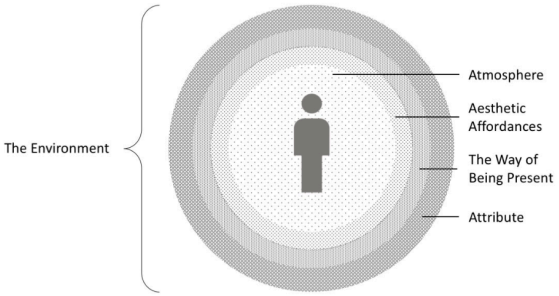


Figure 3.2 Visualisation of the layered environment humans are immersed in. Original model by Eronen (2019).

things are *present* in the environment, which is the way things work as a medium that transmits aesthetic affordances — thus, inviting us in undertaking certain actions or thinking along certain *atmospheres*.
Eronen brings Böhme's approach into Harpers' (2018) "aesthetic strategy model" that

> "that enables designers to integrate considerations about the aesthetic design experience into the design process as well as to articulate the aesthetic intentions behind the product" (Harper, 2018).

By playing with concepts of familiar and unfamiliar atmospheres — that aesthetically elicit responses of security or discomfort — designers can guide a given individual into a certain stance: instant payoff/instant presence; comfort booster/breaking the comfort zone; pattern booster/pattern breaker; blending in/standing out.
In this regard, Designing for TP recognises in **the notion of aesthetic qualities** the toggles that design is able to play with to unlock pathways of sense making that are usually dismissed; and this certainly finds its natural setting within the sensible layer of everyday life, namely within socio-material arrangements. Here, in fact, design's poetic endeavour pertains to delivering and/or conferring on expressiveness and meaning, that would be then enacted and perceived through a *sensorial* — and

almost *intuitive — grasping* of "a shared existential experience", to say it with biologist and philosopher Andreas Weber (2019).
At last, the middle ring depicting modes to ***work change***, as presented in the framework, invites a focus on all the activities aiming at transforming socio-material arrangements, that can be staged through design practices.
These activities have a solid collaborative, as well as learning-driven connotation (Hummels & Lèvi, 2021; Trotto et al., 2021;). Particularly, these activities align with the following qualities:
_ **they are dialogic.** Building on Richard Sennett (2012) , the "dialogic" quality refers to a form of communication that values open-ended dialogue and mutual exchange. It emphasises the importance of listening, acknowledging differences, and engaging in a respectful and reflective conversation. In this dialogic approach, participants are encouraged to understand and appreciate diverse perspectives rather than simply seeking to persuade or dominate the conversation. This method contrasts with monologic or dialectical communication, where one-sided narratives or authoritative statements prevail; thus, it aims to foster a more inclusive and collaborative discourse. Dialectical methods are more about integrating opposing viewpoints into a cohesive resolution, whereas dialogic methods are more attuned to ongoing, inclusive interaction without necessarily seeking resolution.
_ **they stimulate alternative modes of sense making — both individual and collective —, thus affecting decision making processes**. Both processes are intertwined, as effective decision-making depends on the *quality* of sense making, whether conducted individually or collectively (Hummels & Van Dijk, 2015; Jaasma et al., 2017). Here, Designing for TP focuses on the importance of not overlooking the introspective character of individual sense making, since it also contributes to change — see "be change". Collective sense making relies heavily on social interaction and communication. Furthermore, Designing for TP acknowledges the need to bridge individual decision-making — which can be swift and personal — with collective decision-making —

which often involves structured processes to manage differing opinions and reach a consensus.

_ **they are inscribed in a framework of *mutuality*, *reciprocity* and *co-respondence***, like Ingold (2017) and Haraway would put it (2016). As such, Designing for TP unfolds through activities that foster co-response-ability, involving stance of commitment, trust, dealing with uncertainties, learning through failure, and empathy. This nurtures alternative ways of working together and pursuing inclusive and sustainable practices.

_ **lastly, they nurture ongoing co-development.** TP practices are conceived to be staged in longer-timeframes, in the form of sets of iterative processes. Here, Designing for TP engages in learning, co-creating, appropriating, and researching activities, encouraging people to explore and respond to new experiences reflectively, by learning from their actions (Hummels & Lèvi, 2021).

3.2. Thinking and practicing collaboration with(in) design and policy

If Designing for TP provides the main conceptual and practical notions form the design perspective, identifying key points of intervention at the trans-dsciplinary crossroads of design *and* policy is key to this work, since it's aim is to contribute to the establishment of in-between, trans-disciplinary spaces. By staying and experimenting from here, it might be possible for these two *working-change/making-oriented* disciplines to integrate and (un)learn from each other, synthesise trans-disciplinary practices, and, intertwined, play with the toggles and handles of socio-material arrangements to tackle the urgency of working (on) systemic transformation.

Such an endeavour requires a shared acknowledgement of a set of conditions that speak of the current state of socio-material arrangements:

_ **both design and policy understand the need to reframe and train sensitivities** towards notions of complexity, situatedness, and interdependence;
_ **both design and policy are acknowledging the entanglements** of not only agents and agencies composing socio-material arrangements, but also of crises — and polycrisis;
_ **both design and policy understand systemic transformation as a collaborative endeavour**; one that can no longer be carried out by keeping knowledge and practices confined in their siloes; it is carried out together *and in the diversity* of togetherness;
_ **both design and policy need to bring trans-disciplinarity to the fore** by acknowledging and enacting practices of invitation, participation, consultation, and collaboration with the plurality and diversity of actors, agents, stakeholders that make up a given ecosystem.
Given these main shared coordinates that outline in broad terms a design-and-policy perspective, we can now focus on *action,* that is the set of steps and processes that design and policy put in place to *respond to certain questions* — rather that address problems.
In fact, as public policy scholar Michael Howlett (2020) shows, policymaking is being lately redesigning and testing out alternative and integrative configurations of the conventional policy-cycle. Briefly, it is articulated in five main phases: *agenda setting*, *policy formulation*, *decision making*, *policy implementation, policy evaluation*. Lately, the prototyping wave — the second generation wave after the design thinking spread — has been stimulating new *qualities* for the policy cycle processes, making it *iterative* by introducing feedback loops between each phase (Howlett, 2020; Peters et al., 2018), and *open-ended* by leaning specific phases on to pilots and system demonstrators (Hill, 2022).
Looking at the policy cycle is a way to learn more about the anchor points that policymaking processes rely on: working as sort of North-Stars, this set of requirements emerges from recent policy innovation research reports (Malpass & Salinas, 2020; Kimbell et al., 2023) as the key areas or

concepts to be worked on to channel a more deeper, critical axiological shift from the instrumental-rational view that policymaking is currently struggling with (Lejano, 2021); hence, the misalignment between current policy practices and the challenges posed by polycrisis.

As such, design might jump in and support policymaking into developing more critical-reflexive and relational approaches in collaborative practices (Lejano, 2021), moving away from the solution-driven approach, to which policy is conventionally understood as a "creative process of designing *solutions* to public policy problems" (Linder & Peters, 1984). Design, as the creative industry differing from other creative practices by its "problem-solution imperative" (Tonkinwise, 2017), have been acknowledging in the last two decades how that same strive for solutions was linked to the mechanistic and reductionist approach promoted by the industrial paradigm. The shift in focus from problems to *questions,* and from solutions to *possibilities,* participated in the accelerated consolidation of designerly sets of tools and methods to better approach the complexity behind wicked, ill-defined, messy challenges arising when addressing the *societal features* of socio-material arrangements.

As such, not only design and policy meet in socio-material arrangements. It is here, that, according to a consistent practice of collaboration, they both embrace and navigate multi-actor ecosystems, with the aim of bridging and synthesising trans-sectoral endeavours, as systemic transformation requires. Here, both design and policymaking understand the need to develop human-centered — even stakeholder-centred (Forlizzi, 2018) — processes, bringing at its core the focus on collaboration and collectiveness as the most appropriate, cautious, and *caring* modes to work (on) systemic transformation. While design enacted its disciplinary revision by building swiftly a body of practical knowledge to promote collaboration, policy is approaching this same shift, with research agendas in policy innovation already identifying key dimensions of collaborative practices to be worked on to accelerate the establishment of trans-disciplinary practices and processes.

Building on design approaches shifting to "social problems" (Tonkinwise, 2017; see Chapter 2) and on policy approaches shifting to relational perspectives (Lejano, 2021), it is clear that both disciplines acknowledge *collaboration* as a necessary stance to co-design desirable futures in socio-material arrangements. As such, I will now look at collaborative practices with the double lens of design and policy — as two disciplinary fields that developed along different paces —, introducing three aspects or areas that describe the soft-spots of collaborative practices for design and policy to work on in a trans-disciplinary endeavour.
The three areas don't aim at being extensively descriptive of all the facts that collaborative practices are made of. However, they provide this work with the very raw matter to start thinking, practicing and researching with.

3.2.1 The modes of consultation

> "We are no longer designing one thing for one person. Instead, we are doing stakeholder-centred design, which takes into account the notion of different entities interacting with and through products, services, and systems to achieve a desired outcome" (Forlizzi, 2018).

Immersed in the entanglement of many-to-many arrangements, we take collectivity and all the practices of *togetherness* — i.e. and not limited to participation, consultation, communication, discussion — as the essential point of departure to make sense of the real world and decide upon it. Both design and policy venture in socio-material matters, dealing with them by enacting practises of collaboration. Particularly, in policy consultation with stakeholders occurs throughout the policy cycle, as well as the design process. Structured and formalised approaches to stakeholder engagement are desirable in both policy and design: as Innes and Booher (2010) aptly note, the complexity of current policy challenges requires processes that bring together diverse perspectives, creating a shared understanding. Here, we are witnessing the need to activate processes that invite not only the sharing and bridging of perspectives, but the training of a systemic awareness, where the "other" gets

recognised, *noticed* (Tsing, 2015). Anthropologist Anna Lowenhaupt Tsing poetically frames how in the interconnectedness of everyday life, practicing noticing is the practice to attune to multiple simultaneous rhythms, voices and relationships. In the process of noticing, perspectives from both beings and things — as the technological actor is also making steps towards a certain degree of autonomy in social arrangements (Giaccardi & Redström, 2020) — become visible or sensed, and the polyphonic nature of everyday life assemblages foregrounds. This speaks to the aesthetic grip that socio-material arrangements invite, with designs expertise in handling it coming right after.

> "The new alliance I propose is based on commitments to observation and fieldwork—and what I call noticing. Human-disturbed landscapes are ideal spaces for humanist and naturalist noticing. We need to know the histories humans have made in these places and the histories of nonhuman participants" (Tsing, 2015).

Ideally, anyone that is touched by a matter of concern that would call for a design and/or policy intervention to re-tune it to more desirable conditions, should be part of the sense making and decision-making process. Now, despite coming from a more-than-human standpoint, Tsing's invitation to step into fieldwork speaks of the need to promote modes of knowing — and, thus, *consulting* — tells of the need to tap into the multiplicity of layers that a single perspective is made of; this is essential to both design and policy, since it speaks of all those nuances in arguments that are often dismissed or overlooked when stopping at statistical and "cold" data.

As such, the proposition would be to promote through design alternative practices of consultation, practices that make space for different kinds of perspectives, connecting the inner and outer dimensions of change that each individual embodies in long-term, systemic transformative endeavours. Such practices connect and venture in modes of both individual and collective sense making, processes that can be elicited by purposely designed arrangements, as the body of knowledge in design

and participatory practices demonstrates: design — and, particularly the framework of Designing for TP — tells us that we can not only *understand* the world (rational cognition); rather, before we understand it, we fundamentally *grasp* it (embodied cognition). Thus, making consultation an *embodied fieldwork* might be a proposition for a design for policy agenda.

3.2.2 The (changing) nature of evidence — and the evidenced

Sense making and decision making processes occur, in policy, under the analysis of evidence. Conventional understanding in policy frame evidence as objective packages of knowledge. However, shifts in policy development recognise the importance of complementing this kind of information with qualitative one, tapping into experiential insights. This is encapsulated in the acknowledgment of the need to combine "big data" with "thick data", or integrating evidence-based practice with practice-based evidence (Burkett in Malpass & Salinas, 2020). While evidence-based practice in policy relies on established knowledge and proven interventions, practice-based evidence, akin to design approaches, generates insights through field activities, embracing the situatedness of ill-defined challenges: as such, it *captures* not only the subtle and specific nuances of each situation, and, most importantly, recognising first-person perspectives as valuable as "objective", out-of-context data. ***Capturing* is the key work here**: the problem with thick data lies in its own complexity, frictioning the work of extrapolation and encapsulation. This same challenge is shared by design practitioners and researchers, especially those engaging with co-design approaches: here, in fact, designers, facilitators, and participants need to work with the perspectives shared by each; as such, those insights need to be made *actionable* in order to be fully grasped, appropriated, reflected upon, and, eventually, built on. Design prototypes not only accept, but most importantly invite, suggest, prompt inputs from those who are thinking-and-making with them. Those inputs are, thus, captured in the prototype,

making it the embodiment of the distributed knowledge arising from dialoguing perspectives. This occurs as design taps into the aesthetic qualities of *things,* in a way that those things pose questions that elicit certain kinds of responses, that, consequently, spark certain kinds of reflections. Policy might find in such designerly expertise the way for developing tools and approaches aiming at engaging with, bringing to the surface and capturing different kinds of evidence.

A side reflection can be made also in how captured evidence is “packed" and delivered: usually, policymakers deal with text-based — *disengaging* — reports, with visualisations and infographics making the appendixes of those documents. Certainly, text is a suitable strategy to codify knowledge and make it transferable in time. However, text might not be the best media for certain evidence and perspectives to be captured. This raises interesting challenges on more experiential — *engaging* — modes of accessing evidence.

3.2.3 The delivery distance: on infrastructuring

One of the greatest challenges that disciplines working with(in) socio-material arrangements is to lose their grip onto the reality of their context. Here, abstraction of concepts, as well as of practices — think of the implications of the scalability drive in innovation discourses (Buuren et al., 2016) — might contribute in generating a divide between what is modelled and what is actually occurring in the system. Policy is not extraneous to such an issue and it is recently taking a critical perspective even about approaches like *piloting* and the isolation it brings in (Buuren & Loorbach, 2009; Turnheim, Kivimaa, & Berkhout, 2018).

We are addressing here the notion of situatedness: the understanding of socio-material arrangements as sets of entanglements between agents and agencies, frames the knowledge generated with(in) large-scale prototypes — i.e. pilots and system demonstrators — as highly dependent on the socio-historical, geographical, and cultural contexts in which they are “implanted”; pilots knowledge is dependent on social and power relations, as well as philosophical and ideological frameworks that

ultimately and mutually concur in shaping the multiple perspectives of social actors originally involved in the context. As such, it is important to note how policy is striving to move on from the understanding of both "policy delivering" and "policied" actors as just rule-setting and rule-following entities; rather, they are *agents,* whose agencies constantly work out the substance of policies, as they appropriate them and participate in their ever-unfolding refinements (Lejano, 2021).
Just like some design did, policy is acknowledging that it moves — even when "just" experimenting — in real contexts, not in isolation, and such isolation occurs between both delivery teams and policy users:

> "policy is sometimes developed in isolation both from delivery teams and from the policy users. Service delivery teams feel that policy is thrown over the wall for them to catch without contextual knowledge of how it has been developed. There is a silo between politics and policy, a silo between policy and delivery and a silo between delivery and the public" (Malpass & Salinas, 2020).

We cannot compartmentalise something that is going to affect and be affected by the public — in the broader sense, that is to be understood as:

> "a plurality of voices, opinions, and positions. There is not one single public, but rather, there are a multitude of publics" (Dantec & Di Salvo, 2013).

The multiplicity of voices in real world contexts — the *frontstage* of policy — is the multiplicity of disciplines to be involved in the processes of policy — the *backstage*.
Notwithstanding the complexity of the challenges that each of the siloes — and thus gaps — pinpointed by Malpass & Salinas (2020) bring in and the need to address them all, this research starts by picking up from such a tangle what it seems to be the red thread connecting all of the discussions advanced so far. Particularly, a focus on the distance located in both the stages of policy formulation *and* policy delivery. In fact, from a design perspective, these steps would be better considered as an iterative process, where activities of knowledge accessing, sense making,

and decision making are continuously informing each other. It is in these specific regards that a form of integration — and process innovation — might be recognised: particularly, we are now looking into how activities of stakeholder engagement and consultation are being increasingly conducted throughout the whole duration of the policy cycle, extending to the policy evaluation step. In fact, *it is in keeping the conversation going, and in maintaining the conditions for stakeholders and policymakers to interact with, engage with, exchange, and co-produce knowledge that one of the subtler yet impactful challenges lie.*

In other words, the gap I am looking at here, is the gap among each collaborative practice enacted along the almost compartmentalised policy cycle: the content coming from co-creation and consultation sessions don't often reach the next policy step, or, is not carried out by the same person. The loss of co-created knowledge and the possibility to be accountable for it hinder lines of coherence, resulting in fragmented bits of knowledge to be carefully reconstructed at each step.

This resonates strongly with Dan Hill's framing of designing mission-oriented innovation (2022), to which:

> "missions are designed to be platforms for producing meaningful public dialogue about these symbols, and what they stand for. […] Missions put entire systems on the canvas. That must include cultural elements as well as technical, recognising that these are but two sides of the same thing" (Hill, 2022).

Here, "innovation" not only concerns the lab or businesses, but also governance and organisational models as well as mental models — since they are in the practices of everyday life. Furthermore, by framing *missions as the intermediary layers* between grand challenges and the combination of multiple sectors with portfolios of projects, to produce systemic transformation, Hill is raising a critical point: how to keep those laters connected and how to frame responsibility or accountability for the intermediary layers?

This challenge speaks to design, especially when it is asked to conceive processes of collaboration understood as activities of continuous feedback an re-orientation of perspectives: here, the challenge is twofold:
_ allowing not only perspectives exchange, but also tuning of perspectives, so that a trans-disciplinary exchange might smoothly occur;
_ maintaining the conditions for *trans-disciplinary sense making, knowing and learning* processes to continue over time.
Design, especially co-design and participatory approaches, have been stumbling in the notion of "infrastructuring"(Björgvinsson, Ehn, & Hillgren, 2010; Jegou & Manzini, 2008; Björgvinsson, Ehn, & Hillgren, 2012; Dantec & DiSalvo, 2013; Karasti, 2014). Originating in science and technology studies, the notion of "infrastructuring" explores the endeavour of building the scaffolds to sustain collective endeavours — i.e. collaborating.

> "What is infrastructure? Common metaphors present it as a substrate: something upon which something else "runs" or "operates": such as a system of railroad tracks upon which rail cars run. Infrastructure in this image is something built and maintained, sinking then into an invisible background. Such a metaphor is neither useful nor accurate. […] we hold that infrastructure is fundamentally and always a relation, never a thing" (Star & Ruhleder, 1994).

An infrastructure, thus, is something that becomes visible only in action or use. Starr & Ruhleder (1994) argue that infrastructure is not just a backdrop for activities, but is actively involved in shaping those activities themselves. It is seen as an ongoing process that requires maintenance and repair: this perspective emphasises the dynamic interplay between infrastructure and its "users", highlighting the importance of understanding the lived experiences and practices that sustain it.
This concept soon came to design practices — especially the ones focusing on and practicing collaboration. Here, the notion of infrastructuring has been echoing in regards of a peculiar kind of design, the one about forms of *networking or interplay processes*, between the involved actors: in other words, designerly practices applied in many-to-

many environments tend to result in co-prototyped conditions for stakeholders to make things and learn together on a long-term basis (Trotto & Hummels, 2023). The idea of infrastructuring through design practices, as Teli et al. (2020) highlight, necessitates us

> "to consider the right mix between depth (excellence) and breadth (reach) of participatory skills and practices, and expand the participatory repertoire **to more explicitly embrace the communication, sense-making, dot-joining, frame-shifting, advocacy, and diplomacy skills and capabilities** required to reconcile the interface between the core institutional action frame and what the participatory frame aims to achieve" (Teli et al., 2020).

Taken together, they all represent a form of knowledge and cultural brokerage that design can put in place, speaking to the most recent needs of policy to shift and heal policy gaps: infrastructures *can* be designed and stakeholders — individuals or organisations — are invited in the designing process. Infrastructures facilitate systemic transformation, since they provide the scaffolds onto which dialogical sense making, decision making and learning processes can hold. The challenges posed by infrastructures is that they are not visible: just like systemic interdependence, they are hardly seen; yet they can be grasped and experienced (Tsing, 2015; Stengers, 2020): just like relationships. After all, infrastructures are fundamentally a relation, never a thing.

3.3 A guiding aspiration: on collective thriving

Work (on) systemic transformation, but *why*? What is the driver of such a messy journey?

Concepts presented and analysed so far can be gathered into a whole organic theme, which can be considered as the embodiment of a guiding aspiration to this doctoral research.

By such a wrap-up endeavour, I would like to advance a hopeful direction, taking the responsibilities of all of its political biases and implications.

Particularly, I am going to build on the seeds planted so far:
_the understanding of systems as living assemblages, departing from cybernetics and embracing the integrative energy of the "intelligence of Life";
_ the recurrence of a vocabulary of "*making*" when engaging with design and policy as both disciplinary fields holding an expert grip on the toggles and handles of socio-material arrangements: working (on), making things, making things possible, crafting, shaping, prototyping, co-creating, co-producing, co-designing.
_ the recurrence of a vocabulary of "collectivity" when engaging with design and policy as both disciplinary fields willing to embrace and navigate the complexity that socio-material arrangements bring in: inviting, participating, collaborating, listening to, consulting, discussing, sharing, recognising, noticing,
_the relational thinking invitation to sit on words and engage with linguistic phrasings as a practice that also affects socio-material arrangements; this, particularly, arouses in me the urge to sit on the words **"*trans*" and "*form*" in "transformation"**, sitting on the words' implication of a *passage* — *trans* — from state to state — *form*.
_taking that same invitation to **reframe "*sustain*" and "*ability*" in "sustainability"**, and look for alternative directions by *thinking-with* transformation.

These *seeds* can now sprout in a an organic aspiration, that might work as an overarching direction to the further development of this work.
To say it with Orr (2002), we are today confronted with a call for turning

> "human activity from destruction to participation [... in the hallmarks of] largeness of heart, breadth of perspective, practical competence, moral stamina and the kind of intelligence that discerns ecological patterns" (Orr, 2002).

The reference to a certain "kind of intelligence" — the intelligence of Life — invites further exploration in alternative notions of evolution, progress and growth, landing in the relatively young notion of *thriving*.
Here, the work of Alexander Laszlo (2019) provides a guiding formulation; in his "*Evolutionary Learning Ecosystems and the Syntony Quest"* he writes:

> "a concept that builds on and furthers that of sustainability by embracing and fostering the human capacity to lead a flourishing, joyful, loving life in co-emergence with one's living environment. As such, it cultivates a sense of awe, of the sacred, of the celebration of life as integral to all processes of development. Dynamics that promote life affirming, future creating and opportunity increasing pathways of human expression in syntony with Earth and all of life can be said to be thrivable" (Laszlo, 2019).

Such a thinking with aliveness — as biologist and philosopher Andreas Weber (2019) would say — entails the dimension of *togetherness*, as we are carrying out such an *enlivenment* while continuously adjusting and adjusting to the beings and things we share the world with:

> "people and animals tangle together in innovative ways that might, just barely possibly, render each other capable of a finite flourishing— now and yet to come" (Haraway, 2016).

As such, this work aspires to contribute to *collective thriving,* (Currivan, 2017; Laszlo, 2014), namely the collectivity of agents acting in a living system as a whole to honour the vital interdependencies they are immersed in. The concept is commonly associated with the act of prospering or flourishing, to be happy and fulfilled, and to live in harmony with life, entailing a pluralistic and communal view over systemic challenges — and, thus, transformations. As such, collective thriving refers to the development of (eco)systemic processes, where beings and things oversee a collective sense of co-response-ability — the ability to respond together of something to something else (Haraway, 2016). It is an ode to relationality and entanglement, that speaks of purpose and

aspiration, enacting social dreaming while embodying personal wholeness and dignity, being respectful of the context in which they are rooted in and that operate within, in light of its mutual, simultaneous regeneration and prosperity (Wahl, 2016).

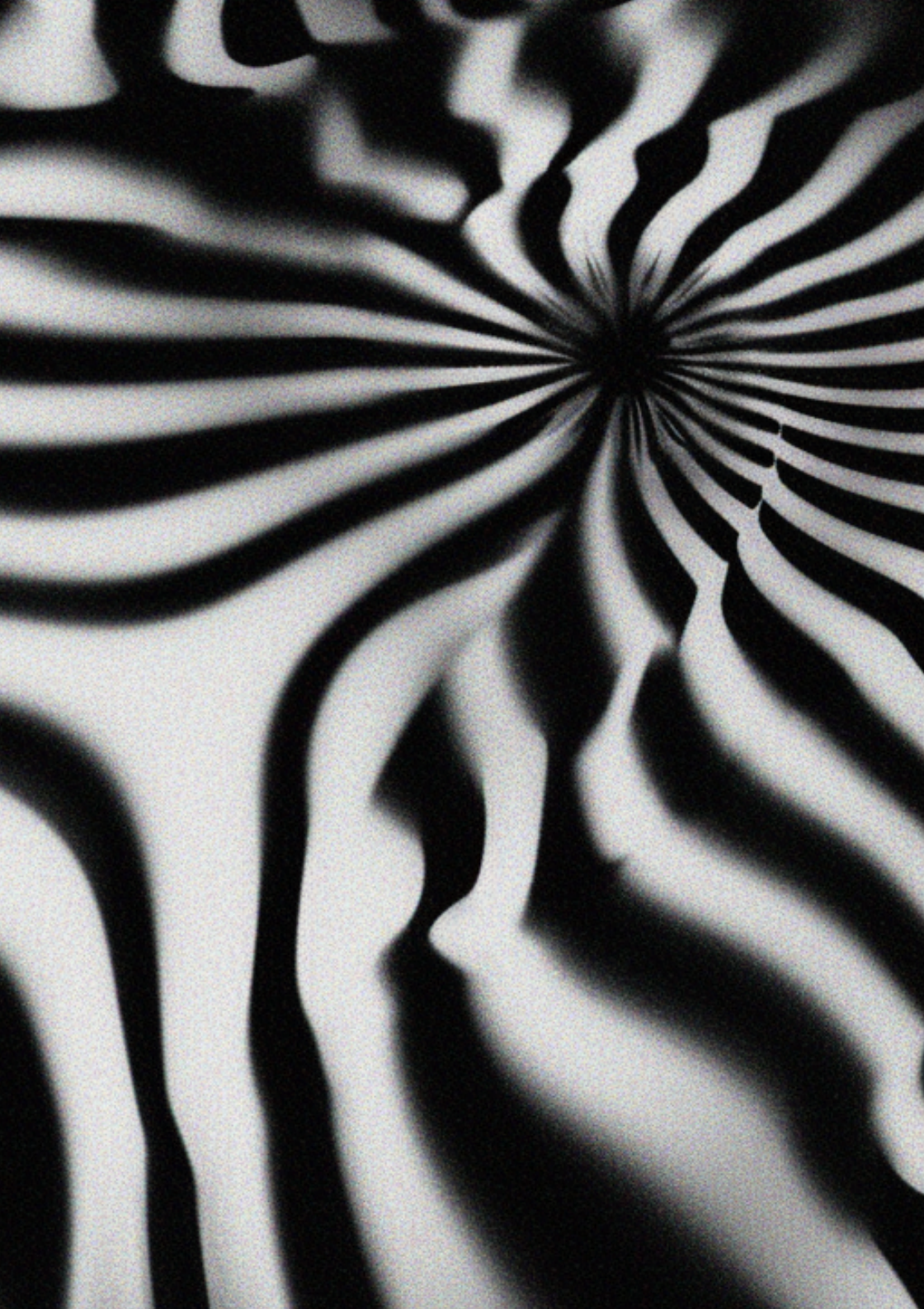
This is not a way to reject the reality of strife, in favour of the reality of harmony: this research's standpoint acknowledges the conflict, the frictions, and the *troubles* that are an inherent part of socio-material arrangements. It is precisely for this reason, that the research understands socio-material arrangements as constant, agonistic dialogues, to which collective thriving represents the catalising movement stimulating their constant formation and reformation: socio-material arrangements will never achieve their perfect form; it is in the process of achieving it that lies the energy of collective thriving: an axiological standpoint; a long-term transformative journey, where the pathways of internal and external transformation agendas intertwine in people and for people to participate into a generative and evolutionary endeavour, aiming at nurturing social, and collective cohesion by eliciting the system to co-respond to us though desirable socio-material arrangements.

1_WHAT THIS CHAPTER SET OUT

The chapter framed systemic transformation as the overarching mission connecting making oriented disciplines — namely design and policy. These disciplines have a special grip on everyday life, since they have access to the toggles and handles to be played with to *affect the shape or state* of socio-material arrangements.

By following the agenda for collective thriving — namely an agenda committed to flourishing together by acknowledging the entanglements we are immersed in and the systemic response-abilities we are called to embody — the chapter takes two specific standpoints to inform further practicing endeavours: Designing for Transforming practices combined with preliminary insights drawn from the current challenges and opportunities to *transform* policy, from a design perspective.

Here, aspects like **the changing nature of evidence** — the body of knowledge informing sense making and decision making processes; **the quality of consultation** — the processes of tapping into distributed knowledge; and **the delivery distance** — the siloed approach in sectors, roles and even steps within the policy cycle — are presented as key coordinates to be looked into from a designerly, practice-based perspective to elicit trans-disciplinary knowledge exchange between design and policy.



STEP 2_

PRACTICING

STEP 2_ WHAT THIS CHAPTER IS ABOUT

"When research is undertaken through practice,
the site of the research is the site of the practice:
this is the location where the action takes place. "
(Vaughan in Vaughan, 2017)

After having outlined the conceptual guiding framework this work stems from, the following chapter introduces and discuses four applied project-cases, with the aim of harvesting practical knowledge from first round reflections.

Engaging in practice-based research means addressing the main research question from a hands-on standpoint, which appear a viable methodology to address the complexity of the matters this research attempts to contribute to. This section provides both design and policy with real world cases to be reflected *with* and *on,* following the second sub research question:

_RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

4.1 CASE #1_ Triple Transformer. Mapping “Design for Societal Transformation”

4.1.1 Abstract

Design for Societal Transformation is a mapping activity that has been carried out in 2023 by the Strategic Topic Group (STG) “Design for Inclusive and Sustainable Societal Transformation” - led by RISE Research institutes of Sweden and TU/E, Eindhoven University of Technology - within the EIT Culture & Creativity. The STG gathers actors around a strategic area for supporting funding and partners mobilisation and it is closely connected to d.centre|EU, a design-infused learning community that jointly digs deep into, learns about, and fosters inclusive and sustainable societal transformation.

The mapping stems from the need, voiced by professionals in the field coming from a variety of different organisations, of better understanding how to face complex systemic challenges in an inclusive and collaborative way, leveraging on design and creative practices.

Building on the STG’s design expertise rooted in Design for Transforming Practices’ body of knowledge, the mapping activity aims at looking into the playfield of achieving triple transformation, carving out what design practices are currently invited in it and how are they enacted through multi- and inter-disciplinary partnerships.

Given the complexity of the playfield, the mapping takes an iterative participatory, and reflective stance to make space for participants’ plurality of approaches and questions: by engaging with participants into collective reflection moments, they could take action onto the mapping’s emerging narratives, bridging different perspectives and fostering collective resonance. As a result, the mapping portrays a multi-layered landscape, exploring not only the system’s components, but staying in the in-between spaces connected to organisational and collaborative models, to highlight the values, qualities, and handles enabling conditions for ecosystemic practices of transformation leveraging on culture and creativity to unfold.

This contributed to the co-formulation of a set of recommendations for and from the sector, constituting the main achievements of the mapping activity. Recommendations address partners of the EIT Culture &

Creativity, stakeholders working with Cultural and Creative sector industries (CCSIs), as well as societal actors engaged in mission-driven innovation. It provides them with insights contributing to access available strategic design and creative expertise.

4.1.2 Acknowledgements

_Research project's title
Triple Transformer - Design for Societal Transformation

_ Funded by
EIT Culture & Creativity

_ Supervisors and contributors
_RISE Research Institutes of Sweden, TU/Eindhoven
_Ambra Trotto, Caroline Hummels, Maria Claudia Coppola

_ My role in the project
Design researcher and practictioner.
I contributed to designing and facilitating the process. Particularly, I contributed to the following activities:

- designing the whole engagement process
- organising communications with engaged participants
- conducting the first round of data sense making
- delivering the first round of data sense making in the form of preliminary recommendations and designed visualisations
- supporting the facilitation of the collective sense making session
- integrating insights from the collective sense making session
- delivering the final version of the report

_ Limitations and criticalities
No limitations to be reported.

4.1.3 Research question and aims

PROJECT CASE#1 RQ_ How is inclusive and sustainable societal transformation addressed by design and creative practitioners?

- What are the qualities of their practices and modes of collaboration?
- What do they need to sustain their practices?
- What they might contribute with to enrich the ecosystems they work with(in)?

The mapping activity aims at looking into the playfield of achieving triple transformation, carving out what design practices are currently invited in it and how are they enacted through multi- and inter-disciplinary partnerships. Particularly, the mapping explores the nature of organisations and institutions carrying out such endeavors, who are the people involved and what is their role, what are their values and aspirations, what activities are carried out, what methodologies are used, what transformation is achieved and how is impact measured.

4.1.4 Methodology

The mapping activity has been carried out according to the following steps:

_ collecting first-hand data through an online survey;

_ conducting a first round of sense making and designing a visualisation to be used as boundary object to elicit collective sense making in a later session with participants;

– integrating and finalising sense making;

_ formulating high-level and methodological recommendations.

This project aligns with the definition of Research about Design methodology, according to which

"[the] Research is focused on the experience of designers, their modes of practice, and those who use their products i.e. design activity, design behaviour and design cognition.
(Lindley, Ali Akmal & Coulton, 2019)

Here, Jonas' definition is also functional:

"**Research ABOUT design:** An idealised/disembodied/objective observer of a design/ enquiring system, generating knowledge ABOUT this system. Research is defined/determined by motivations aiming at enquiring and understanding the nature of diverse aspects of design.
→ Design as subject of disciplinary scientific research: philosophical, anthropological, historical, psychological, etc.

(Jonas in Rogers & Yee, 2023)

In fact, the mapping activity generated knowledge about a (set of) ecosystems practicing societal transformation through design. Here, t's crucial to recognise that this mapping activity sought to align the generated knowledge closely with the nature of the subject under study - namely, the distinctiveness of design expertise to achieve social, sustainable and inclusive transformation. As such, while an analytical approach was essential, as required by the Research about Design methodology, it's noteworthy that in this instance, the analysis was complemented by a design-based activity — namely the design of the visualisation of the Declaration of Interdependence as a boundary object to elicit collective sensemaking.

4.1.5 Results

The knowledge resulting form the mapping activity has been formalised in high-level and methodological recommendations, all prepared in a report, that has been handed in to the EIT C&C board (late 2023) and discussed in a plenary session dedicated to inform the development of the EIT C&C's Strategic Agenda.
The visualisation of the Declaration of Interdependence can be framed as a sub-deliverable of the project, since it is going to be reiterated and integrated as a tool to allow the recognition of the relationships between

the needs, responsibilities, and contributions to ecosystems enacted by and provided to design practitioners.

4.1.6 What has been relevant to this research

_About the practice

This project-case contributed to fill the knowledge gap about the designerly expertise behind systemic transformation endeavours, aiming at making it more easily accessible and available to partners of the EIT C&C and stakeholders working with CCSIs. The mapping activity highlighted the North Star-notions that pathfinders of change look at when enacting designerly strategies.
The extensive version of the mapping activity can be accessed online and wont's part of this doctoral dissertation. However, a brief overview on high-level recommendations might help in providing the reseat with this project's most relevant insights:

Inside-out Needs

From creative pathfinders of change towards societal actors

1. Cultivating value-driven processes
2. Pollinating cross-sectoral collaboration
3. Catering for emergence, experimentation and iteration
4. Providing conditions for collective reflective practices

Outside-in Actions

From societal actors towards creative pathfinders of change

1. Elaborating tools for shared reflection and learning
2. Prototyping alternative evaluation frameworks
3. Testing multilayered funding models and policy mechanisms
4. Creating understanding of the potential of design approaches

What recommendations mainly address is one of the participants' main concern regarding finding ways to keep on fostering and nurturing the *quality of relationships* and *organisational models underlying concerted*

efforts in long-term timeframes. This speaks of a design expertise that is mainly committed to “make things possible", namely working towards

> “an organizational infrastructure, a “kitchen” where the right conditions for transformation are prepared: financial structures, governance, (leadership) culture, tools and techniques, vocabulary, networks, contracts of collaboration, etc”
> (Hummels & Trotto in EIT C&C Strategic Agenda, 2023).

This is reflected in the main insights that can be drawn by the configuration of the Declaration of Interdependence, which portrays a community of practice that pursues systemic transformation through mainly activities of *knowledge brokering*, leveraging on specific strategies — drawn from notions of aesthetics and embodied cognition — to enhance participation in collaborative programs and support alternative ways to engage with socio-material arrangements, ultimately sparking both individual and collective behaviour change.

_First round reflections

RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

Further reflections can be advanced from reflections over the sensemaking perspectives connected to the visualisation of the Declaration of Interdependence.
While designing the survey, it appeared crucial to explore the *qualities* defining the collaborative modes nurtured and sparking from “pathfinders of change”. As such, by infusing the collaborative perspective with concepts drawn from Design for Transforming Practices’ framework, three key questions aimed at looking into forms of “pragmatic collaboration”, namely how participants are willing to practically engage with co-development and reciprocity on a systemic scale. As such, three key questions looked into three major aspects:

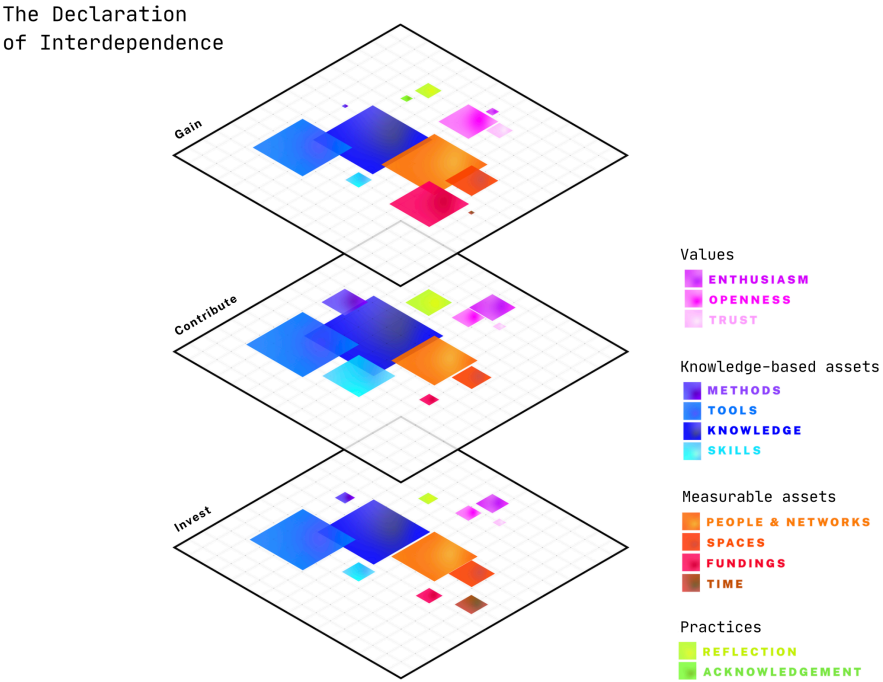


Figure 4.1. Visualisation of the Declaration of Interdependence. Developed by Hummels & Trotto (2023). Designed by Maria Claudia Coppola (2023)

What is one willing to gain from, contribute with and investing in a collaborative innovation/ transformation process.

The responses triggered by these questions resulted in a cluster of keywords that described different type of resources. As the sense-making process unfolded, it was increasingly evident that a narrative of openness and mutuality was naturally emerging. Questions reported some examples of resources that might have been sharable — i.e. expert knowledge, methodologies, spaces, funding, networks —, to help out

participants to tune-in and grasp the meaning underlying that section of the survey: as it aimed to inquire modes of working together, some of the survey sections were designed to elicit a more conscious reflection on those collective modes of operating change. Although giving examples has certainly influenced the formulation of some answers, it is important to note how expressions of values and attitudes that participants were willing to share — openness, trust, enthusiasm, reflection and acknowledgment — have been original inputs, which are highly relevant for mapping purposes.

In fact, they allowed more nuanced perspectives on aspects that make cultural and creative practictioners' innovative potential peculiar: matters of attitude, stance and inclination are usually intimate and often left *unnoticed*. In the same way, this aspect made us question if participants themselves would have *notice* that they were in a community of practice, that was willing to share different kinds of resources, while looking for others and ensuring that they would take responsibility for certain others. As such, we designed a specific tool — the Declaration of Interdependence — to invite participants into *noticing the ecosystem of practice* they were already part of. The visualisation illustrates three different layers populated with entities representing the resources mentioned by participants. During the Feedback meeting — the mid-touchpoint event planned between the first and the second round of the sense making process —, the STG board presented the Declaration of Interdependence to participants, inviting them into a collective reflection out of the emerging narrative. This moment was essential, as participants explored carefully each layer, discovering with just a glance how their needs and wills were shared among the ecosystem. Furthermore, they recognised themselves and the nature of their endeavours, paired with shared struggles and frictions. Echoing Paul Klee, here, design's scope was not to render the visible, but to r*ender visible* shared aspirations and commitments, strengthening the narrative on a solid ecosystem working on systemic transformation. After collecting feedback to further improve the visualisation, the Declaration of Interdependence was presented to

the EIT C&C board, along with other outputs resulting from the mapping activity. Notwithstanding the different kind of audience — cultural and creative sector researchers and policymakers —, the tool's legibility invited a trans-disciplinary reflection thanks to its multidimensional capturing: it illustrated clearly both tangible and intangible resources, that mapping participants working with design were willing to gain, contribute, and invest in a collaborative process. This helped EIT C&C board quickly grasping the gaps that might be addressed urgently to support transformative endeavours leveraging on design and creativity. Furthermore, with the visual clustering of keywords enabling a comprehensive view of the ecosystem of resources, the tool highlighted the multi-layered declination of collaboration among practitioners. Thus, the Declaration of Interdependence functioned as a catalyst for collective reflection — both in-disciplinary and trans-discplinary, enabling participants to visualise, grasp and reflect on themselves as parts of a larger ecosystem, prompting further forms collaboration. **This collective introspection is key in building a shared platform that embraces missions and challenges, not necessarily identical, but able to synergise towards a more cohesive effort in achieving systemic change.** Here, the emergence and delivery of a narrative of openness and mutuality from the data points was possible thanks to design's contribution in rendering abstract concepts experienceable — even through just our sight —, highlighting the importance of storytelling in understanding complex data. It underscores the sense-making process as a narrative construction, which is crucial for comprehending the motivations and attitudes underlying collaborative processes and practices. Moreover, **the articulation of values like openness, trust, enthusiasm, reflection, and acknowledgment suggested the need for alternative frameworks for evaluating and fostering collaborative practices**: these values are essential for a community of practice and serve as indicators of a collective's innovative/ transformative potential.

In conclusion, the design process underlying the Declaration of Interdependence owes much to the recognition of the iterative nature of knowledge creation and transformation: as such the need to carve out moments for feedback-loops to be activated and engaged was essential to nurture the collaborative stance, resulting in a transparent, open and democratic process.

4.2 CASE #2_ Umeå Climate City Contract

4.2.1 Abstract

This work explores how designerly practices drawing from embodied sensemaking can foster actionable systemic perspectives that allow for co-response-ability in the formulation of a Climate City Contract in the city of Umeå, Sweden. The following section will describe mainly the design and facilitation process of three cross-disciplinary roundtable conversations that build on notions of systemic awareness, interdependence, and mutual recognition. Developed with four government agencies inside the broader framework of the Viable Cities' programme, the journey towards climate neutrality is currently meeting each city's needs and character. However, while portfolios related to the "what" — as in agenda setting — display a number of explorative experiences, practices related to the "how" — as in building conditions and pathways for trans-sectoral collaboration within the mission-thinking approach — are still in the making. The main aim is to contribute to creating alternative collaborative practices that develop means to acknowledge the complexity of — and our entanglement with — systemic challenges. Such practices are necessary for addressing the mission-driven approach that the public sector in Europe is adopting.

The outcomes of this research point toward three elements that might foster such an ability to respond together and propose ways for building resilient collaborative practices: stimulating the emergence of situated knowledge to be shared and used, creating legitimacy within the ecosystem through an embodied exploration of the systemic perspective, and cultivating trans-disciplinary interconnectedness of actors through aesthetics.

4.2.2 Acknowledgements

_Research project's title
Umeå Klimatfardplan
Pilot case EU NetZeroCities - 112 Mission Cities

_ Funded by
Umeå Municipality; Viable Cities

_ Supervisors and contributors
Project management team at RISE, Research Institutes of Sweden: Malin Johansson, Mathilda Henningsson
Design team at RISE, Research Institutes of Sweden: Maria Claudia Coppola, Rosa van der Veen, Ambra Trotto

_ My role in the project
Design researcher and practictioner.
I contributed to designing and delivering the process. Particularly, I contributed to the following activities:

- participated in audit sessions to capture participants' expectations and concerns
- designing the whole working session, including process and materials
- prototyping materials
- capturing the session — photos and video recordings
- partially elaborated co-created content

• disseminating on the case — paper on peer-reviewed journal

_ Limitations and criticalities

The three working sessions have been held in Swedish. This caused a strong limitation in accessibility of the co-created content. A strategy to mitigate this aspect has been to interview other involved researchers (Rosa van der Veen & Ellinor Werner) and ask for access to their notes. As such, all of the findings that follow are the result of secondary sourced data. However, this allowed for a more careful observation of non-verbal communication enacted by participants.

4.2.3 Research questions and aims

PROJECT-CASE #2 RQ_ How can we initiate change in our city through trans-disciplinary partnerships?

- Who are the actors in my ecosystem? What are their aspirations?
- What are they currently working on?
- Do we share missions?
- How can we organise to address the mission as a system?

The project aimed at setting the ground in the mission-driven framework in the city of Umeå. Particularly, the municipality presented the need to engage with local stakeholders and establish a dialogue to kick-start trans-sectoral roadmaps towards climate neutrality — to be achieved by 2030. Here, the setting of the challenge along quantitative indicators — i.e. lowering CO2 emissions or volumes of waste — was hindering a more multilayered understanding of the sustainability challenge; hence, businesses tended to lock in their own silos and sectoral endeavours already addressing “green indicators”. To work within such a setting, one of the most urgent aims was to promote and stimulate a form of systemic awareness, in which the recognition of the self and of the others

composing the system would invite a more co-responsible and accountable commitment.

4.2.4 Methodology

Umeå's Climate City Contract has been carried out by a Research through Design methodology. As such, after having conducted quick audits with participants to understand the state of the art regarding the frictions that might have hindered the kick-start of new partnerships, the design team has been engaged in conceiving and prototyping a roundtable session. The workshop materials have been delivered and tested out live, with changes and integrations being performed from iteration to iteration.

As soon as it was launched, the process has been captured and insights have been drawn from participants inputs on the designed material — text —, the observation and annotation of their non-verbal communication as the process unfolded; in addition, photos and videos were taken. Final insights on the process come from collective reflection sessions among design researchers, project managers, facilitators, and participants themselves.

4.2.5 Results

Umeå's Climate Contract is a set of three roundtable discussions involving 15 businesses, connected to different sectors: architecture, real estate, fuel industry, forestry industry, food industry, catering services, banks and investments, communication agencies, and Umeå's municipality. The process has kick-started two trans-sectoral roadmaps around which further developments of possible business and organisational model will be carried out: one roadmap envisioned the conversion of gas stations into satellite places of aggregation for families, supported by architecture, real estate and food industry actors launching inspired festivals; the other one outlined alternative models to experience

the forest and taking care of it, with the joint expertise of communication, architecture, and food industries — i.e. a more-than-human cinema in the forest.
The model has been exposed in the exhibition “What design can do” held in Umeå, at Norrlandsoperan, as part of the European Creative Industries Summit, 2023.
The process has raised interest in three participants, which have requested to carry it out as an internal practice within their own organisation. Furthermore, it has been consolidated in as a consultancy-service, available for industries interested in supporting the establishment of public-private roadmaps.

4.2.6 What has been relevant to this research

_About the practice

Conceived as a milestone moment in the broader journey of a Transformation Partnership between RISE and the Municipality of Umeå, the project has been developed and tested in three round table sessions in the form of 2,5-hour workshops, with 15 businesses participating along with the Municipality of Umeå. Our design challenge was to open a collaborative working space that would enable stakeholders coming from the forest and food industries, to the architectural, financial, energy and estate sectors, to share their knowledge and build a cross-sectoral roadmap to contribute to common missions, interpreted here as opportunities for change.
The following section will take the reader through Umeå’s CCC’s workshop sessions, illustrating its process step by step.

STEP 0

After a brief introduction to illustrate the main challenges that the CCC’s workshop sessions are meant to address, 6 participants and 1 facilitator gathered at a roundtable.

Figure 4.2.1 The setting of the workshop sessions. Photo credits: Maria Claudia Coppola (2022).

STEP 1: Citizen Perspective

As a kick-off, participants introduce themselves from an individual, civic perspective while they receive personal boards, fields-of-view, with printed questions for inspiration. Experienced as an icebreaker, the main goal of the exercise was to bring out what could be possible and desirable for Umeå's future community. After writing down their thoughts, they share them one at a time. After a final discussion, desire tokens are placed in the centre of the table, providing an orientation for further discussions.

STEP 2: Professional Perspective

Participants turn their fields-of-view to unlock the professional perspective and introduce themselves as representatives of their own organisation, shifting the discussion from a conceptual to a practical point of view.

Figure 4.2.2 Into the workshop session: displaying desires. Photo credits: Rosa van der Veen (2022).

Figure 4.2.3 Into the workshop session: displaying points of view. Photo credits: Maria Claudia Coppola (2022).

Similarly to the first exercise, printed questions on the fields- of-view suggest topics such as practices, achievements and successful strategies that participants would share as agents of change in their respective professional role, acknowledging the ability to affect the system towards specific directions.

STEP 3: Identification of Opportunities Through Role Play

The content built so far gives participants a basis to look for opportunities for change, topics that will be worth addressing based on professional profiles and common desires. Since it is an explorative, divergent exercise, it would be highly constrained if performed in one's own board. As such, the exercise would benefit from a look from the outside, with someone else from a different background looking at desires through someone else's field-of-view, inviting an empathetic approach towards the narrative of others.
Thus follows the role play exercise: after swapping positions, participants can look for opportunities for change based on the con- tent before them. By the end of the exercise, participants will go back to their starting position and discuss the opportunity suggestions left by others on their personal board.

STEP 4: Ecosystem Perspective

After a brief pause, participants gather around the table. Here, a donut-shaped layer provides a different setting, connecting fields-of- view in a boundary-less place to build together. Participants look at the opportunities on the board and dis- cuss them, selecting the ones worthy of urgent, collaborative focus. The chosen opportunities are covered with clear hemispheres that function as *points of attention or intervention*.

STEP 5: The Landscape of Interdependence

In this step, participants are asked to identify resources to act towards the chosen opportunities. By writing on personal tokens, participants are invited to join an open discussion on competences, expertise, tangible

Figure 4.2.4 Into the workshop session: discussing opportunities of change. Photo credits: Rosa van der Veen (2022).

Figure 4.2.5 Into the workshop session: proposing resources. Photo credits: Rosa van der Veen (2022).

and intangible assets they could contribute with. Resource tokens are placed around opportunity tokens to build a landscape of cross-sectoral collaboration. Additionally, emotion *tokens* might be used to express confidence, excitement or vulnerability about certain combinations of resources or unconventional partnerships.
This exercise is the core step of the session and revolves around the embodiment of building multiple, eventually overlapping, cross-sectoral roadmaps — and partnerships. Here, tangible tokens elicited the conversation, shaping the way of interacting with each other, as intuitive expressions come to the fore, verbally, when mov- ing them physically. Moreover, the placement of the tokens on the board represents how a participant is distributed in the ecosystem, unlocking interdependence as the essential stance to navigate the system-as-entanglement: *needing* each other and being *able to respond* to what is being brought to the *public*, communal space.

Figure 4.2.6 Into the workshop session: reflecting together. Photo credits: Maria Claudia Coppola (2022).

STEP 6: Signing the Roadmap

As for the final step, participants identify “engines” in the landscape, standing for triggering points to start building the emerging road- maps. Then, the landscape is captured with a camera, printed and distributed among the participants.
A moment is taken to collectively reflect on the landscape, perceived as a polychromatic mosaic, in which the self is portrayed not as a single entity holding a fixed position, but the sum of plural components distributed in the system. This perception opens for new ways to understand and acknowledge collective effort, building confidence and trust to take next actionable steps.

_First round reflections

RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

In accordance to the present research endeavour, this section will focus mainly on the process and its quality, rather then its direct outputs.
In fact, leaving aside the two main roadmaps resulting from the iterations and informing further steps of the Climate Contract journey, this process comes alive when it is framed around how the setting, the flow, and the aesthetic engagement stimulated the emergence of situated knowledge while multiple perspectives were coming together during the roundtable discussions. These reflections derive from direct observation and are supported by annotations that captured the participants’ feedback.
The physical proximity afforded by the roundtable and its actionable surface contributed to building trust: sized to host seven people, the board allowed everyone to see one another, establishing a non-hierarchical approach towards a shared workspace, so that

“it felt different from other workshops; none of us left the table or the room once, nor got distracted by emails or phone calls”.

All the exercises were designed to be performed on the board, no other dis- plays or supports were introduced in the room, unlocking a seamless engagement that, in turn, helped to keep the focus.
Moreover, participants underlined the value of staying in place and working together through tangible tokens to sustain the train of thoughts, pushing the systemic experience beyond cognition:

> "it was unusual in a good way, I feel inspired to take the next step".

Participants expressed how glad they were to be in the room: the journey felt memorable as a different way of collaborating. As for the process flow, the limited number of people per session was proportionate to the time they would spend together in each exercise. The atmosphere was relaxed, unlocking the flow of conversation gradually; participants got to know each other, fueling enough trust to talk everyone through their perspectives. Moreover, having rounds before the plenary discussion was particularly appreciated as a strategy of equality, since, as a participant said,

> "the one that speaks the most is also the one that is being heard the most; ensuring everyone a fixed amount of time helps all in this".

Sharing personal thoughts about their city and its desirable futures through a citizen perspective was the most frequently mentioned exercise in the final comments, as it was pushing for a different way to bridge the private and public persona: most participants struggled to give their pitch as a citizen, whereas they felt more comfortable pitching their businesses; furthermore, the exercise seemed to expose participants to vulnerability, as it was poking for desirable images to take shape and being discussed —

> "I don't know how to approach it, since it might turn political".

In regards to aesthetic engagement, printed questions on fields-of-view, rather than a proposal of sample topics, afforded a “fill-in” interaction during the first session. New fields of view were designed, displaying only two broader sentences “My vision for Umeå 2030” and “My company’s sustainable work”. Other design changes occurred during the role-play exercise, as participants struggled to grasp it during the first session.
As a result, that step has been turned into open conversations led through skilful facilitation. On top of that, engaging with resource tokens allowed for an intuitive playfulness that constituted a new form of reasoning, broadening the perspective of actionability as a group: their matching shapes could be combined like a puzzle into a pattern; thinking out loud was channelled through embodied sense-making. Here, participants noticed how effortlessly they could come up with new contributions and place them at the intersection of other resource tokens, so that

“it was nice to discuss topics without being mono-sectoral” and even though “participants didn’t have all the pieces to complete the puzzle, it was nice that you could attach pieces few at the time”.

Design qualities such as the use of transparency contributed to the ability to navigate in between all the produced content. The possibility to move from fields of view to resources was experienced as a broadening reasoning path. This opened a meta-perspective on the transformative process, acknowledging how conversations evolved throughout the sessions, maintaining the ability to explicitly remind each other where the discussion originated.
As for the final reflections of the participants, two of them proposed testing a similar approach within their company, others took photos of the board, leaving comments such as “I walk away feeling positive”, “This was inspiring” and

“We may lack some other guidelines, but I trust the process [...], it’s fantastic how quickly people can get to know each other”.

Additionally, reflections were not limited to the content of the sketched roadmaps' — i.e., what they were meant to address and through what combination of resources, but they were more specifically commenting the entire workshop journey, describing it as a "newly born constellation", a needed starting point in which everyone felt able to relate, to contribute and take responsibility. This suggests that the process successfully built forms of interconnectedness.

4.3 CASE #3_ Entrepreneur-driven ecosystems in creative industrial symbiosis

4.3.1 Abstract

With northern Sweden as an innovation platform, the project KIS — Entrepreneur-Driven Ecosystem in Creative Industrial Symbiosis — has explored the possibility of creating new innovative power and strengthening the resilience of companies by working in new ways together. KIS is the name of the development program that started in fall 2022 under the Swedish National Programme for Resilience called REACT-EU. KIS is financed by the EU, RISE and the School of Economics in Umeå, covering two specific regions in Västerbotten Region, Örnsköldsvik and Älvsbyn.

REACT-EU is part of NextGenerationEU and provides additional funding over the course of 2021 and 2022 to Cohesion policy programmes. Measures focus on supporting labour market resilience, jobs, SMEs and low-income families, as well as setting future-proof foundations for the green and digital transitions and a sustainable socio-economic recovery. Within this framework, KIS blooms as an innovation journey aiming at help businesses recover from the pandemic and develop resilience through new business opportunities, by tapping into creative industries' innovative or, rather, transformative potential.
As such, the programme is based on forest and food, which are two major sustainability challenges for the Region. In Örnsköldsvik, companies from the network High Coast Creative with a focus on the forest participated to create symbiotic business paths in collaboration with Holmen Skog, leader company in the forest industry and management.
In Älvsbyn the creative SMEs network, CHARM, join KIS to address challenges in the food industry together with Polarbröd, sector leader. The project has taken twenty companies in the cultural and creative industries, the hospitality industry and green industries on an innovation journey together with two large industrial companies. A journey based on our biggest sustainability challenges, forests and food, and with the goal of jointly exploring new business ideas, business models and collaboration opportunities.
The project has used design as a method and driving force to move forward. In parallel with the innovation journey, the project has also investigated entrepreneurial ecosystems linked to the participants and the role they play in nurturing resilience in trans-sectoral businesses.

4.3.2 Acknowledgements

_Research project's title
Entreprenörsdrivna ekosystem i kreativ industriell symbios
REACT-EU, Next Generation EU

_ Funded by
REACT-EU, Next Generation EU

_ Partners
• Polarbröd, Holmen Skog
• 20 Cultural & Creative MSMes

_ Supervisors and contributors
Project management TEAM at RISE, Research Institutes of Sweden: Marlene Johansson, Mathilda Henningsson
Design team at RISE, Research Institutes of Sweden: Maria Claudia Coppola, Ellinor Werner, Ambra Trotto.

_ My role in the project
Design researcher and practictioner.
I contributed to designing and delivering the process. Particularly, I contributed to the following activities regarding the first half of the innovation journey:
• participated in audit sessions to capture participants' expectations and concerns
• designing two working sessions, including process and materials
• prototyping materials
• partially elaborated co-created content

_ Limitations and criticalities
The first limitation is about the rate of engagement with the design team, which has been involved in the first two pitstops only; as such, this research report will be limited to the content generated in the first half of the journey.
Secondly, the two pitstops or working sessions have been held in Swedish. This caused a strong limitation in accessibility of the co-created content. The number of participants in the sessions — almost forty stakeholders — made it challenging for the reduced team to capture and

translate the discussed content and related nuances. This occurred due to the loose coordination with other partners, which resulted in compressed timeframes for design sprints and prototyping phases, and, thus, compressed composition of the design team. This eventually affected the delivery of the processes. A strategy to mitigate this aspect has been to prototype “wireframes” of action, that would allow both participants to engage in the dialogue and project managers to facilitate it. All of the findings rely on partially captured and translated content by Ellinor Werner, paired with a careful observation of non-verbal communication enacted by participants, researches, and project managers.

4.3.3 Research questions and aims

PROJECT-CASE #3 RQ_ Who are the CCSI working nearby?

- How can we join our transformative endeavour to establish a “northern creative valley"?
- How can we merge our expertise and create symbiotic businesses?

KIS aims at fuelling and supporting the creative energy of cultural and creative industries, which has been framed as key to promote regional resilience. Specifically this project is conceived to investigate and enhance the synergy between large industrial corporations and smaller enterprises within the cultural and creative industries. The primary objective is to foster innovative capabilities and bolster resilience among smaller companies. The focus was to address two critical sustainability challenges: forestry and food production.
The project has been conceived as an innovation journey articulated along in four themed pitstops: cultural heritage and spirit of the place; circular economy; sustainable collaboration; storytelling and its meanings. Themes have been proposed by the design team to make sure that key aspects would have been infusing the whole journey, integrating

the purely economics-driven original framework with societal-driven inputs. The aim was to provide common grounds for conversations among participants, and elicit the rise of alternative and symbiotic business ideas: inviting reflections on the connections with the territory, nurturing openness and mutual recognition, challenging and questioning business-as-usual-modes.
The design team has been involved in the first two pitstops, namely the first half of the journey. This moment has been described by project managers as crucial, as it was the kick-starting phase in which it was essential to have participants and partners leaning towards different mindsets and stances. One of the main concerns for the managing board in KIS, in fact, was addressing the power balance between participants and partners, in a way that it would be channeled through conversations of growth for anyone participating to counter the "big-player energy" usually projected over SMEs.

4.3.4 Methodology

KIS has been carried out according to a Research through Design methodology. As such, after having partially participated in audits with project managers and partners from the economic school, the design team proposed themes for each pitstop, to generate "added value" in the conversations scheduled in each pitstop. Given the power balance to be addressed in the kick-starting phase, As such, the design team prototyped "symbiotic conversations", namely actionable settings through which selected topics would be elicited through aesthetic engagement to be reflected upon in a collective sensemaking endeavour.

4.3.5 Results

Thus, this work will illustrate the design process and results of "**The Shape of Belonging**" and "**Going circular**", two workshop and conversation sessions designed respectively for the first and second

pitstop of the innovation journey. The workshops set the ground for MSMes to start a conversation with bigger players around building networks on experimental business and organisational propositions. Engagement in the first workshop was high; whereas the second workshop registered some frictions and notes of disengagement.

4.3.6 What has been relevant to this research

_About the practice

PITSTOP 1: The Shapes of Belonging

What does a place is made of? Tapping into studies on genius loci, the design team explored the hard (tangible) and soft (intangible) values within a human sustainable development perspective.

Notwithstanding the sensitivity of the topic set up for the first pitstop, the design team had to acknowledge, before taking any other step forward, the *embrional stage* of the relationships occurring between businesses. In fact, participant companies — addressed as "participants" in the following lines — were well aware of the goal — designing and implementing at least 20 sustainable and circular business ideas —, but asked explicitly for further support in *initiating* inter-expertise connections. Participants were all SMEs from the cultural and creative sector, therefore each one brought to the table an extremely precise expertise: from wood carving to the packaging of food products, from beekeeping to artistic photography.

For this reason, the design team has framed the theme of the first pitstop as an opportunity to start the innovation journey by introducing themselves through their own heritage, presenting to the room the multi-faceted nature of the mastery that each of them carried out and channeled in their work. Here, the goal was to invite participants into an engaging conversation to discover the richness of each one's story, inviting listening and nourishing an atmosphere of curiosity and

experimentation to further foster collaboration rather than competition. In fact, feeling too distant in terms of expertise has been a significant friction to the emergence of collaborative relationships — and therefore "business symbiosis". We therefore needed the conversation to provide points of contact where the participants could recognise and resonate with each other, generating points of contact that could then function as starting points to spark symbiotic business concepts.
After consulting the reference literature about the multilayered nature of the concept of cultural heritage and genius loci, the design team has sketched out a workshop session revolving around five macro-topics that encapsulate what "a place is made of": Humans, Non-Humans, Emotions, Knowledge and Time. The five topics would elicit a specific kind of narrative about one's own self and expertise: they have been carefully selected to design a blueprint for participants to start from their first-person perspective, exploring and reflecting on their intimate connection with the place they grew up as citizens, creatives and experts. According to this framework, the place contributed to participants' expertise and sensitivity, offering them both tangible and intangible assets, to which they might relate through certain moods, emotions, memories and experiences. In turn, they offer the place their creative energy, crafting products and providing services that contribute in telling the story of that place — in our case Örnsköldsvik (forest) and Älvsbyn (food). As such, the workshop session titled "The Shape of Belonging" unfolded in a set of exercises:

Pre-Workshop:

Participants are asked to bring an item that symbolically connects their work to their sense of belonging to a place.

Workshop Start - Exercise 1

Participants begin by placing their chosen item (referred to as 'props') onto a collective artifact space and discuss their significance with the other attendees. Following the discussion, they write down a question,

which could be a doubt, a hopeful message, a comment, etc. Facilitators may guide the discussion by suggesting participants think in terms of keywords like Knowledge, Human, Non-human, Emotions, and Time topics.

Exercise 2

The participants swap places according to preference, which may be designed to offer them new perspectives or insights. Then, they answer the question, which is to be considered with empathy, keeping in mind what is already represented on the artefact from Exercise 1. Afterwards, they return to their original places, discuss, and possibly add additional comments sparking from the conversation.

Exercise 3

Participants look at the content displayed on the board. Participants are given coloured threads to start weaving connections between the concepts they mostly related to, linking keywords and macro-topics together.

Final Steps

The threads speak of a specific narrative of the self into the territory, eventually informed by inputs coming from other participants. As such, a final reflection is invited, to activate a collective sensemaking session over one's own creative drive and who it can be unexpectedly relational, in the sense that it is and further can be informed by and informing others' creativity and cultural background. Reflections are shared in a collective dialogue.

These exercises have been designed to foster collaboration, empathy, and interconnected thinking among participants, with a focus on understanding how their personal experiences and work relate to broader concepts and each other.

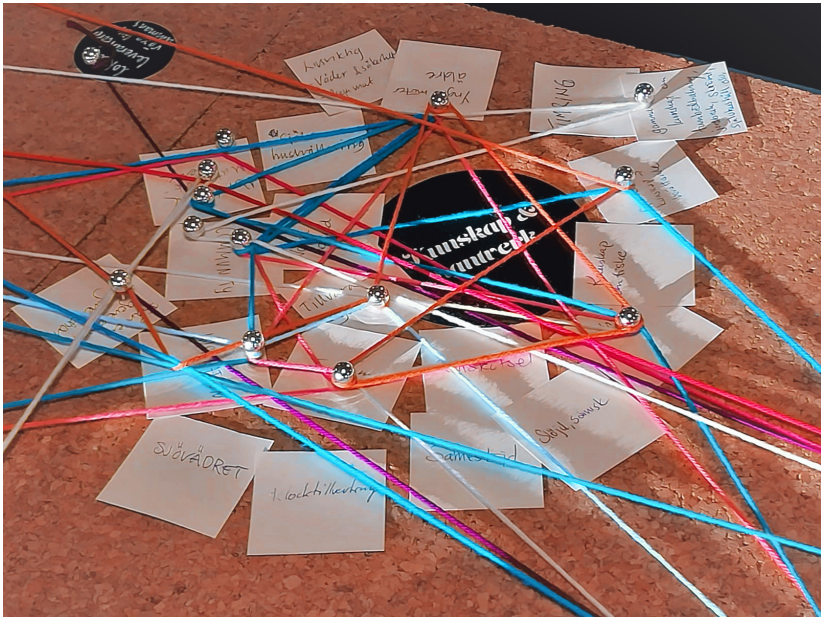


Figure 4.3.1-2 Into the workshop: the shapes of belonging. Photo credits: Ellinor Werner (2022).

PITSTOP 2: Going Circular

In alignment with KIS's foundational commitment to sustainability, the "Going Circular" represented a critical inflection point in the innovation journey. This phase was strategically positioned to invigorate ongoing discourse among participants by introducing the concept of circularity — a principle that is increasingly recognised as pivotal in the transformation towards a more sustainable cultural and creative industry. While the importance of circular economy practices in enhancing sustainability is well established, their systemic impact on the sustainability discourse transcends mere environmental considerations, encompassing broader economic and social dimensions.

The Going Circular pitstop served to intricately weave the threads of dialogue initiated during the previous conversation — the Shape of Belonging, setting the stage for subsequent engagements. This continuity was essential, given that not all participants had yet developed "symbiotic proposals" or identified potential partners for initiating "collaborative symbiosis". Thus, this second pitstop was instrumental in fostering a deeper comprehension of circular principles among participants, who regarded the innovation journey not just as an opportunity for business development, but also and most importantly as a learning platform.

In this regard, the management team decided to engage a scholar specialising in *circular symbiosis*, which refers to the framework that reconceptualises waste as a resource, reintegrating it as a primary or secondary material within the value chain. The invited expert facilitated a design sprint, an immersive process structured to guide participants through the core principles of circular symbiosis by engaging them through a design thinking process: as such, it encompassed stages of mapping, sketching, prototyping, and validation, thus providing a comprehensive hands-on working session.

The activity occupied the initial segment of the day's agenda. Participants assembled in a designated collaborative space, where they formed groups according to their preference. The session, then, started with the

Figure 4.3.3 Into the workshop: Going circular. Ai-generated scenario: a wooden playground for humans and more-than-humans. Prompt design by Maria Claudia Coppola (2022).

Figure 4.3.4 Into the workshop: Going circular. Ai-generated scenario: a packaging for food made of bread waste and papier-mâché. Prompt design by Maria Claudia Coppola (2022).

Figure 4.3.5 Into the workshop: Going circular. Ai-generated scenario: a gourmet Festival & Cookbook for more-than-humans. Prompt design by Maria Claudia Coppola (2022).

Figure 4.3.6 Into the workshop: Going circular. Ai-generated scenario: a sleep-over in the forest, realised with textile and glass by-products. Prompt design by Maria Claudia Coppola (2022).

expert delivering a lecture delineating key discoveries in the field of circular symbiosis. Subsequently, a collaborative mapping exercise was initiated, wherein participants were prompted to identify and delineate their current business' primary waste outputs.
These discussions were designed to be iterative, encouraging participants to interact, with the aim of conceptualising intersecting business models:

in fact, within these proposed models, the waste product of one company could potentially serve as a resource for another, thereby providing an immediate evidence of the possibility of symbiotic business relations.
The design team assisted the researcher throughout the working session, taking the lead in the final steps. After inviting a collective presentation of each groups "symbiotic business sketches", the design team asked each participant to think of and write down keywords that would aptly describe it. Then, the facilitator from the design team collected all the keywords and prompted them into a image-generative AI software — Midjourney. During the break, the facilitator obtained four illustrated scenarios — one per group — representing the symbiotic idea sketched so far. In this way, participants were presented with scenarios and invited to reflect together onto the perceived qualities and potentialities of such business ideas, *thinking with* the images provided.

_First round reflections

RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

The KIS project strategically created an experimental space for companies to collaboratively explore and learn, with the ultimate aim of fostering the emergence of symbiotic business model ideas. It's important to acknowledge that the project's blueprint required participants to conceptualise sustainable business ideas that were not only inspired by their unique creative capabilities but also infused with their distinctive expertise. Beyond this, the project aspired to lay the groundwork for what could be termed a cultural and creative silicon valley. A critical element to achieving this vision was fostering collaboration among participants.
This perspective was the driving force behind the design team's efforts in shaping the first two pitstops of the journey. These were framed not just

as checkpoints but as transformative experiences that encouraged participants to embrace different, yet integrative mindsets in line with the project's aspirations. The goal was to establish safe environments where participants could openly share their expertise and actively engage with the skills and insights of others, thereby creating a fertile ground for collaborative innovation. The project successfully gave birth to business ideas that have been pitched to funders and investors at the end of the innovation journey. However, since the design team was directly involved in just the first two pitstops, this research is going to focus on the outcomes and key takeaways that might be drawn from those designerly experiences.

Regarding the "Shape of Belonging" pitstop, it explored the critical elements of place and identity, essential for nurturing a sense of community and collaborative ethos among the participants. This phase of the journey was characterised by the previously described interactive exercises, culminating in a tangible interweaving of relationships encompassing beings, objects, memories, aspirations, stories, and insights that define an individual's narrative. Through the use of distinct coloured threads assigned to each participant, a quick glance was sufficient to trace the trajectory of each person's story, resulting in a physically embodied weaved a narrative. This exercise inspired a wave of enthusiasm and awe in participants, which contemplated the final board by appreciating every detail: from taking photos to talking to the ones that connected with the same keyword they resonated the most, the board of the Shape of Belonging staged interconnectedness underlying the cultural and creative fabric animating the regions of Örnsköldsvik (forest) and Älvsbyn (food), making it manifested. From a research point of view, the board sufficiently captured the core information that would have further informed the upcoming pitstop. However, the duration of the session — 1 hour and a half — posed a limitation to capturing in a more stable way — i.e. written content or recordings —of nuanced content like feelings about the journey and desires or expectations. By the end of the session participants left the room satisfied and encouraged to partake

into collaborative endeavours, despite and especially for the diversity of their expertise.
In essence, The Shape of Belonging pitstop was about more than just networking; it was about creating a shared language and understanding, building trust, and recognising the value in each other's work. This facilitated the preliminary emergence of symbiotic business concepts, where the creative energy of individuals could be harnessed to tell the story of their place, contributing to the project's overarching goals of sustainability and circularity. In the Shape of Belonging we can notice how the aesthetic engagement elicited by the act of weaving threads worked as a strong design-specific strategy to channel participants focus into the exercise, having them completely immersed into a collective experience. Unfortunately, the 'Going Circular' session did not fully replicate the success of earlier phases. Several factors impeded the effective implementation of designerly dynamics, resulting in a less immersive experience that somewhat dampened enthusiasm and fostered a mild skepticism among participants. The challenges faced included:
_the tight scheduling, with just about two weeks between each pitstop, posed significant constraints on the design process.
_participants arrived at the pitstop with varying levels of preparedness; some had already developed business ideas, while others were still assimilating the systemic perspective introduced in the 'Shape of Belonging' pitstop.
_the design sprint, while inspired by design thinking and thus design-driven principles, was marked by the absence of specifically crafted supportive tools — such as boards, cards, or tokens. Participants were provided with simple materials like cardboards and markers, and instructions were delivered from a corner of the room by the researcher and facilitator. This approach gave some participants the subtle impression of being there to complete a task and test their learnings, rather than to engage in an exercise meant to challenge fixed positions and encourage collaborative experimentation. The resulting

disengagement with the activity — observable in distracted actions and participants leaving the room — can be attributed to the lack of aesthetic engagement, since none of the supportive materials, nor the setting of the room was the result of a designerly intention to shape a certain landscape of affordances. Such an insight gains thickness as we consider the moment in which participants were presented with the AI-generated scenarios. By tuning the software onto an oil-painting style, the design team aimed at visually materialising the ideas sparked throughout the session, giving them a blurred, yet evocative form. Here, the aim was to deepen participants' engagement and encouraging more profound reflection on concepts that were otherwise abstract and elusive in their minds. The AI-generated scenarios succeeded in evoking a sense of wonder, as evidenced by participant feedback praising the “beauty of seeing our ideas visualised”. This response underscores the importance of leveraging on design’s ability to play with the toggles of aesthetic elements, to elicit a more meaningful engagement.

In summary, the KIS project's journey through its various pitstops not only illuminated the multifaceted nature of creative and cultural industries, but also underscored design’s contribution into facilitating the emergence of symbiotic relationships aimed at fostering more sustainable business models. While challenges such as varying levels of participant preparedness and the need for more immersive design-thinking tools were encountered, the project ultimately highlighted the transformative potential of design in collaborative innovation settings. The blend of individual creativity with collective wisdom, as seen in the “Shape of Belonging” and “Going Circular” pitstops, demonstrated that the path to a resilient and sustainable future might lie in practicing symbiosis, namely harmonising diverse expertise and perspectives.

4.4 CASE #4_ Transformative Skills at ECIS ’23

4.4.1 Abstract

Since 2011 European Creative Business Network organises an annual policy forum with top policymakers and leading stakeholders from cultural creative industries on current European topics in cultural, economic and social policies. The event, called “European Creative Industries Summit” (ECIS) gathers creatives, businesses, experts, researches, and policymakers connected to cultural and creative industries. With 2023 being elected as the “European Year of Skills”, as announced by EU President Ursula von der Leyen in her State of the Union address the 13th European Creative Industries Summit 2023 “Transfomative Skills – embrace friction to create the unexpected” focuses on promoting the importance of creative skills for the renewal of our society and our planet.
This year's European Creative Industries Summit (#ECIS23) has been kicked off in Northern Sweden’s deep winter, on February 15th in Umeå,

with the #European Creative Industries Summit ’23 Assembly (ECIS 23), jointly organised by European Creative Businesses Network (ECBN) and RISE, Research Institute of Sweden.
The focus on promoting the relevance of creative competences for regenerating both our society and our planet, provided the opportunity to explore the possibility of co-creating a shared understanding regarding which new competences are necessary in navigating the complexities of trans-sectoral integration to foster the green transformation.
Thanks to the direct engagement of the Designing for Transformative Practices, this exploration has been carried out through the lens of this specific approach. By exploring the places of friction between disciplines, sectors, mindsets, ways of working and organising, the event articulated how playfulness, surprise, lightness, hope, endless imagination and care, get to improve lives, transform communities, generate jobs and societal thriving, and create spill-over effects into all sectors, ensuring that Europe becomes the powerhouse of sustainable transformation in the world.
During this hybrid event, more than 100 guests and delegates in presence joined to discuss the nature, needs and opportunities for developing, learning, and teaching transformative skills.

4.4.2 Acknowledgements

_Research project’s title
Transformative Skills - Embrace Friction to Create the Unexpected
European Creative Industries Summit 2023

_ Funded by
ECB Network

_ Supervisors and contributors
Design team: Rosa van der Veen, Gabriele Ferri, Ambra Trotto
Workshop facilitators: Ambra Trotto, Rosa van der Veen, Gabriele Ferri, Jeroen Peeters, Maria Claudia Coppola

_ My role in the project

Design researcher and facilitator

I contributed to designing and delivering the process. Particularly, I contributed to the following activities:

- designing the identity for the event
- facilitating the workshop session
- capturing the session — photos and video recordings

4.4.3 Research questions and aims

PROJECT-CASE #4 RQ_ What will be the skills and attitudes to address future societal challenges?

The workshop "Transformative Skills - Embracing Friction to Create the Unexpected" aimed to effectively uncover the skills and attitudes necessary to address future societal and planetary challenges. Furthermore, the workshop aimed at training alternative sensitivenesses to think with when venturing into complex journeys into the future(s).

4.4.4 Methodology

The workshop has been conceived, designed and prototyped according to a Research through Design methodology. Particularly, the whole set of designing coordinates have been drawn from Designing for Transforming Practices approach. The process has been inspired by Donna Haraway's notions of interdependence and co-response-ability — see STEP 1_ FRAMING —, infused with the her concept of cyborg. She argues that the cyborg, a hybrid of machine and organism, blurs distinctions between human and machine, nature and culture, physical and non-physical. Haraway's cyborg is a symbol of transgressing conventional boundaries, representing a post-gender world and promoting a feminist, anti-essentialist viewpoint that embraces multiplicity and

interconnectedness, rejecting rigid categories and advocating for more fluid identities and relationships.

4.4.5 Results

Participants from various sectors provided input on possible frictions in scenarios presented and discussed the competencies needed to manage and respond to the respective frictions. To further emphasise this concept, the metaphor of a mutant was employed to represent the competences, skills, and attitudes discussed.
The workshop stimulated a discussion around the desirable competences that are necessary to deal with specific frictions waiting for us ahead, by projecting participants into future scenarios, each bringing different perspectives to the table, inviting collective reflection and discussion.

4.4.6 What has been relevant to this research

_About the practice

The process has been articulated in five exercises, briefly illustrated as follows:

Exercise 1: Choosing a scenario

Participants are invited to read through and choose one of the three future scenarios — the Council of Practical Wisdom, Furniture of the Forest, the Era of Exploratory Thinking.

· **Scenario 1, titled "The Council of Practical Wisdom,"** is set in 2038. It describes a situation where an unconventional group, the Council of Practical Wisdom, has taken over the running of a city's train station. This group, consisting of individuals with no formal education but rich in life experiences and practical knowledge, represents a shift from traditional, structured management to a more intuitive and experiential approach. The scenario explores frictions like uncertain vs. controlled processes, measurable impact vs. qualitative effects, and abstract

Figure 4.4.1 Into the workshop: participants discuss scenarios.

knowledge vs. embodied knowledge. It reflects a societal shift towards valuing diverse forms of knowledge and experience over formal education, challenging conventional norms and systems.

• KEY FRICTIONS TO BE TACKLED
uncertain processes vs. controlled processes • measurable impact vs. qualitative effects • abstract knowledge vs. embodied knowledge • formal education vs. experience

• **Scenario 2, "Furniture of the Forest,"** set in 2038, envisions a world where the EU has granted legal rights to forests. This scenario involves an innovative invention by Swedish scientists: mycelium 3D printers that create furniture from local forest materials. However, the situation becomes complex when the mycelium spreads designs across Europe, causing 'wild' furniture to grow spontaneously. This leads to debates about ownership and the impact of technology on traditional industries. The scenario weaves a narrative about a society grappling with the intersection of technology, nature, and human intervention, challenging participants to consider the balance between human-centered and more-than-human-centered perspectives.

• KEY FRICTIONS TO BE TACKLED
• human agency vs more-than-human agency • human needs vs more-than-human needs • immedate solutions vs systemic change

• **Scenario 3, "The Era of Exploratory Thriving"** set in 2038, focuses on the aftermath of a well-intentioned environmental initiative started in 2024. This initiative, aimed at achieving climate neutrality by 2030, led to the widespread installation of beehives in urban areas. By 2038, this has resulted in an overpopulation of bees, with issues like 'runaway

bees' seeking new habitats close to human residences. This scenario challenges participants to consider the balance between human and more-than-human needs, immediate solutions versus systemic change, and the implications of decisions made without systemic sensitivity or adequate expert involvement. It reflects on the unforeseen consequences of problem-solving approaches, stimulating discussion about sustainable, thoughtful, and inclusive decision-making.

• KEY FRICTIONS TO BE TACKLED
• human centered vs. more-than-human centered • technology as solution vs. people as solutions • short term effects vs. long term effects

(Trotto, van der Veen, Ferri, 2022)

Exercise 2: Skills & Attitudes

In this exercise participants have been tasked o think about the actors involved in the scenario, their struggles, how these struggles relate to the participants' personal and professional spheres, and the *superpowers* or skills that would be necessary to address these frictions. This exercise aims to deepen the understanding of the scenario's context and to explore the competencies needed for transformative action in such situations.

Exercise 3: Choose Attitudes & Skills

The next step asked participants are provided with attitude and skills cards. These cards are based on research in Design for Transforming Practices' framework and its collaborative efforts in transformation processes. Attitudes and skills have been printed on cards, to invite a shared vocabulary starting from the notes participants took from the previous exercise. Cards displayed the following formulations:

unlearning risk containment • optimistic creativity • tapping into distributed knowledge • openness to failure, reflection and iteration • reflective practice • capitalising on informal knowledge • empathy literacy • collaborate with non-human actors • accepting messiness • staying in one's strength in complex processes

In this way participants engaged in a *translation endeavour,* as they needed to reframe skills and attitudes identified previously according to their own experience and expertise, and articulate them in a way that they

could be shared and discussed by others. Furthermore, by handling paper cards, participants would be able to see in just a glance how a triad would work instead of another, by just picking in and out selected cards. This increased interaction with the central board, mirroring a deeper engagement in the conversation

Exercise 4: Create your Mutant

Exercise 4, "Create your Mutant" is the core exercise of the workshop, aimed at enabling participants to make key competences concrete, tangible. In fact, by opening the fourth envelope, participants are provided with a number of cards that represent body parts to construct a *creature*. This creature symbolises the key skills and attitudes identified in the previous exercises and represents either the kind of colleague participants wish to have in seven years or the type of *mutant* they themselves aspire to become when facing their chosen scenario. The process includes selecting cards that best represent these skills and

Figure 4.4.2 Into the workshop: assembling the mutant.

attitudes, considering the materials, textures, colors, and qualities of the body parts.
In fact, body parts have been design based on specific *aesthetic qualities,* that might support participants in linking the abstractedness of skills and attitudes to shapes, colours, textures and compositions.

soft • hard • entangled • open • fragile • transparent • solid • heavy • sharp • closed • light (weight & energy) • organic • squared • forceful • tentacular • mirror • flow • reflecting • misty

Then, participants create their creature on the main board, attaching the body parts and annotating each choice to explain its significance.

Exercise 5: Collective reflection

Exercise 5 encapsulates the reflective and closing component of the workshop. Here, participants are asked to envisage the mutant they've created as an honorary member of the EIT C&C, functioning as one of its partners.
This exercise prompts participants to project into the future and consider what the EIT and its partners might learn from the mutant by the year 2030. Participants are also encouraged to reflect on what they personally would have learned from the mutant by that time.
The exercise concludes with participants writing their reflections on the designated space on their template and capturing this reflection process by taking a picture of their completed template, which is then shared with the workshop organisers. Furthermore, this final exercise draws the workshop to a close by asking participants to internalise and project the insights they have gained, fostering a forward-thinking mindset and consolidating the envisioned competencies into a future narrative of learning and transformation.

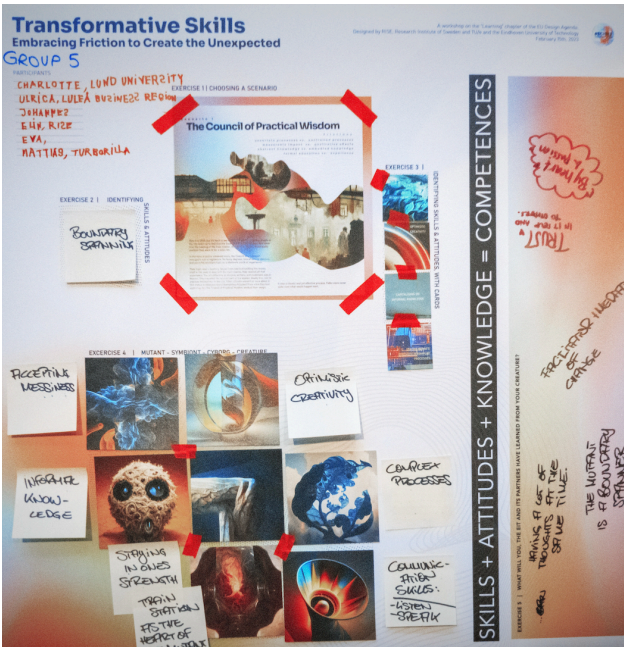


Figure 4.4.3 Into the workshop: snapshot of one of the completed boards.

_First round reflections

RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

The whole process has been experienced positively by participants. Despite it was clearly addressing non-conventional ways of thinking, the scenario narratives and illustrations, as well as the skills and mutant cards provided a solid “grip” for both facilitators and participants to spark the conversation and keep it lively. In fact, the tactile aspect of handling paper cards added a tangible dimension to the exercise, leading to a strong, aesthetic engagement with the matter at hand. In fact, as participants themselves told facilitators, it allowed for quick, visual juxtapositions, in a way that a simple exchange and handling of cards can

shift perspectives, revealing how different assemblages of competencies might interplay. The tangible interaction not only enriched the dialogue but also anchored it, as each selection has been physically performed as the result of a collective, embodied decision onto the central board.
As such, the central board became more than just a display; it has been experienced as the mirror to the group's collective engagement, reflecting the depth and variety of their conversations. As participants moved cards around — attitudes and body parts —, they were not just discussing competencies; they were engaging in a dance of ideas, a visual, bodily and verbal choreography that brought the abstract into the concreteness of the real.
Building on Design for Transforming Practices' framework, the workshop elicited the physical act of building the mutant as a way to engage participants in *embodied sensemaking*, which posits that cognitive processes are deeply rooted in the body's interactions with the surroundings. The tactile engagement with the cards and the visual assembly of the creature provide a *kinesthetic learning experience* — a learning into action one —, eliciting cognitive assimilation of the abstract concepts discussed. Moreover, creating together a visual representation of a desired colleague or the future self allows participants to construct a narrative that is more easily communicated and understood. The narrative built through the mutant draws on the participants' creativity and projection of self, bridging the gap between present competencies and future requirements.
The use of scenarios and the construction of mutants are deeply metaphorical and narrative in nature, too. These techniques allow participants to explore complex concepts through story and symbol, which are potent tools in design thinking. They also help in making abstract competencies more tangible and understandable, especially in environments of friction. In fact, the workshop's narrative specifically invites consideration of frictions between disciplines, sectors, and mindsets, bringing participants into uncomfortable points of view. The interdisciplinary nature of these conversations was soon recognised as

difficult, but it has been rapidly overcome thanks to the aesthetic engagement, which whispered to more-than-rational cognition to break the ice and start venturing through thoughts and ideas usually perceived as far and distant from one's own professional expertise. As such the workshop applies a constructivist learning approach, encouraging participants to build their understanding through active engagement. Each exercise is scaffolded to deepen the participant's engagement and stimulate collective reflective practices, culminating in a tangible representation of their learning outcomes.
By concluding with a reflection exercise, the workshop aligns with Schön's reflective practice model, underscoring the importance of understanding the learning process and its implications for one's professional and personal growth. The reflection can be also traced back as the board captured the collective line of thoughts by the annotations attached on it. This fosters a deeper understanding of the "whys" behind certain skills, attitudes and body parts that were valued and selected. This reflection is an essential component in learning environments, which emphasise the importance of understanding one's thought processes as a path to deeper learning, while nurturing the openness to listening to and grasping others points of view. As such, the workshop elicits cognitive flexibility, a skill that is essential for adaptability and transformation, especially in response to the rapidly changing societal and environmental landscapes presented in the scenarios and made tangible by current multifaceted planetary challenges.

_Appendix

While assembling the mutants, participants brought to light several key themes about the transformative skills needed for embracing friction. Particularly, four mutant "profiles" can be outlined from participants' discussions. As the report redacted by Rosa van der Veen, Gabriele Ferri and Ambra Trotto (2023) illustrates, participants would relate to:

"1. The mutant as connector.
It has the ability to connect different ideas, people, and perspectives in unexpected and innovative ways. By bridging gaps and creating new networks, the mutant is able to see beyond existing structures and find new solutions.

2. The mutant as intuitive, open-hearted artist.
It approaches design challenges with empathy, creativity, and imagination. By remaining open-minded and receptive to new ideas, the mutant is able to explore the unknown and create something unique.

3. The mutant as heterogeneous entity embodying different perspectives and points of view.
It is able to embrace a wide variety of skills, attitudes, and perspectives to address future design challenges effectively. By not shying away from conflict ("lighthearted conflict"), the mutant is able to create a balance between these seemingly opposing perspectives.

4. The mutant as more-than-human entity that relates to other more-than-humans. It has the ability to bridge in-between spaces and create liminal zones that allow for the exploration of non-human entities such as networks and data. By trusting in itself and its capabilities, the mutant is able to remain open-minded and solution-oriented, creating new spaces and structures that help to address future frictions".

(Report by van der Veen, Ferri, & Trotto, 2023)

4.5 CASE #5_ The Bottle of Trust

4.5.1 Abstract

The Bottle of Trust is a gift designed to be given away by Umeå Kommun. Research has shown that Umeå is one of the most trusting places in the world. And trust is a peculiar thing, the more you give it away, the more you receive. The bottle invites the receiver to pass it on, with a secret inside, multiplying the trust along the way.
The constant commitment of d.centre | EU in taking care of inclusive and sustainable societal transformation processes driven by design has led to deeper reflections than the relationships woven over time with a wide variety of actors. In particular, the City of Umeå has supported the transformative capacity of design-driven processes, demonstrating openness in perspectives and welcoming experimentations in different instances on the territory: from the Station of Being (2021) to Umeå's Climate City Contract (2022) these experiences eventually contributed in nurturing the the trust that connected — and still connects — the City and d.centre | EU.

4.5.2 Acknowledgements

_Research project's title
The Bottle of Trust

_ Funded by
d.centre|EU

_ Supervisors and contributors
Design team: Ambra Trotto, Jeroen Peeters, Maria Claudia Coppola

_ My role in the project
Design researcher and visual designer

4.5.3 Research questions and aims

PROJECT-CASE #5 RQ_ How can we nurture relationships when addressing long-term processes of change?

The Bottle of Trust aims at addressing the need to appreciate and celebrate the people — individuals, organisations, and communities — that joined Designing for TP research team in trans-discipilnary endeavours aiming at working (on) systemic transformation. These processes are blurred in time and space, with many uncertainties constellating the way. The Bottle of Trust aims at condensing the blurred boundaries of transformation pathways, to stop by for a moment, look at what an ecosystem participated in, and appreciate the entanglements resulting by those efforts.

4.5.4 Methodology

The Bottle of Trust has been conceived and prototyped according to a product-design approach. The shape of the bottle has been worked on to

embody specific *qualities*: the design is non-symmetrical, transparent, delicate, fragile, something to take care of.
Three glass sculptures have been crafted by Vetraie Ribelli • Murano Glass Arts (version 1) and Eva Juneblad (version 2).

4.5.5 Results

The Bottle of Trust embodies both gratitude — as it has been conceived as a gift — and commitment to further engagement in long-term processes.

The first prototype of the Bottle of Trust was presented to Anna Olofsson, Director of Marketing for the City of Umeå, on behalf of RISE Prototyping Societies
The second prototype of the Bottle of Trust was presented to Parish Liljestrand, Swedish Minister of Culture, on behalf of the Umeå ecosystem of cultural and creative sector actors.
A third, up-scaled unit has been exhibited in Murano at Galleria Franco Schiavon, during the "Venice Glass Week" held in autumn 2023. During this event, titled "Bottling Trust", visitors were asked to write down their innermost desire and commend it to the bottle at the centre of the room, which would keep sparks of intimacy and vulnerability safe within its crystal womb.

4.5.6 What has been relevant for this research

RQ2__ What is design's distinctive contribution in fostering trans-sectoral collaboration through practice?

Leveraging on design's expertise in handling the aesthetic qualities of *things*, contributors unpacked the sense of gratitude felt towards those actors that *stayed with the trouble,* that stayed to carry out processes and practices to achieve systemic transformation together. *Staying* is key and

it is not predictable. In the dynamic emergence of new challenges along systemic transformation endeavours, a constant "celebration" of commitment allows to keep the ever-evolving constellation of actors connected to meaningful relationships — namely connections that are not only functional to the short-term interests of the project or initiative that brought them together for the first time. This speaks of the disengaging implications that is inherent to long-term processes: in these timeframes, in fact, some people leave, some enter, some stay.
Translating such a framing into a design endeavour meant approaching it from an *affordance* approach, sitting on the aesthetic qualities that might better embody the *sense of gratitude,* coming from such a long-term commitment. Object of gratitude is trust, the trust that has been given to and has contributed to building, enhancing, and fostering collaboration in systemic transformation practices. As such, it was fundamental to keep the poetry of time: transforming processes unfold along long-term horizons, during which participants enter and exit the process at given times: this implies the creation of a gap in relationships, to be filled with start-over efforts to join the process at a certain stage. As such, people *staying with the trouble* might want to inspire the same trust they have been receiving, by giving it away in turn, shaping a form of entanglement, embodied by a baton pass endeavour.
Additionally, since to trust means exposing oneself to vulnerability, a sense of intimacy comes right after and nurtures the relationship among the truster and the trustee. For these reasons, the design concept was shaped as a glass bottle, holding inside an origami rose made of paper — echoing the image of the messages in lost bottles cradled by the sea. Before this setting, the trustee is invited to write their innermost desire on a given piece of paper; then, they follow the folding instructions accessible by a QR-code printed on the pamphlet coming with the bottle; at last, they drop the origami rose in the bottle and gift it to the person they wish to feel the embodied sense of being entrusted.
Lastly, the Bottle of Trust is relevant to this research as it is the only design practice resulting in a tangible prototype, that embodies the key

principles guiding the collaborations in which Design for Transforming Practices' research team has been involved throughout time. The Bottle of Trust sparks from the need to celebrate the long-term relationships connecting the research team with an entanglement of public and private organisations. In such long-termed horizons, some people stay, some go; hence, the need to renovate the energy that keeps conversations on transformative endeavours going. The Bottle of Trust is the epitome of the need to intervene on the time scale of transformative endeavours, giving the long-termed horizon — studded with people, beings and things intertwining and disconnecting continuously — a defined structure. Following philosopher Byung-Chul-Han , the Bottle of Trust works as a "temporal technology", aiming at initiating moments of necessary slowness and deliberateness, within processes of hectic speed, striving for efficiency through fleeting interactions. Here, the slower pace is conducive to the development of deeper, more meaningful relationships, paving the way for the construction of community bonds. Trust, in Han's discourse, emerges from this repeated, ritualised interaction over time. It is through the regularity and predictability of rituals that individuals learn to rely on each other, fostering a sense of commitment and integrity. In essence, rituals create a framework within which trust can develop and flourish, counteracting the transient and often superficial nature of modern social connections. Thus, the Bottle of Trust embodies a precise wish: to always find moments to stop, appreciate and celebrate the long, rough path of systemic transformation we are walking together.

Figure 4.4.1 The Bottle of Trust. Photo credits: Ambra Trotto (2022).

Figure 4.4.2 The Bottle of Trust. Photo credits: Jeroen Peeters (2022)

STEP 2_ WHAT THIS CHAPTER SET OUT

This chapter illustrated the applied practices that brought this research into real life contexts.

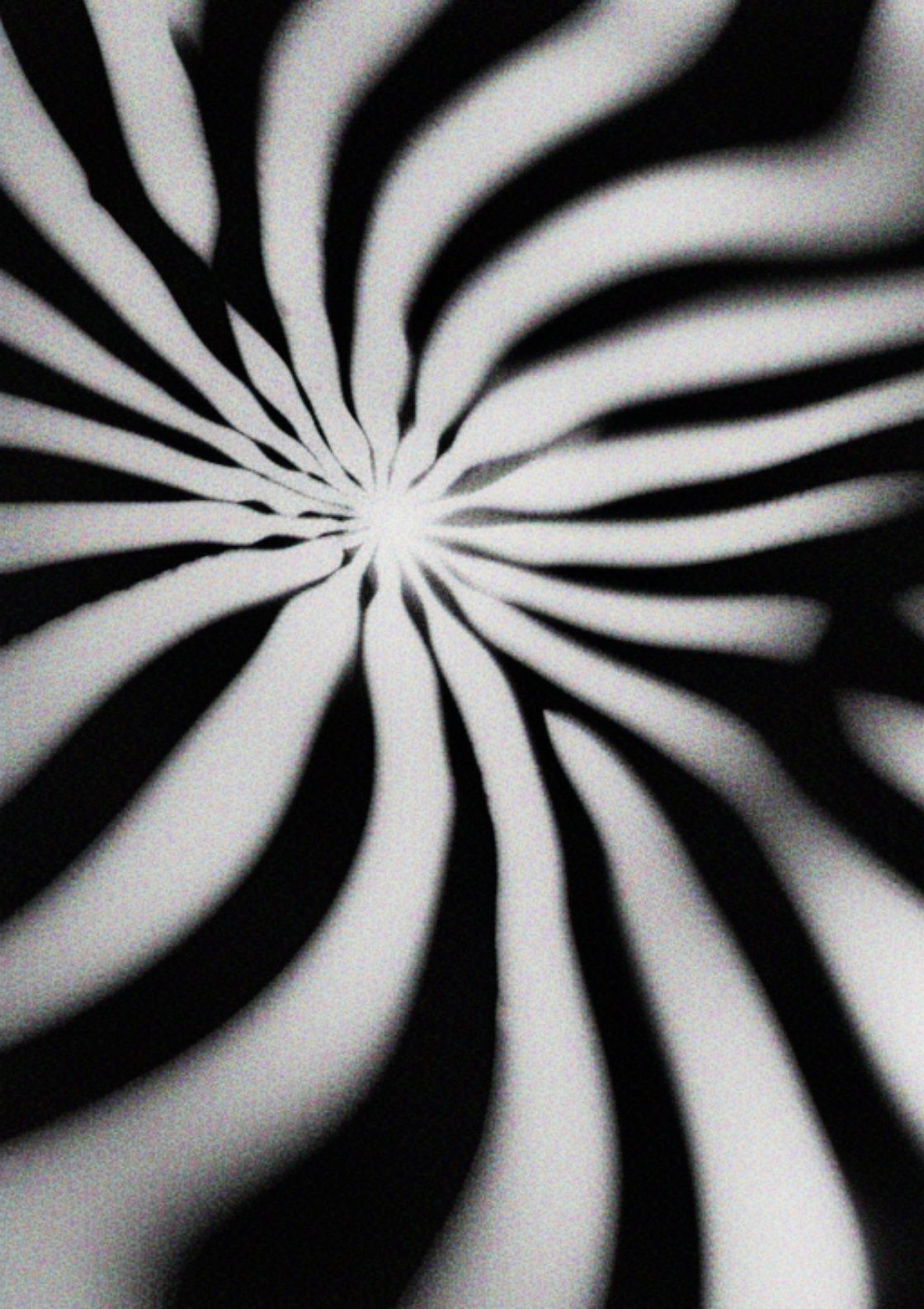
The visualisation of the **Declaration of Interdependence** — one of the main designerly outputs of the mapping activity carried out within the EIT Culture & Creativity — highlighted design's added value in knowledge brokering, through aesthetic modes of participation and perspective sharing.

Umeå Climate City Contract and Entrepreneur-driven ecosystem for Creation Industrial Symbiosis are two experiences led within two Swedish national programs — Viable Cities - EU Net-Zero Mission and European Regional Development Fund - REACT-EU, pertaining to NextGeneration-EU, respectively. By joining the programs under the guidance of RISE, Research Institutes of Sweden, they provided the opportunity to prototype transformative roadmaps for trans-sectoral partnerships.

Transformative Skills, facilitated during the European Creative Industries Summit (ECIS 23) is a design-driven conversation for policymakers and professionals working in the cultural and creative sectors and industries to discuss the transformative competences needed to work (on) societal transformation.

Lastly, **The Bottle of Trust designed by the d.centre | EU team** has been presented: a value-imbued prototype embodying the trust that one is willing to share to keep on nurturing long-term collaborative relationships.

The applied cases unfolded along the Research through Design endeavour. They all disclosed insights on design's contribution in setting up conditions for stakeholders to meet and get in touch with each other, eliciting the formation of "newly born constellations" in trans-disciplinary environments, marked by the need to step into the unknown and embrace uncertainty together. Here, design responds by enacting a knowledge and culture brokering, namely a catalyser for the recognition and actionable exchange of multiple perspectives.



STEP 3_

REFLECTING

STEP 3_ WHAT THIS CHAPTER IS ABOUT

This chapter will set the stage for carving out design's distinctive contribution to trans-sectorial collaborative practices aiming at systemic transformation.

The chapter introduces the "three-lens compass," a methodological tool designed to look into applied project-cases and conduct a comparability analysis.

By focusing on modes of sense-making, capturing evidence, and infrastructuring, this chapter engages with the third research question:

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

• How do applied cases relate to each other? What are the common grounds? What are the discrepancies?

•What emerging findings relevant to working (on) systemic transformation does a further reflection invite?

5. On making sense after taking action

5.1 Introducing the three-lens compass

> "When research is undertaken through practice, the site of the research is the site of the practice: this is the location where the action takes place" (Vaughan in Vaughan, 2017).

Generally, practice-based design research cannot draw upon a received set of research "methods" (Blythe & Stamm in Vaughan, 2017): each practitioner, in fact, is asked to develop and test a distinctive individual range of ways to conduct the practice-based research. Certainly, unpacking the methodology by the highest possible degree of explicitness contributes in further transferability and objectivity of the incoming insights (Blythe & Stamm in Vaughan, 2017).
This research is grounded in the tight connection between the object of its inquiry — design's contribution to collaborative practices aiming at systemic transformation — and its mode of inquiry — through actual practice. Such a setting comes from the need — as by research questions

— to decode the practical knowledge inherent into practices, extrapolate it and formulate it, so that it might contribute to filling the gap about concrete ways in which we can *work* (on) systemic transformation from the trans-disciplinary standpoint of design and policy, acting directly into socio-material arrangements to achieve collective thriving.
We are now halfway of this doctoral research: we left the "path of practice" and its first round reflections, to venture into the "path of sense making", the path in which a *research lens that is specific to this work* will be crafted, introduced and tested.
The research lens can be thought of as a methodological tool to look back at applied cases and draw insights to address the main research question. Particularly, the lens stems from the ecology of this works's specific practices, both analytical and on field. As such, it is informed by:
the conceptual framework discussed in STEP 1 FRAMING that also informed on-field practises;
_ the first round reflections — collective and individual — on the practices.
As such, the tool belongs to the setting of this research and, particularly, stems from the need to address the following research question:

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

• How do applied cases relate to each other? What are the common grounds? What are the discrepancies?
•What emerging findings relevant to working (on) systemic transformation does a further reflection invite?

The conceptual framework — outlined in Chapter 3 — builds around three main areas in which both design and policy might have found open, experimentation grounds to foster trans-sectoral collaborative practices:
_ **the modes of consultation** — or, rather, the modes of engaging;
_ **the changing nature of evidence** — and the need for modes of capturing;

_ **the need to address infrastructuring** — the modes of bridging.

Taken together, these areas aim to define the broader area of collaborative practices, representing the main three coordinates to orientate one's inquiring journey.

In light of the findings coming from the applied cases, each of these areas will be now read through the perspective by which they have been practiced, a design one.

Here, a note on practices appears dutiful. Practices concern inquiries right into the socio-material arrangements, providing with the opportunity to stimulate practical knowledge production. Such a process, to say it with Dewey (1934), is a form of creative and investigative process, where *experience* — as arising from encounters with real-life situations — is fundamental to further making sense and, thus, understanding. To this doctoral work, experience is a fundamental notion, since it is the channel through which socio-material arrangements deliver information to both our minds and bodies, speaking to both rational and embodied cognition. Such a framework is also recognised in Designing for TP approach, which foregrounds the essential role played by aesthetics, understood — by thinking with phenomenology — as the science of the senses, the science of prompting, delivering, and receiving information by and from the senses; in other words, the science that lived experiences carry with. This framework is supported by setting systemic transformation within *socio-material arrangements*, a notion that understands everyday life as the result of the entanglements of societal and material interconnectedness and interdependence, in which each agent and agency mutually shapes and is shaped seamlessly.

Within such a setting, both design and policy have access to the toggles and handles of real-life situations, contributing in shaping alternative configurations of socio-material arrangements. Those toggles and handles are what in aesthetics — and design — are described as *aesthetic qualities*.

Aesthetic qualities are structural and semantic properties that prompt specific response in the subject that is venturing in a relationship with the given object that is embodying those aesthetic qualities.

Qualities of shapes, forms, colours, as well as qualities of activities, processes, and even practices can be drawn out as coordinates to read through the complexity of impalpable processes like collaborative ones, bringing them onto an experiential level of discourse, one in which we might tap into a more contextualised vocabulary to address their main connotations and criticalities.
Certainly, it is fundamental to consider the situatedness of the practices this work engaged with — which would be a requirement to be met in further practice-based research developments. Nonetheless, the

Figure 5.2 Template of a filled is version of three-lens compass model. Original tool and visualisation by Coppola (2024).

methodological tool will be presented in form of a prototype, to start *testing it* by thinking with it, with the aim to elaborate it further in the future.

Sitting on the notion of aesthetic qualities, the tool complements the three dimensions of collaborative practices as follows:

_ **the qualities of sense making**, namely the properties that, when solicited, support and invite collective processes of making sense about a given complex situation or question;

_ **the qualities of capturing**, or the properties of the evidence that involved actors are going to build on together to make sense of a complex instance and decide, together, upon it;

_ **the qualities of trans-sectoral bridging**, that are the properties prompting for relational stances, facilitating the co-design of processes of trans-disciplinary interplay to address complex challenges collectively.

5.2 Thinking with the three-lens compass

The three lens-compass model comes with an open-ended map, on which specific coordinates — qualities — can be annotated, in correspondence of each North-Star area.

We can now look back at project-cases, searching for the key qualities that describe their characters in regards to each area. In addition to providing each cases with a more focused lens to be interpreted, this operation is also an attempt to carry out a comparability study, seeking for common features as well as discrepancies of design-driven practices aiming at nurturing collaboration to work (on) systemic transformation.

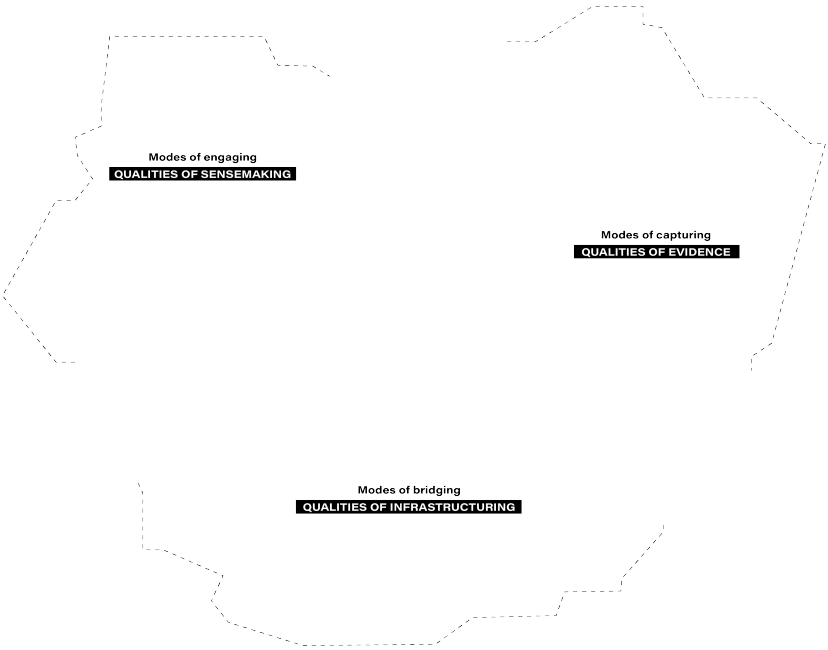


Figure 5.1. The three-lens compass model. Original tool and visualisation by Coppola (2024).

The tool allows the placement of qualities in a way that is open-ended and dynamic: building on the metaphor of geographical maps, qualities are represented by “elevation contours”, the imaginary lines connecting points having the same elevation on the surface of the land above or below a reference surface. Since contours make it possible to show the height of mountains, as well as the depths of the ocean bottom, they sup provide the three-model with the possibility to make a proposition on the intensity of how a given quality is reflected in a given project-case — represented as squares:
_ project case placed on the inner contour: quality is highly relevant and observable in the project .
_ project case placed on the outer contours: quality is subtly observed in the project.
A last note here can be made about “dormant” qualities, namely qualities that the project has the potential to be responding to, but that is not sufficiently showing at the current state of art.
With the tool being introduced, we can now venture in each of the experimentation areas, and, by looking back at project-cases, look for the qualities through which those areas have been *touched* by project-specific practices.

5.2.1 On the qualities of sense making

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

- How do applied cases relate to each other? What are the common grounds? What are the discrepancies?

As for the qualities of sense making, all the project-cases engage with this area, since they are mostly practices of designing “conversations” to reframe a given challenge and find ways to tackle it as a system.

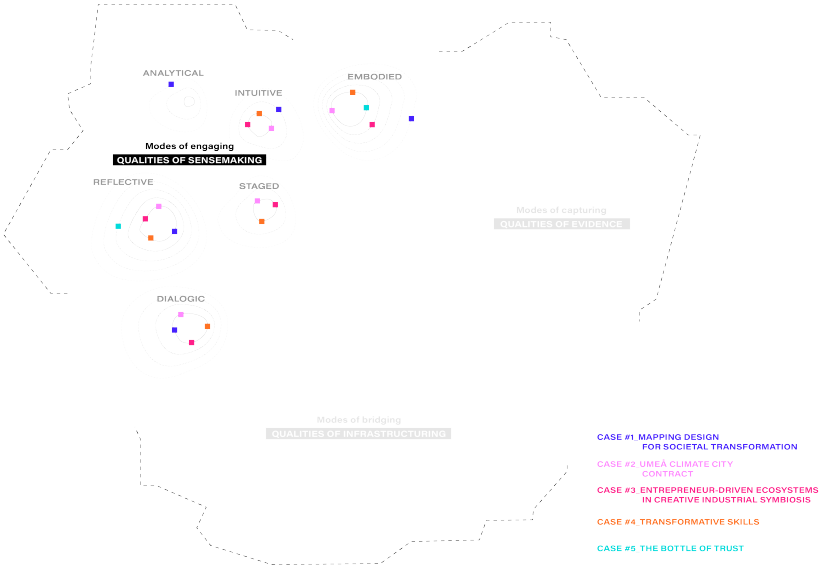


Figure 5.3 Qualities of sense making displayed in the three-lens compass model. Original tool and visualisation by Coppola (2024).

Let alone the Bottle of Trust — which will be looked into in a second moment —, all the four project-cases engage with involved actor with a conversational stance, that unveils specific qualities on how individual and collective sense making processes are conventionally looked at. Rooted in collaborative and participatory design approaches — and boosted by critical approaches like speculative design and agonistic design —, the practice of designing conversations grew by the need to facilitate the exchange of perspectives in multi-stakeholder environments, where the clash between frictioning interest and the limited account of consensus were frequent issues. What designing conversations address is the re-orietation of focuses to invite participants into different point of views by which looking at — and aiming sense of — a given matter of concern. Provocative and challenging, these design practices aim at stimulating different sensitivities in both individual and collective spheres of action. To catalyse such a process, designers

prototype conceptual artefacts, scenarios and activities — or "exercises" as in the project-cases — to engage participants into different stances towards themselves, the issue, and the other participants — and stakeholders — connected to that same issue.

By conducting practices along the principles of Designing for TP, this research tested a conversational mode to practice consultation in collective endeavours aiming at working (on) systemic transformation. As such, the qualities of the sense making processes elicited by such a setting follow not only the conversational framework, but, more specifically, a specific connotation of it: **dialogic conversations**.

The dialogic feature can be traced in all the project-cases that unfolded around a conversational exchange of perspectives: the Declaration of Interdependence in the mapping activity, the whole process of Umeå Climate Contract, the two workshops in KIS, and the Transformative Skills workshop all registered a high engagement in conversations that were carefully design to let each subjectivity converse (and relate) to the others': these dialogical experiences were not solely exchanges of information; rather, they were dynamic, evolving interactions, in which participants actively shaped and were being shaped by the discourse. And those interactions, need to be thoughtfully staged, so that they can occur into a context that invites certain stances — i.e. openness, curiosity — and smoothens others — i.e. disengagement. As such, the practice of designing conversation is about **staging**. With staging I am referring here to the strategic assemblage of the material setting — or arrangement — of an environment to elicit interactions to make sense of something, both alone and together. Staging here refers to the designerly arrangement of physical, social, and conceptual elements to facilitate an immersive — highly engaging — experience. This aspect of staging applies designers' expertise on playing with the toggles and handles of the "distribution of the sensible"; as a result, they work on a specific mode of engaging: *aesthetic engagement*. The design of the setting, the design and the arrangement of tools and materials, the concept, formulation and coordination of activities and exercises: it all plays a crucial role in

shaping the participants' engagement and interaction. Staging, in this sense, is not merely about the aesthetics of the space, but about arranging the socio-materiality of a localised setting, in a way that it would let the complexities and dynamics of the real-world emerge and *be experienced*.

That is one of the aspects backing the most positive feedback by participants in those processes: engagement, in being aesthetically driven, and thus *experiential*, created the conditions for **embodied participation**. Generally, the engagement that is elicited in design thinking processes is highly cognitive, as it focuses on guiding participants through steps of thinking — i.e. divergent and convergent. However, as previously discussed — see chapter 2.3 —, design *thinking* is something that emerges as the result of the aesthetic engagement that the design practitioner experiences in their practice. By engaging directly with the matters they are shaping, they enact a form of embodied thinking — embodied cognition. This is at the foundation of the body of knowledge of Designing for TP, which recognises the relevance in stimulating thinking with both the body and the mind, to tap into the knowledge of the senses: perspectives exchange can be *understood* cognitively, but it is in embodied participation that it can be *grasped* intuitively. The concept of **intuition** is tightly close to designerly pracitces, and more extensively creative practices *tout court*. Richard Sennet's (2008) portrait of *The Craftsman* provides us with a compelling framework in which the hand of the crafter is moved by intuition, the ability to *sense* possibilities and to make decisions that are not solely based on strict rules of reasoning but are influenced by one's — body *and* mind —accumulated experiences and insights. Through aesthetic engagement participants tap into embodied cognition and venture into realms that are yet unknown, holding on their own intuition to think and acting through it. In Sennet's framing of intuition as a force that sparks from "an imaginative experience [...] that guides us towards what we sense is an unknown reality latent with possibility" (2008), it proves to be an essential, yet overlooked skill to make leaps into uncharted territories. While intuition is inherently a

personal and subjective process, the designerly *staging* of dialogical conversations facilitates the emergence and mutual resonance of subjectivities. Here, more than understanding the matters at hand, participants engage with *grasping* them, guided by their intuition. This aligns with Sennet's (2008) thought on *grasping something* as an activity that extends beyond its literal meaning, encompassing both a physical and metaphorical dimension. In fact, just as our hand will instinctively form a shape suitable for holding the glass, before even *touching* it, the same might be elicited to invite different stances and points of view. In other words, designers can tap into the specialised knowledge of handling the aesthetic — sensorial — qualities of socio-material arrangements' matter, to elicit the *prehension of a specific message*, inviting specific moves or actions whispered to participants' intuition. As the body anticipates and acts in advance of the rational mind, it relies on *sense data*.

We saw this strongly in the Umeå Climate City Contract, in Transformative Skills and in KIS, especially, as it provides a partially negative feedback in these regards: the design sprint session, while inspired by design thinking and thus design-driven principles, was marked by the absence of specifically crafted supportive tools — such as boards, cards, or tokens —, that is being aesthetically disengaging and disembodied. This resulted in distracted actions and participants leaving the room in the middle of the exercise; however, engagement was restored as soon as participants were presented with the AI-generated scenarios, experiencing the "beauty of seeing our ideas visualised" (participant in Going Circular session, KIS, 2022). This response underscores the importance of leveraging on design's ability to play with the toggles of aesthetic elements, to elicit a more engaging conversation. Thus, embodied participation is about *presencing*, being present and paying attention to the conversation, so that the interconnectedness, that is hardly seen, can be *felt, experienced, and grasped*.

Lastly, the qualities that designerly practices infuse in modes of consultation are complemented by the character of **eliciting reflective**

practices: designerly conversations are built around the sense making processes enacted by Sennett's craftsman (2008) or Schön's reflective practitioner (2017). The aesthetic assemblage of elements to invite embodied participation in a re-orienting conversation elicits the practice of both individual and, most importantly, collective reflection-in-action and reflection-on-action: namely, the sense making process in which participants are encouraged to meticulously reflect on their actions and decisions, much like a craftsman refining their craft; Schön's emphasis on reflection-in-action and reflection-on-action further underscores the importance of thinking about one's actions both during and after they occur, looking back on *what* they did, *why* they did it, and how it worked out. Conventionally framed as an individual activity, here reflective practices are collective: by fostering dialogic communication and integrating diverse perspectives, participants can systematically reflect on their experiences and refine their practices. Here, let me leave a side note about the Bottle of Trust, whose embodiment in a product, frames it as contributing to the qualities of sense making discourse from a slightly different perspective. In fact, as the compass shows, the Bottle of Trust certainly scores an embodied quality — that is being crystallised in a womb-shaped glass bottle. Despite it being not experienced in collective environments, the Bottle of Trust responds to the quality of eliciting reflective practices, since it *embodies* a bigger-scoped narrative, that, by being crystallised and condensed in itself, can be actually grasped, touched, thought on, acted upon.

A part from the Bottle of Trust, the rest of project-cases display a collective configuration of reflective practices. Particularly, it is through collective reflective practices that participants are encouraged to respond to the sense of awe emerging by their — aesthetically engaged — confrontation with the "unexpected" — foregrounded by designerly provocations. In this sense, designed conversations embed structured reflective practices as part of the conversations themselves: this allows to frame consultation — and thus, sense making processes — as processes of knowledge co-production, informed by — bodily — intuition

and channeled by aesthetic engagement in embodied participation. Therefore, we can say that design fosters the quality of consultation by deeply intertwining it to the quality of conversations. The *quality* that design is able to promote, bringing in its distinctive contribution, is encapsulated in the embodied participation that is elicited by aesthetic engagement. In such a setting, there is a shared commitment to *quality*, mutual learning, and continuous co-development, enabling both individuals and teams to integrate diverse perspectives and venture safely in complex situations though integrated sense making stances, where each subjectivity is noticed and recognised as part of the same system one belongs to.

5.2.2 On the qualities of evidence

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

- How do applied cases relate to each other? What are the common grounds? What are the discrepancies?

Sense making processes inform decision making ones. This occurs in both design and policy processes, providing this research with the second experimentation area to be ventured in through the lens of practice. As the compass shows, project-cases displayed a specific set of qualities, through which it is possible to elaborate design's contribution to trans-sectoral collaborative practices aiming at systemic transformation to achieve collective thriving.
Even in this area we can see how the project-cases that were focusing on the design of processes cover mostly all of the mapped qualities; the Bottle of Trust, the product-based one, is present in just two instances. We can start thinking with the compass by the most resonating quality: **multilayered evidence**. This phrasing aims at covering all of the reports, visuals, artefacts that display a multifaceted portrait of the system: we

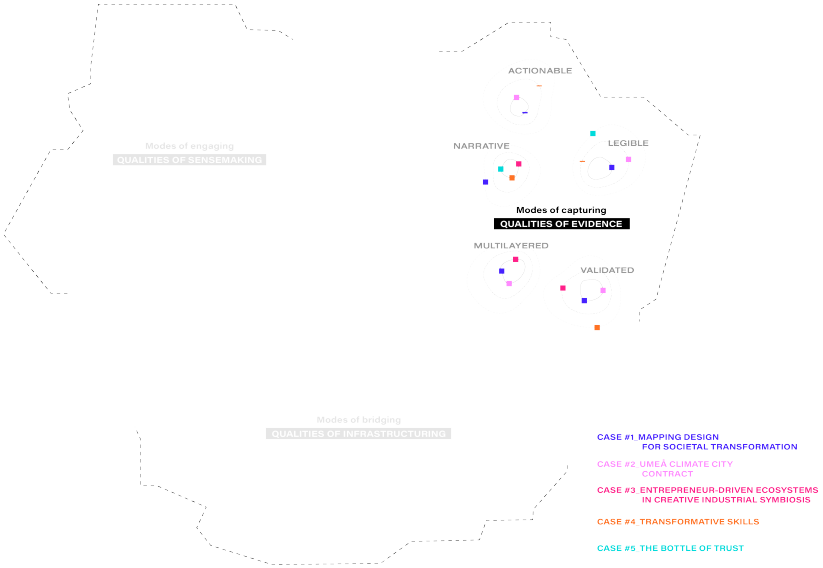


Figure 5.4 Qualities of capturing displayed in the three-lens compass model. Original tool and visualisation by Coppola (2024).

can clearly see this in the Declaration of Interdependence, as well as in the Umeå Climate Contract — with particular regards to the final Landscapes of Interdependence; lastly, the multilayered portrait is present in KIS too, particularly in the entangled board of the Shape of Belonging session. A multilayered evidence allows not only to contextualise each element — of information — in a system, but most importantly to engage with the whole system, by running through the relationships between each element that the system is actually made of. Capturing this kind of information calls for alternative modes of delivering it, modes that text-based reports and recommendation doesn't seem to support sufficiently. This resonates with how the Declaration of Interdependence had a strong visual impact on participants, to the point of receiving preliminary feedbacks on its composition before they would venture in the activity of validating it; on the same page, the Landscapes of Interdependence surprised participants as they could perceive the local system of Umeå — made of public and private organisations working on similar challenges — with just a glance; this is also

recognisable in the Shape of Belonging, by which participants recognised others' sensitivities as part of a bigger tale to be told about a "creative North" in Sweden.
By being multi-layered, evidence are emphasising the relational standpoint by which we are constantly shaping and being shaped by systemic entanglements; thus, multilayered evidence raise systemic awareness and nurture sensitivities in being co-response-able — able to respond collectively — towards a given matter of concern. This concept is understood as crucial in Design for TP approach, which acknowledges co-response-ability as one the key principles to be worked with.
Furthermore, it is relevant to this research to observe how multi-layered evidence carries an inherent form of **narrative**: again, this is the case of the Declaration of Interdependence as well as of Landscapes of Interdependence and the Shape of Belonging, whose final configurations were actually putting participants in the perspective of embracing the entangling narrative that holds the system together. However, narrative here is a quality that can be embodied to *seduce* participants into certain stances, and, thus, invite for knowledge co-production starting by those specific standpoints: it is the case of Transformative Skills and the mutant metaphor, as well as the scenarios of the Going Circular workshop in KIS; a special case here is made by the Bottle of Trust, whose narrative is embedded in the values it embodies and, in addition, in the "secret, intimate desires" the bottle is going to keep safe within itself.
In both senses, the narrative quality grounds abstract conversations into frameworks within which participants have more chances to work with(in). If this, on one side, seem to hinder the objectivity that is conventionally linked to evidence, from the other side we are addressing here systemic perspectives and sensitivities which are usually resisting cognitive approaches; hence, iteration of more than one metaphor, paired with the practice of continuous re-orientation of matters of concern — supported by the iteration of designerly conversations — seem to be a viable mitigating strategy in these regards.

Continuing on this same note, **legibility** is a quality that links back to conventional understandings of evidence. The project-cases responding to this quality are few and this occurs by a specific motivation. Certainly legibility stands for the accessibility of the evidenced content. The artefacts — boards, tokens, visualisations — designed for both Umeå Climate Contract, the Declaration of Interdependence and Transformative skills successfully captured key content in alternative ways, with a specific care on making it accessible even after the process itself. However, in the case of Transformative skills, the final report is yet to be disseminated, since researchers would be interested in conducting additional iterations to collect a more comprehensive body of inputs to draw out findings and recommendations about the key skills to work (on) societal transformation. As such, Transformative skills has the potential to be delivering legible evidence. In this regard, in both the case of the Climate Contract *and* Transformative skills there was a concern in *crystallising* the state of the discussion table, to eventually go back to the whole dialogic process that led to that configuration. Techniques like taking pictures and recordings are sufficient in delivering a successful capturing. This didn't occur in the two KIS workshops, in which the co-created content has mostly gone lost.

The Bottle of Trust, again, makes a case on its own: its legibility is right before the eye of the giver, the receiver, the keeper; it can be accessed anytime, not cognitively — and I would read this as a strength of products and — more extensively — speculative artefacts, that is the strength of being legible by not tapping into text-based documents.

However, when text based, participants perceive evidence as more easily **actionable**. This is easily traced back into the Declaration of Interdependence, which has been integrated in a text-based report to be handed in to the EIT Culture & Creativity board. Despite the request of having a text-based report as main output of the mapping activities, the integration of a visual tool that would showcase the *context* of the mapped practices has been recognised as valuable source of information for further developments of the EIT C&C Strategic Agenda. Currently, the

Strategic Agenda is still in development; as such, we can confirm the tool's potential actionability as for now. On the other hand, the content co-created and captured in the Umeå Climate City Contract embodies fully the quality of actionability, merging it with different-as-usual content as subject of the evidence: the Landscapes of Interdependence have been used to articulate two possible trans-sectoral roadmaps, which would have been refined in further meetings with the municipality and involved/interested actors; thus, this project-case supports the argument that it is possible to capture contextualised information and render it actionable.

Lastly, **validation** of the evidence is key when it comes to such different-as-usual modes of capturing. By involving participants into the fist round sense making process that led to the design of the Declaration of Interdependence, participants not only had the chance to give feedback on it, but most importantly they felt part of the process, since they were asked to check if they would be resonating with the merging narrative and, if not, communicate what was missing and was to be integrated. When not invited in the sense making process carried out by external researchers, validation can occur directly within the collaborative practice: Umeå Climate Contract staged a process in which participants made sense and decided upon evidence that was co-created in that precise instance.

These are participatory ways to have validated evidence, which relates strongly with the main content that is to be captured to foster the shift in policy practices to work (on) systemic transformation: contextualised data and data about the context itself; the is what is also known as *warm data*, namely data about the interconnections and interdependences underlying the practices and the agencies a system makes and is made of. The qualities of capturing in design-driven practices transcend traditional documentation of audits and workshops; it embodies a systematic approach to harvesting rich, nuanced insights from the collaborative practice. Such a focus in capturing is pivotal in describing the system through a comprehensive narrative, that does not separate

elements from their context, cutting off their entanglements. Rather, it *stays* in the entanglements and describes them — or have the system describing itself —, enabling those subtle shifts in stances, perspectives, and attitudes that will attune participants to embracing the multifaceted dimensions of the matters of concern; thus, finally, informing collective decision making processes by staying with the context. In this sense, capturing is not simply an act of recording and extrapolating, but also an ongoing practice, where evidence to be built on and that will back decisions are *experienced, co-produced and co-validated,* in a way that the system itself is accountable and responsible for the substance of the newly crafted evidence.

5.2.3 On the qualities of infrastructuring

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

- How do applied cases relate to each other? What are the common grounds? What are the discrepancies?

Sense making processes and decision making ones, combined and reiterated, make up learning communities. In Chapter 3 I identified in "infrastructuring" the essential working notion for design and policy to intertwine into, especially when it comes to address the gaps and distances the policy cycle is currently in need to tackle.
Now, it is relevant to consider that the notion of infrastructuring is part of a lively debate, especially in co-design, participatory design and design for public interest discourses. In this sense, the applied project-cases this research engaged with might contribute not only in articulating ways for

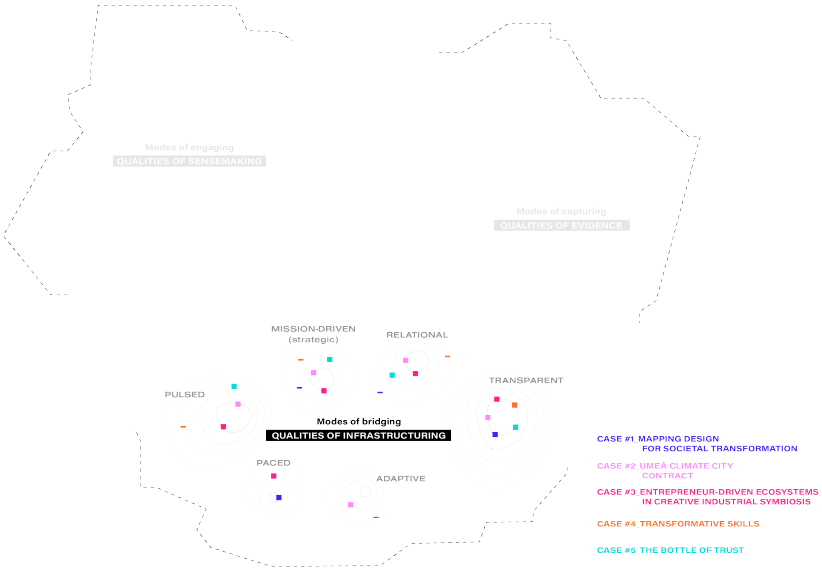


Figure 5.5 Qualities of infrastructuring displayed in the three-lens compass model. Original tool and visualisation by Coppola (2024).

trans-disciplinary intertwining between design and policy, but also — and more broadly — contribute to the discourse on infrastructuring as a process resulting from certain design practices that address collaborative endeavours.

Differently from the two previous experimental areas, the applied project-cases engage in modes of infrastructuring along a varied range: some of them addressed it explicitly, others touched it as a byproduct, and others hold the potential of addressing it, but, at the current state, they score as "dormant".

By taking a glance to the qualities that I could draw out by comparing the applied cases, we understand that infrastructuring has to do with the establishment of a set of relationships of knowledge exchange between involved actors; more specifically infrastructuring emerges from the establishment of sense making — engagement and consultation — and decision making — capturing and co-producing evidence — exchange among involved actors. These relationships, when iterated, result in the consolidation of learning communities, *networks of interplay* in which participants engage in the exchange of ways to work (on) systemic transformation. This is strongly echoing what Trotto & Hummels (2023) frame as design's contribution in *making things possible*: not only design promotes knowledge brokering; it is brokering of practical knowledge, on how to *make* things possible together, on how to concretely work (on) systemic transformation.

Qualities like **strategic** — better framed in being "mission-driven", to build on Hill (2022) — and **adaptive**, speak of interplays that are nurtured by a shared long-term objective. It can be embodied in a common issue to be addressed, as in the Umeå Climate City Contract, in which the challenge to achieve climate neutrality by 2023 along not only quantitative efficiency, but most importantly qualitative — societal — impact brought together local "players" to craft trans-sectoral roadmaps of change, that tells about their recognition of practicing sustainability as a a system, through a trans-sectoral endeavour; starting trans-sectoral roadmaps in some account tells about a commitment to the Landscapes

of Interdependences, since those actors will be start interacting and exchanging knowledge and practices to make that roadmap actionable — to work (on) it. A similar aspect can be traced in the two workshops of KIS: despite the broader aim of the program — nurturing a nordic industrial ecosystems leveraging on creative industries — the two workshops were strategic in the sense that they brought together creative "players" that were not aware of the expertise of each other; by building on the narrative of belonging and discovering the entanglements they were actually immersed in, the first workshop in particular had participants co-shaping a long-term narrative, one that could go beyond the KIS program itself, and spark spill-over partnerships. Here, we are addressing a key dimension in the infrastructuring discourse: time. All the project-cases unfold in a specific timeframe, that certainly is derived from the projects or programs' original setting. However, the missions these projects or programs aim to contribute to are located far more distant in the future, exceeding the projects' timeframe.

This is the motivation supporting the Transformative Skills positioning as well as the mapping activity on the contours describing the strategic quality: they both are yet to be iterated; particularly, Transformative Skills — at the present time — is not embedded systematically in broader programs, with the risk of it being framed as an "acuputural" intervention; as for the mapping activity — with particular regards to the Declaration of Interdependence —, it set out the preconditions for the establishment of a community of practice holding expertise in designing for societal transformation, but the mapping as a research initiative itself has ended, leaving that community of practice in search for channels of interplay to be set out anew. The risk of losing grip on the potential communities sparking from collaborative practices informed by long-term missions is high: that is the reason why the Bottle of Trust scores as strategic and contributes to infrastructuring, since it introduces a form of "embodied rituality", through which all these large-scale endeavours are occasionally put to the ground, observed, appreciated, celebrated. The Bottle of Trust

holds the potential of establishing a designerly good practice to keep the interplays nurtured, and the mission focused.
The Bottle of Trust works as a "temporal technology", something that gives tangibility and rhythm to such long-termed endeavours, raising sensitivity on long-termed horizons: **paced** and **pulsed** refer to how the process has been designed, in matters of reaching out to the involved actors and having them know about the key takeaways from previous steps and what — and when — will happen the next steps. This is easily achieved through communication channels with involved participants, and both the mapping activity as well as the KIS program have been designed as journeys with pitstops, witch each pitstop or phase being anticipated and reminded to keep the engagement: content from key takeaways has been handed in as a way to return the efforts of participants, so that they could see — and use — the results of those efforts. Here, **pulsed**, is a particularly curious quality: it stands for processes that have been needing the contribution of design to kick them off. This is relevant for the research, in a twofold sense:
_ design has been acknowledged to have the expertise to untie the tangle and start staging a *re-orienting conversation*; one that would heal existing frictions; raise systemic awareness; invite alternative sensitivities to think the issue with; boosts or breaks patterns; boosts or breaks comfort zones; have perspectives being blended in or standing out.
_ based on the applied project-cases, decision makers seem to be interested in tapping into design's expertise only at the kick-starting phase; as a consequence, access to the whole process is limited — as in KIS —, with the vision of coherence blurring in the background; this can be also described as a compartmentalisation of design's role, one that is to be tapped into in specific — starting — steps of longer programs. In KIS this has been the result of management priorities, which, notwithstanding their value, ended in dismissing the overarching possibility to set the innovation journey not only as a cradle for twenty sustainable business ideas, but most importantly as a learning community holding on the

infrastructuring effort that was supposed to be — additionally — made as long as the program was running.

It is quite straightforward to understand the value of being **relational** as a key quality in infrastructuring: as raised by Dan Hill — see Chapter 3 — if missions are multilayered settings keeping in connection grand challenges with the concrete effort to gather trans-sectoral actors and have them dialoguing from different a*ngles,* namely the leverage points of the system, then the quality of being relational is a key working principle when designing processes of continuos-orientation of points of views, which need to be constantly assessed and transformed. This can be seen in the shifts in perspectives registered in Umeå Climate Contract and in KIS; while in the mapping activity and in the Transformative Skills workshop were laid the foundations for conversations to be re-iterated, but, as of timeframe, they didn't occur yet. An additional and critical point of reflection in this regards is embodied in the actual limited timeframe this research sparks from — three-year doctoral research — that certainly misaligns with the wider span of such long-termed endeavours. Thus, it is relevant to keep in mind that all of the findings and insights of this work are inscribed in the structural timeframe that the research actually allows.

With **transparency** as the last quality, we can see how opening-up the whole process, — even how it will work and where it will get participants into — is key to nurture infrastructuring endeavours: having participants perceiving and knowing the matters they are moving into and their boundaries fosters a more engaged stance, one that connects to the sense of co-responsibility of the collective process one is going to step into and work on. Transparency of intentions as well as transparency of the thinking behind the process can be also embodied in the co-validated evidence, for instance, since they have been co-produced after taking part to co-sense making sessions.

5.3 A set of (aesthetic) qualities for design and policy as a trans-disciplinary field for collaborative practices

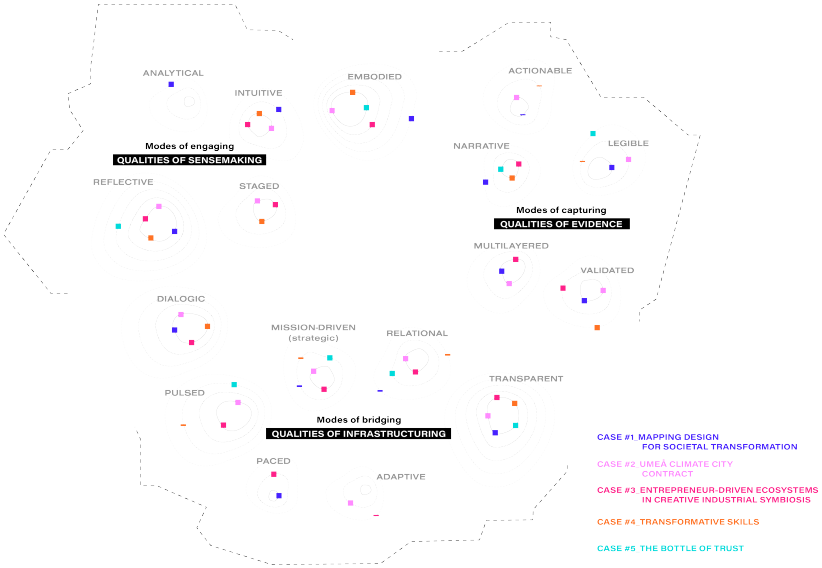


Figure 5.6 Overview of the (aesthetic) qualities underpinning design-driven trans-sectoral practices to achieve systemic transformation. Original tool and visualisation by Coppola (2024).

The three-lens compass allowed a first comparison of the applied project-cases. Building on the notion of aesthetic qualities, the compass highlighted the key qualities that both connotate design's distinctive contribution to trans-sectoral collaborative practices and, in turn, identify the key toggles and handles onto which design unleashes its "expert grip". These qualities refer to sense-making, capturing and infrastructuring processes, namely the areas of experimentation that this research identified as starting working areas for design and policy to intervene and develop trans—disciplinary practices, in light of their common commitment to work (on) systemic transformation.

On one side, designers may tap into the model to look for qualities to be worked on in multi-stakeholder practices.
This speaks of the aesthetic feature of these qualities, and, more broadly, of the relevance of aesthetics as a working disciplinary field that design taps into and *practices* it. The notion of aesthetic qualities supported me in extrapolating the common coordinates and — to some degree — discrepancies underpinning the applied project-cases, inviting a practical perspective for such endeavours to be reflected upon. This contributes to enriching not only the discourse on the aesthetic expertise that designers have the capability to unleash; it also supports a growing sensitivity towards aesthetics and — particularly — the practice of aesthetic engagement as a viable and valuable strategy to be tapped into when there is the need to *touch* socio-material arrangements and elicit a given response in them. Aesthetic qualities truly embody the toggles and handles that, when played out, work as the gates to get in touch with the sensible layer of reality. Here, both design and policy as disciplinary fields holding a "special grip" on socio-material arrangements, can grow as a trans-disciplinary field by taking aesthetic qualities of trans-sectoral collaborative practices as the starting, practical standpoint.
As such, on the other side, decision makers can tap into the three-lens compass to engage with alternative notions of aesthetics, embracing the practical possibilities they entail: through this such a set of (aesthetic) qualities, decision-makers can understand policy's own grip on socio-matieral arrangements. Ultimately, the model might raise a trans-disciplinary sensitivity on *thinking and practicing with aesthetics,* framed as a practical body of knowledge to be tapped into to shape processes of systemic transformation, namely processes of tuning-in collective efforts in long-term horizons.
I already pinpointed how aesthetic engagement is conventionally referred to as a way to express "attention to details" in regards of a visual — or, more broadly, experiential — pleasure or discomfort. However, design — as in this work, that builds on Designing for TP approach — taps into aesthetics, since it provides the strategy to

"enable people to make sense of complex situations, to spark people's imagination, and to subtly opening them up to the yet unimaginable, thus nurturing the development of alternative practices and paradigms" (Hummels & Lèvy, 2021).

In the turbulent, multiple-voiced dialogues underneath processes of sense making, capturing, and infrastructuring — that are the processes corresponding to the main areas to be addressed for design and policy to work (on) systemic transformation together — aesthetic qualities ground the ubiquitous complexity underpinning socio-material arrangements, providing actionable toggles and handles to *touch* complexity.
In fact, the notion of "quality" in "aesthetic qualities" is, in itself, raising a central point to this work. The need to shift from paradigms of quantity to paradigms of quality is essentially a request for approaches and perspectives by which individuals and organisations, systems and ecosystems may enter a different — qualitative — sphere; in collective, multi-stakeholder, multi-interest, trans-sectoral collaborative endeavours aiming at systemic transformation this isn't to do with "how many" relationships a collaborative practice is able to spark; rather, it is about "what *kind* of" relationships do they foster; it is a shift in inquiry about the *quality* of them.

"A sustainable society would be interested in qualitative co-development, not physical expansion" (Meadows et al., 2018).

Disciplinary fields that have a grip on socio-material arrangements are in search for renewed perspectives, that would come with renewed language and vocabulary to address, speak of and handle the lively matter of quality in qualitative co-development. Design does.
Design understand socio-material arrangements as assemblages that can be worked on by entering a "relationship of craft" with the vibrant matter of everyday life: it is in aesthetic qualities that socio-material arrangements condense, their entanglements make themselves present. As such, they can be *accessed*, they can be *touched*, they can be *tingled*;

in turn, they will respond by delivering the experience of a certain atmosphere, by talking to our sense of precise stories — hopefully, stories of beauty, desirability, and collective thriving. Through aesthetic qualities we can *shape* those stories, stories that will eventually shape ourselves in turn.
Ultimately, we are all immersed in an ongoing, ever-unfolding process of becoming, development — more than growth —, and we do that together.

> "The task is to become capable, with each other in all of our bumptious kinds, of response" (Haraway, 2016).

To become more capable of responding — and co-responding — we need to work (on) systemic transformation, shifting perspectives, stances, and modes of being engaged in complex challenges. The three-lens compass model, with all its qualities displayed, proposes areas of trans-disciplinary practices for disciplines holding a grip on socio-material arrangements to interplay, merge, catalyse. Each of the model's areas speak of a specific activity that is needed in both design and policy endeavours to nurture capabilities to embrace and navigate complexity. Paired with the set of qualities drawn from project-cases, I saw that an overarching direction could have been formulated for each of the areas; in other words, I saw a connection between qualities and the scope of each areas that, if formulated, could contribute in developing even further the challenges — and aims — of each area. As such, I will provide here the "renewed formulations" of those areas, formulations that may be considered as a working definitions contributing to the establishment of a trans-disciplinary body of practical knowledge.

_ **qualities of sense making nurture continuous re-orienting practices in modes of engagement**. Aesthetic qualities foster the interplay between the inner perspective and the external conversation, providing coordinates to design dialogues where continuous re-orientation is not only about recognising and empathising with other

points of view; it is also about accepting the standpoints of the most intimate perspectives and inviting them to the discussion. Through aesthetic qualities it is possible to design artefacts that welcome the more rational *understanding* as well as the more intuitive *grasping:* we can lean on artifacts that are open, non-fixed, non-boxed, that allow the flow of perspectives to play around, encounter others and intertwine, sparking *unexpected* meanings and findings. As long as participants engage with artefacts fostering the ongoing dialogue *in* the self and in-*between* the others, they might ultimately train the muscle of intuition, with the possibility to tap into it for more reflectively informed practices.

_ qualities of capturing elicit practices of collective appropriation in modes of evidencing. Aesthetic qualities provide coordinates to design artefacts that are open enough to be collectively appropriated, that is way through which participants of a collaborative practice can approach the artefact from their own perspective, make sense of it, and *tilt, bend, use* it in accordance to their view — including each one. Through these qualities designed artefacts elicit and collect co-produced knowledge, capturing both its articulated and its nuanced, more subtle forms.
This supports the collection of evidence as soon as it emerges, looking at participants as stewardships of the overarching narrative by which that encounter of lives, expertise and aspirations can be portrayed as a system. Certainly, different participants will craft different evidence and systemic portraits. And it is right into this non-fixed character that participants can train their systemic sensitivity and transform.

_ qualities of infrastructuring foster practices of mutual (un)learning in modes of bridging and scaffolding. Tapping into aesthetic qualities is a way to enact aesthetic engagement. Aesthetic engagement is about being present with both the mind *and* the body to (*make*) *sense (of) the matters of concern out of the exchange and bridging of different perspectives and reflections surrounding it*. It is a dialogical endeavour that calls for a specific setting, a sort of infrastructure, onto which

collaborative practices might *cling on* and *climb*. These are the "scaffolds" onto which collaborative practices can be staged and performed — in the sense of being enacted. Under this perspectives, infrastructuring processes aim at establishing practices of exchange in a given time, with a given rhythm, turning out as strategic "key points", where participants can tune different streams to the same flow. In fact, they can be experienced by participants involved in systemic transformation endeavours as moments to stop by and appreciate the transformation of both their own practices and of their collective practices, sharing reflections on what changed or shifted and how those changes would inform next iterations of making sense and design together on a given matter of concern. As such, in infrastructuring processes participants are engaged in and committed to practical and organisational knowledge brokering, nurturing processes of mutual (un)learning according to emerging trans-disciplinary discourses.

These insights all inform and enrich the framing of the three key areas of experimentation, contributing to an integrative — and hopefully working — formulation of the broader principle of **co-development**, the ongoing process of qualitative growth, that is about

> "noticing each other, learning the common game, finding a common language and learning new competencies (knowledge, skills and attitude)" (Trotto et al., 2021).

STEP 3_ WHAT THIS CHAPTER SET OUT

This chapter delved into the methodology and tools necessary for understanding and fostering systemic transformation through design -driven collaborative practices. The chapter introduces the "three-lens compass" model, which aids in making sense of applied project-cases by focusing on the qualities underpinning three main dimensions that make-up collaborative practices: sense-making, capturing evidence, and infrastructuring. These dimensions are explored through the examination of project cases, emphasising the importance of aesthetic qualities in eliciting engagement and facilitating reflection.

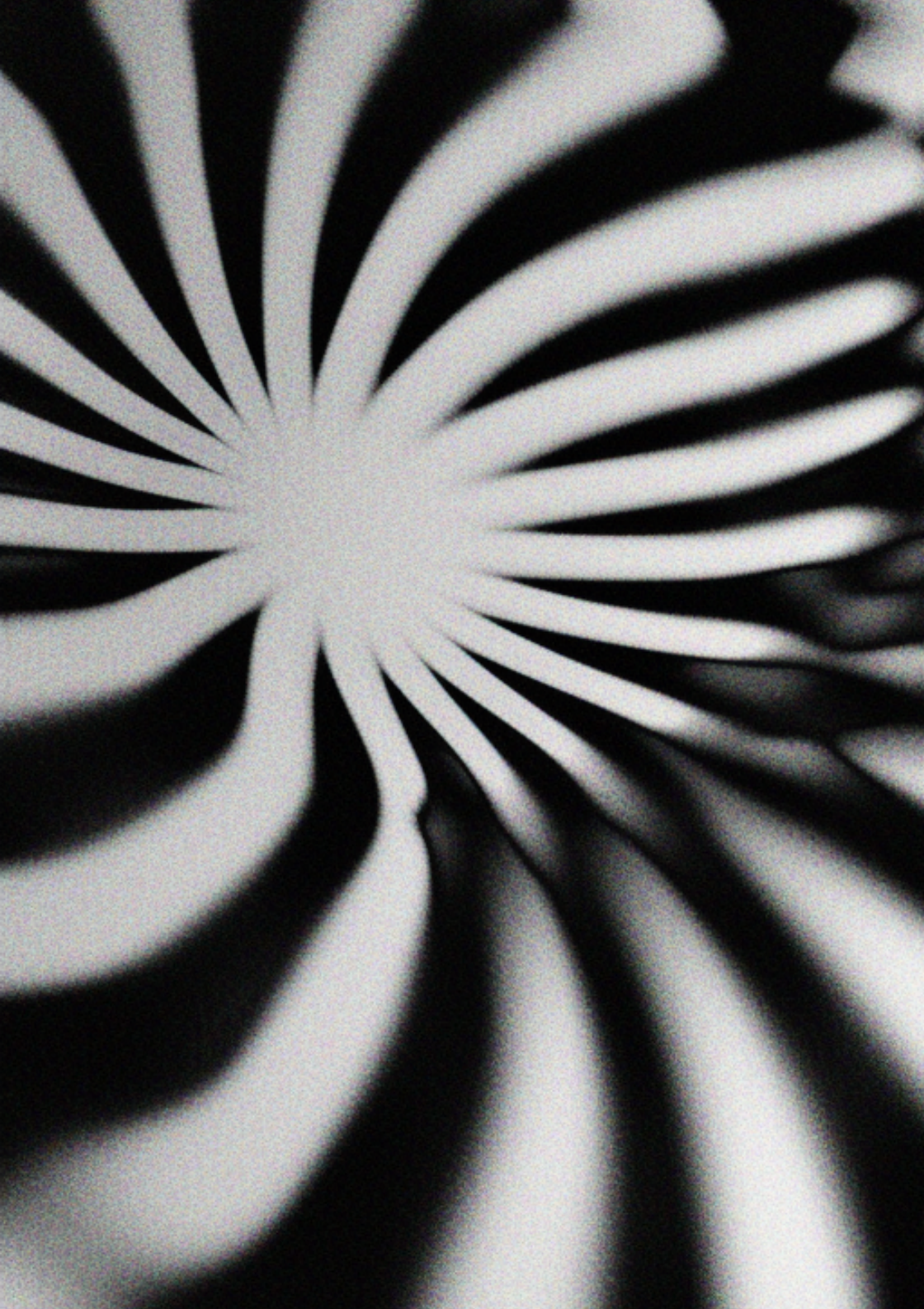
Building on the highlighted qualities, the chapter provides refined working definitions to design trans-disciplinary collaborative practices along a quality-focused approach:

Qualities of Sense Making: These qualities nurture continuous re-orienting practices in modes of engagement, fostering both individual and collective reflective practices through aesthetic engagement.

Qualities of Capturing: These qualities elicit practices of collective appropriation in modes of evidencing, enabling participants to co-create and validate evidence that is contextually rich and actionable.

Qualities of Infrastructuring: These qualities foster practices of mutual (un)learning in modes of bridging and scaffolding, supporting the establishment of strategic key points for ongoing collaboration and knowledge exchange.

The chapter highlights the key role of aesthetic qualities in these processes, proposing them as essential working notions for engaging with and navigating the complexities of systemic transformation through design. The ultimate goal is to integrate design and policy practices, creating a trans-disciplinary framework that builds on aesthetic literacy to work with(in) socio-material arrangements.



STEP 4_

NOTICING

STEP 4_ WHAT THIS CHAPTER IS ABOUT

This chapter explores the emergent themes of trust and systemic transformation within trans-sectoral collaboration.

It examines how design practices can foster collective thriving, highlighting the dynamic interplay of project qualities and the importance of purpose-driven frameworks.

By harvesting all the insights discussed so far, the chapter formulates a final approach to be further tested out and developed.

Through the lens of trust and aesthetic engagement, the chapter delves into designing scaffoldings, a practice aiming at creating environments that support continuous learning in systemic collaboration.

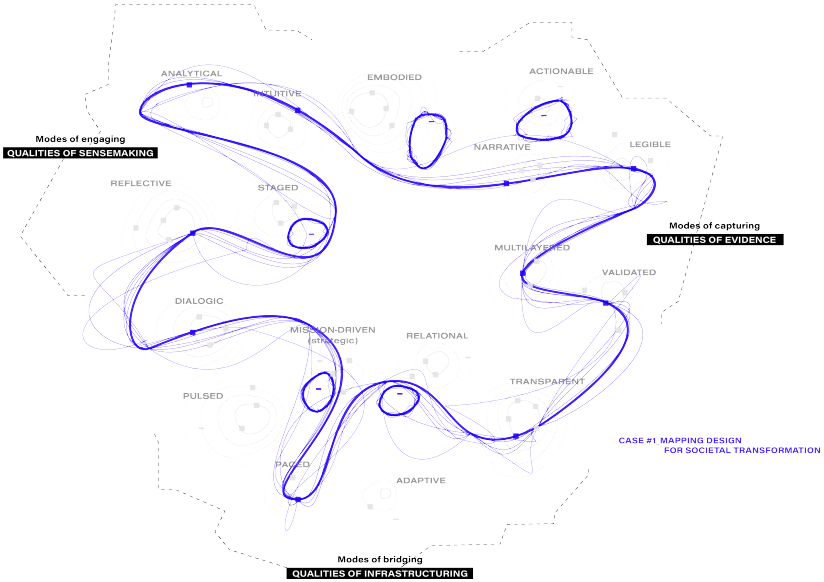
6. The Shapes of Trust

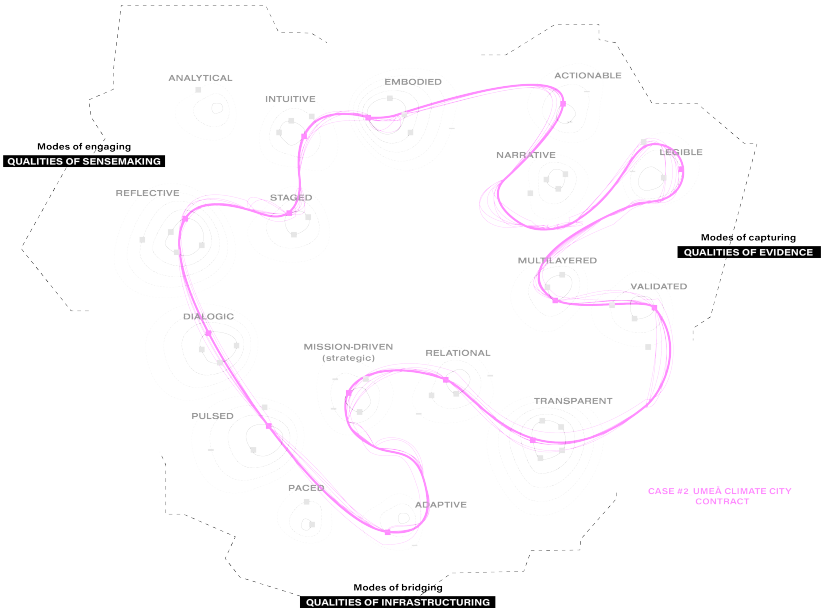
6.1 On harvesting emerging patterns

_RQ3__ What emerging insights occur when comparing design practices to foster trans-sectoral collaboration aiming at collective thriving?

- What emerging findings relevant to working (on) systemic transformation does a further reflection invite?

Insights shared so far are the results of a stratification of reflections elicited by a logic of discreteness, namely the tendency of taking the parts of a whole, to understand it.
Key qualities displayed spotlighted in the three-lens compass model provide trans-sectoral collaborative practice with a set of properties to be worked with to elicit systemic transformation. However, what if the qualities connoting each applied project-case are connected and portrayed through lines? *What emergent patterns can be harvested?*


ANALYTICAL
INTUITIVE
EMBODIED
ACTIONABLE
NARRATIVE
LEGIBLE
Modes of engaging
QUALITIES OF SENSEMAKING
REFLECTIVE
STAGED
Modes of capturing
QUALITIES OF EVIDENCE
MULTILAYERED
VALIDATED
DIALOGIC
MISSION-DRIVEN
(strategic)
RELATIONAL
TRANSPARENT
PULSED
PACED
ADAPTIVE
Modes of bridging
QUALITIES OF INFRASTRUCTURING
CASE #1 MAPPING DESIGN
FOR SOCIETAL TRANSFORMATION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Modes of capturing
QUALITIES OF EVIDENCE
MULTILAYERED
VALIDATED
DIALOGIC
MISSION-DRIVEN
(strategic)
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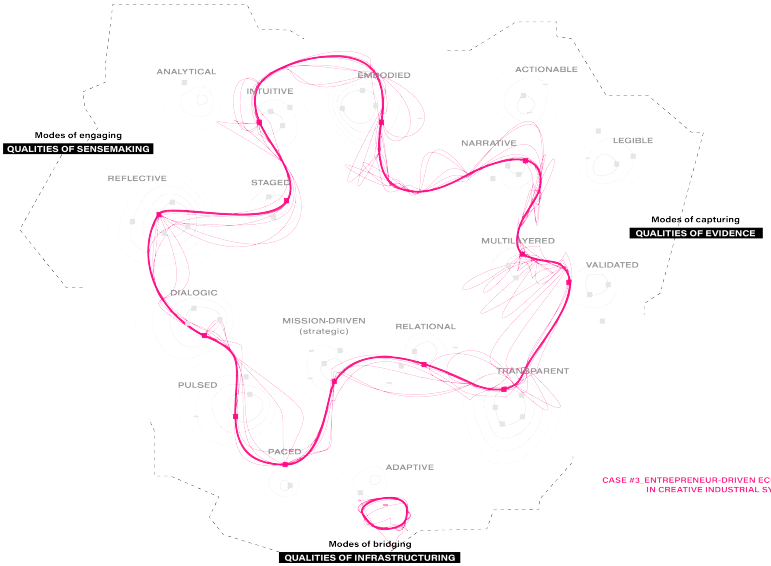
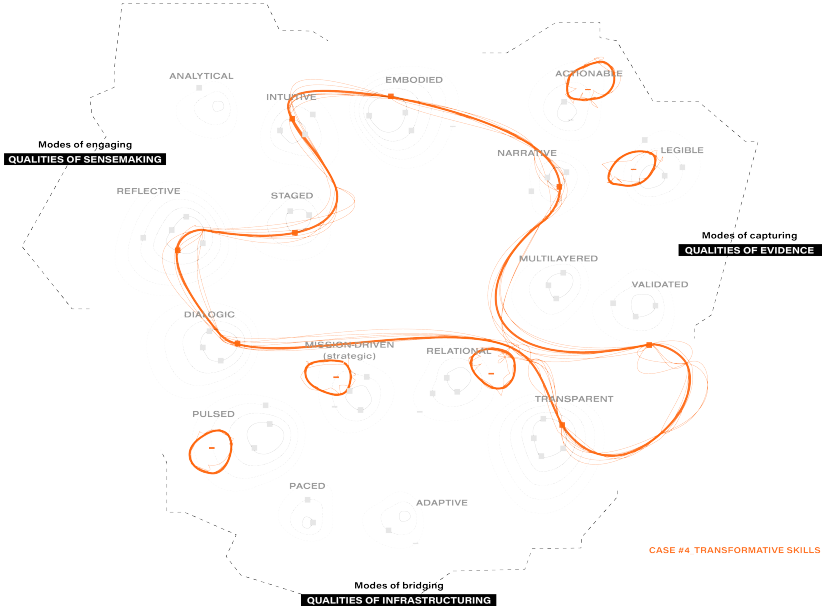
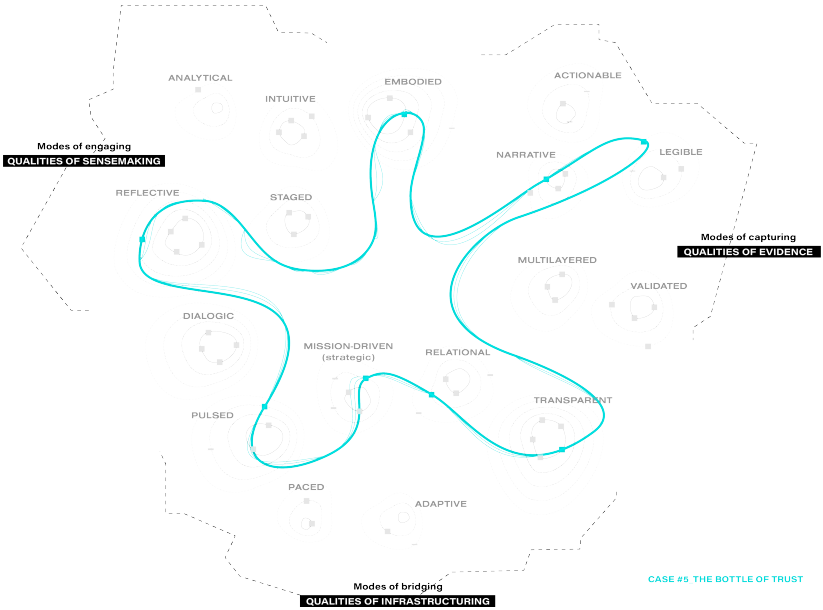
Modes of bridging
QUALITIES OF INFRASTRUCTURING
CASE #2 UMEÅ CLIMATE CITY
CONTRACT



CASE #3 ENTREPRENEUR-DRIVEN ECOSYSTEMS
IN CREATIVE INDUSTRIAL SYMBIOSIS



CASE #4 TRANSFORMATIVE SKILLS



Visualising the applied project-cases through lines is a deliberate designerly strategy to frame them as *pathways of transformation*, capturing the dynamic and evolving nature of the processes and practices they started and have been started by.

Each line *touches* a specific set of qualities, telling a specific narrative not only of the project, but also of the area of reference that a certain group of qualities responds to.

As such, I questioned the project-cases' lines to *notice* and *grasp the unsung narratives* — or patterns — that lines bring to the surface.

> "However, in a world populated by 'not yet' or aspirant beings whose humanity is, so to speak, continually under construction in the crucible of their common life, there is no separating the doer from the deed or the thinker from the thought. Agency has yet to fall out from action, and intentionality from consciousness. There are no 'subjects' as such, nor, correspondingly, are there 'objects'.
> So what are there? There are lines, and […] the grammatical form they take is not of nouns or pronouns, but of verbs.
> This is a world not of anthropomorphism but of anthropogenesis"
> (Ingold,2016).

Following Ingold's poetry, I drew lines that would tell the story of the project-cases, narrated through the qualities each touched upon. The thicker line was the first one I traced, and was supposed to be the subject of the story. However, I soon after realised that something was missing. I was taking people away form the story; more specifically, I was zooming out so much that the whole mesh of intimate turbulence of thoughts, intuitions, and perceptions merging into collective, affective reflections was going unseen.

By connecting qualities with lines I was interested in having an overview over qualities. Those qualities, taken together, make up a whole, that is greater of the sum of its parts — to say it with system thinkers. Those qualities co-respond to each other, building up the story of a meshwork: at times *focused* and *engaged*, at other times *lost* and *disengaged*; at times *inspired* and *open*, at other times *itching* and *questioning*.

All those lines represent people that were all present and attentive. Joining something way bigger than themselves, and willing to step into it together. That is why there are no *nets* of connections in those representations; rather, there are *meshworks* of *lines that attend to one another, venturing into complexity through pathways to practice collectively continuous re-orientation, appropriation, and mutual (un)learning*. Their experience of these processes went through specific qualities, that brought the ephemeral character of systemic transformation into the sensible layer of reality, to be attended together.

> "Interaction is between; correspondence in-between. The life of lines is a process of correspondence. Thus for the between-ness of subjects, in Arendt's formulation, I substitute the correspondence of lines, and for the web of human relationships, the meshwork. […] I believe that it has the potential to trans- form our approach to the study of social life in all its traditional subfields: […] it can change the ways we value and purpose our work, and the responsibilities that attach to it" (Ingold, 2016).

6.2 On trust as an emerging response

Continuing on Ingold's poetry of lines, I am thinking of the endeavours of working with(in) socio-material arrangements to work (on) systemic transformation as activities resonating with tying, or knotting lines. In fact, the way qualities end up in being connected — tied and knotted together — compose the narrative underneath the trans-sectoral collaborative practices undertaken in a specific project-case: for example, thanks to the high engagement in sense making and capturing activities revolving around the Declaration of Interdependence, I could draw quite similar lines, since they were following the same path of transformation; in KIS I drew some turbulence in lines, since the process had its peculiar criticalities in correspondence of certain key qualities; in Umeå Climate Contract lines were almost flowing harmoniously, just as in Transformative Skills.

All the lines, taken together, tell a bigger story: a story of different perspectives and sensitivities stepping into complexity together: this means putting oneself in the discomfort of stepping into unknown unknowns, and doing it with other unknown actors, working I far distant disciplinary silos from the ones one is used to think with and practice by. There has been a moment, in the project-cases I took part, that seem to bring them all together: at the very beginning of each trans-sectorial collaborative practice, participants felt like they were supposed to take a a "leap of faith" to get challenges so ambitious being addressed. Such a feeling created the very first frictions, by which participants were drawing their kick-off stance to step into the process. When I was designing the processes, I was aware of such a stance; at some point I was introduced, together with project supervisors and researchers, with briefs that were prioritising trust building.

The question came right along: how might we design to build trust? Shortly, we didn't.

As supported by the conceptual and practical framework we were building on — included this work's frameworks —, trust can be strengthened, nurtured, infused with unexpected inspirations and

aspirations; however, there is not a recipe or an approach that would lead to the intentional building of trust. As I explained in the first chapters of this dissertation, I came to build a conceptual framework that stems from systems thinking and that acknowledges the need to have internal transformation going hand in hand with external transformation; particularly, I refer to the strand of system studies that does not stem from cybernetics; rather, I am building on the biology of living systems. By tapping into Orr's Intelligence of Life (2002), I trained myself — and I will still be training for a lifetime — into thinking with systems as living entities, expressions of wholeness that move on certain timescales and layers of reality. Here, I encountered emergence, the process by which systems (co)respond to given stimuli.

Equipped with such a background, the request of building trust by intention was difficult to grasp: to me, trust is an emergent property of systems; particularly it is the emergent property of systems co-responding on collective thriving. From this perspective, trust can be better framed as an unintentional outcome, something that can be worked on only once it came to be present: to frame trust as an emergent quality implies looking for the spontaneous, immediate qualities of trust. Just like other emergent qualities, trust is a lived experience, something profound that connects the self and projects it towards the other, the unknown; as a lived experience, trust cannot be planned for or be part of any strategy. Hence, the trouble remains: *how to make trust present? How to invite the leap of faith?*

By building on the notions, insights, and findings harvested so far, I can see how trust cannot be *built*, but can certainly be whispered to.

Just as interdependence is to be *grasped* more than being understood (Stengers, 2020), trust is channeled through one's own lived experiences, where, at some point, under *deliberate invitations* (Bennett, 2001), elicited by the *qualities* of the surroundings, one is *open* and hand themselves over the ones they trust. In this sense, trust involves accepting one's vulnerability to others, willingly placing oneself in their

hands to some extent. Therefore, to encourage trust is to encourage a kind of vulnerability.

> "Trust might be the unavoidable condition that allows this openness to relation and […]immanent risk"
> (de la Bellacasa, 2017).

Trust is risky, uncertain, and ambiguous, and vulnerability is the inescapable precondition for deeper commitment and involvement. As such, to be (aesthetically) engaged means to *feel exposed* to the wickedness of contemporary challenges. Trust is, indeed, a gift of exposure. However, such challenges are not to be faced alone, in isolation. One can and should "stay with the trouble" together with others, the others with which shares the layers of co-existence (Haraway, 2016).

The lines of the three-lens compass model tell the story of entangling perspectives, of co-created decisions, of knowledge brokering and constant reflections sharing. These lines, despite their apparent wandering, eventually meet into specific (aesthetic) qualities, the key points that bring the elusive intangibility of collaboration and systemic-scaled transformative endeavours to the ground, making them touchable, experienceable, collectively. Those key points are the gates through which trust is whispered to: the design of an aesthetic engagement is the design of the conditions to transparent, relational, co-response-able, and dialogical conversations.

There, trust emerges. More than a response, trust is in the hands that guide the pen when each one traces one's own line. The Shapes of Trust are the emerging portraits of people's trusting endeavour, woven together by a greater sense of purpose, that can be experienced by designing collaborative practices along a specific set of aesthetic qualities, so to elicit aesthetic engagement and embodied participation.

Here, just like *form follows function,* **the Shapes of Trust *follow* trans-sectoral collaborative practices that are**:
_ **dialogical, staged, intuitive, embodied, reflective** to nurture continuous re-orienting practices in modes of engagement and *transform sense making practices;*
_ **multi-layered, co-validated, legible, narrative, actionable** to elicit practices of collective appropriation in modes of capturing and *transform evidencing practices;*
_ **strategic/mission-driven, relational, transparent, paced, pulsed,** adaptive to foster practices of mutual (un)learning in modes of bridging and *transform infrastructuring practices.*

6.3 On weaving scaffolds for trans-sectoral collaborative practices

Collective thriving is the axiological standpoint inspiring this research. Collective thriving embodies the shift from quantitative growth to qualitative co-development: namely, the recognition of the entanglements in which beings and things are immersed in, mutually shaping each other, *and* the acknowledgement of each agents' drive to achieve their potential — as a feature of a "complete" existence — , framed as an ever-unfolding dialogue with the system's own potential — as a feature of "complete" co-existences.
In collective thriving, two dimensions are essential: personal wholeness and togetherness; the authenticity of being and the communal coherence.
Collective thriving intercepts the need to *transform* current practices of making sense of the world and deciding upon it, to guide socio-material arrangements towards a more full, flourishing response. Transformation, here, should be practiced on two levels, so that they can intertwine and affect, combined, a third layer:

_transformation needs to occur on the outside, i.e. by shifting ways of producing and consuming; of acting in and affecting the world.
_ transformation needs to occur on the inside, i.e. by shifting mental models, ways of thinking, being in and make sense of the world.
While the first one is easily addressed, the second one is just starting to be part of research agendas — with policy discourse falling right behind.
The combination of changing perspectives — and practices — about *being* and *realising* systemic transformation disclose shifted perspectives — and practices — to *work* (on) systemic transformation.
This work has presented five applied-project cases, all stemming from the need to establish trans-sectoral collaborative practices to address long-termed, grand-challenges. These practices have been mainly about supporting different kinds of actors — public sector, industries coming from diverse sectors, policymakers, researchers and experts in different areas — in coming together around the same *mission* and find ways to:
_step into the complexity, uncertainty and ambiguity of a long-termed transformative endeavour;
_step into a trans-sectoral conversation and collaborative endeavour.
These steps bring in two major frictions:
_the lacking systemic sensitivity and the poor maturity in navigating complexity;
_the lacking of transversal skills and capabilities to move horizontally, rather then vertically, deep within siloes.

How do we collaborate, then?
This work took a designerly perspective on this, venturing into on-field practices to spotlight design's distinctive contributions into *touching* those frictions and eliciting shifts in perspectives and practices in policymaking, to encourage a trans-disciplinary field where design and policy might intertwine and establish as a "third-place field".
What this work has been bringing to the fore is the design can contribute by enabling purpose-driven scaffoldings for trans-sectoral collaborative

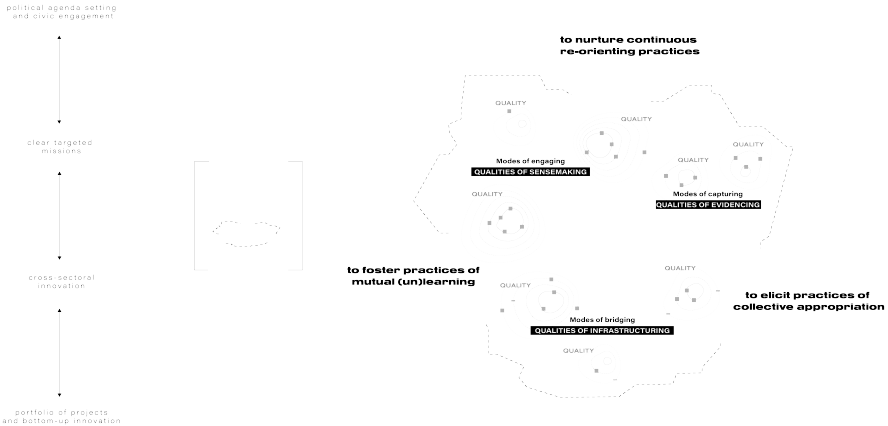


Figure 6.3.1 Weaving scaffolds for trans-sectorial collaborative practices.
Original model by Coppola (2024), compared with the layers of mission-driven frameworks by Hill (2022).

practices to *cling* on and unfold, aiming at affecting socio-material arrangements along the aspirations of a collective thriving agenda.
Within the mission-driven framework, systemic transformation occurs on different layers, embodied by the different scales through which missions mobilise trans-sectoral partnerships to be operationalised and worked on. As the original model shows, these layers are connected by interactions that either follow bottom-up or top-down streams; it is a *vertical* movement. Here, I introduce the notion of *weaving scaffolds*, to address the need to move along *non-linear* streams. **Weaving scaffolds is the practice of initiating and taking care of meta-reflective conversations about the ecosystem**.
Through lines, weaving scaffolds aims at establishing trans-sectoral co-developing communities, by narrating:
_the journey: *what does the journey is looking like?*
_the meshwork: *what holds us together? What is loosening the knots?*
_ qualities*: how do we journey together?*
_the rhythm: *how do we navigate time — how do we connect (regularly)?*
Lines, as they go through qualities, describe the meta-streams of aspirations, practices, strategies, knowledge, efforts.; it is a way for the ecosystem to perceive itself in a portrait about what makes it alive and

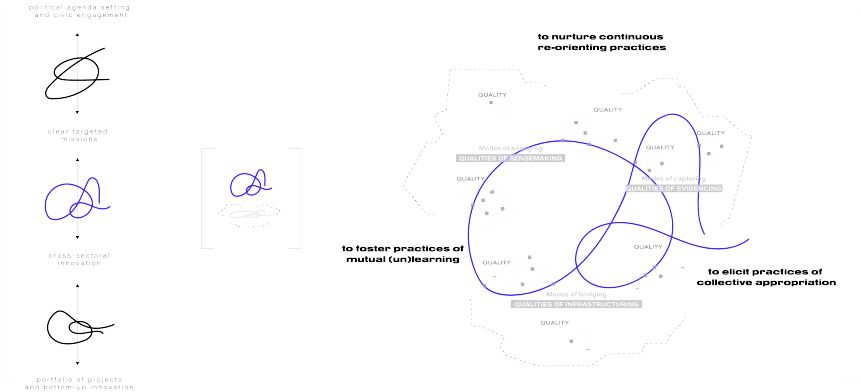


Figure 6.3.2 Weaving scaffolds for trans-sectorial collaborative practices.
Applied example. Original model by Coppola (2024), compared with the layers of mission-driven frameworks by Hill (2022).

capable of emergent responses; it is the portrait of systemic co-response-ability and interdependence.

As such, the model builds on the notion of weaving scaffolds for trans-sectoral collaboration to deliver a clear image of the messiness and ambiguity underpinning mission-driven endeavours.

Sparking from purpose-driven endeavours, woven scaffolds provide layers of missions' operationalisations with open-ended spaces — or moments — to communicate, coordinate, train: in other words, they provide actors and activated scales with visualisations to raise and fine-tune the systemic sensitivity behind their daily endeavours.

Through woven scaffolds the actors involved in the temporary ecosystem gathering around a given mission — and, more precisely, a bigger-scoped *purpose* — can look at their own practices as both a facet of the system and as embodying the system itself. The model invites two main reflections:

_ **weaving scaffolds nurtures the interdependency of endeavours aiming at systemic transformation, while keeping them in dialogue through a shared purpose**, which, in turn, keeps missions focused. Scaffolds can be looked at as configurations of partnership-leaderships that are temporarily established to collaborate on systemic-scaled collaborative endeavours. These configurations can overlap, merge, or

collapse into each other, since the endeavours aiming at systemic transformation are manifold and plural. On such a blurred background, involved actors cling on a clearly formulated *purpose* as a guiding pathway: purpose is a powerful "artefact" that speaks of the *imaginative drive* of a system, its aspirations and concerns; a shared purpose is a collective commitment to a vision. In this sense, purpose provides decision makers — both in public, private sectors as well as civil society — with the stances to step into the entangled and messy tangle of endeavours aiming at systemic transformation.Purpose formulation builds on perspectives bridging and systemic sensitivity, which elicit the recognition of the multiplicity of voices that can add depth to that specific aspiration and mission, informing it with the political and plural dimensions they are going to affect. As such, purpose calls for proximity to *engage the disengaged* and *enchant the disenchanted*: it is highly contextual, situated and, as such, better *grasped* than understood. Here, design contributes along its expertise in staging modes of aesthetic engagement to elicit — and shift — modes of thinking, making sense, deciding, and collaborating; designerly practices in these regards bridge perspectives, boost trans-sectoral discourse and, ultimately, nurtures the emergence of a renewed, tuned-in purpose. Being purpose-driven is a helpful stance to navigate futures with an open, inspired and trusting spirit: purpose inspires relationship-ability, the drive to kick-off configurations of partnerships.

_ **weaving scaffolds fosters the experimentation of alternative modes of monitoring and evaluation, which is how the system observes, shares, and reflects on *what* is working and *why.*** In this sense, scaffolds support the interplay of zooming-in and zooming-out *monitoring* standpoints, which invite actors into sharing what it is that is occurring in the system, how the system is responding to certain endeavours, what is shifting, what can be foreseen and how might the unexpected be made sense of, decided upon and worked on together. In reframing accountability in mission-driven frameworks, scaffolds provide given configurations of partnership-leaderships to reflect on and

(un)learn practices to co-develop. Scaffolds focus on (un)learning and expanding the knowledge of a system — being it disciplinary or, even better, trans-disciplinary —, rather than compliance with more narrow and short-termed objectives.
Here, design's contribution is to be traced back into its inherent "poetic objectivity". Going back to *poiein*, the ancient greek work for *making,* as in "having something being present" or "bringing something before the senses", design is one of the poetic disciplines that generates and builds on a kind of objectivity that is framed as the *science of the minor* (Ingold, 2018), or *the weak side of knowledge production* (Weber, 2019) within the current paradigm:

> "**poetic objectivity does not attempt to prevail.**
> Poetic objectivity is deliberately weak.
> We cannot "prove" it with quantification
> or controlled, reproducible experiments.
> **We can only try to bring it to the observer**
> **and let it do its work**
> by transmitting the gift of life,
> by arousing the desire for aliveness"
> (Weber, 2019; emphasis added).

By staging modes of aesthetic engagement to elicit alternative stances and sensitivities to nurture the emergence of the Shapes of Trust, design *affords* presence, to invite *meaningful accountability practices* that build on *noticing* — over *monitoring* —, *reflecting with* — over extracting from, *naming* — over counting. Here, the focus is on qualities, more than quantities. Qualities ask to be noticed, reflected with and named to be addressed, validated and made legible and actionable.
Weaving scaffolds is a practice that raises, trains and nurtures systemic sensitivity, eliciting maturity in embracing and navigating complexity. It support trans-sectoral collaborative practices through a qualitative approach, one that focuses on *qualities,* framed and worked on from a design-driven perspective and mode of practice. These endeavours aim at working (on) systemic transformation to achieve collective thriving.

Through design such blurred and messy endeavours can be engaged with one's own senses, affording presence, dialogue, and transparency. Once healed disengagement, care comes right along: just as the leap of faith, people care as soon as they get engaged: missions are not issues to be addressed; rather, matters to engage with. To care is to have concerns, pay attention, and get involved: it is an intimate, long-term entanglement with something or someone. Hence, purpose arises as the trans-disciplinary commitment crossing different scales and stemming from a relational account of desirable futures.

6.3.1 On future developments

The notion of "weaving scaffoldings" to support trans-sectoral collaborative practice is a designerly — and also a researcherly — strategy to focus on the need to establish meta-practices of collective, purpose-driven reflections — just like the craftsman reflects upon its own practices, training their intuition to discern *patterns of making* and put them into *words;* into *qualities*.

From a policy perspective, this is the proposition of a transformative approach to harness and infuse not only systemic sensitivities, but most importantly aesthetics literacy — *the science of qualities* of things, processes and practices — as it is catalysed by design. This approach, in fact, paired with its compass, might be used to start looking into policy-driven endeavours to spotlight the different qualities they are currently following. Conceived as a possible future focus of this research, this operation might be helpful in establishing trans-disciplinary comparability lens to better understand — and formulate — the relationships between currently adopted *design-qualities* and *policy-qualities*. This work is, thus, proposing an approach that will look into the Shapes of Trust in mission-driven frameworks, with the aim of bringing to the fore qualities of trans-sectoral collaborative practices. Thinking with qualities might be a viable strategy to facilitate knowledge transfer about what worked and what didn't, without reducing it nor de-contextualising it. The model and the

approach both provide a guiding map to be filled in, as long as qualities and endeavours participate into given key processes underpinning trans-sectoral collaboration aiming at systemic transformation.
This material has been developed in light of the harvested findings and insights coming from the reflecting and noticing methodological steps of this research.
Given the large-scale inherent to the project-cases I was involved in — European and national levels — the primary audience this material has been conceived for is the body of design and policy researchers and practitioners working on high-level, mission-scaled contexts. One of the very first steps to be taken in the future would be about engaging with them once again, introduce the model, and have them test it out, reiterate it, and provide feedbacks on its robustness. In fact, in the wake of "participatory trans-disciplinarity" for design and policy to intertwine, it is essential that the primarily addressed audience resonates with the proposed material, venturing into further inquiries *with them* to co-validate which degree of resonance s there — as well as dissonance —, what is missing, and what should be integrated.
A secondary loop of engagement might involve local civil servants and stakeholders operating in sectoral and trans-sectoral industries: this following step would be key to formulate versions of the model that can be appropriated and contextualised at localised scales, while keeping the dialogue with broader, high-level recommendations and scales. In each cases, the overarching goal is to keep on practice to grow the model into more accessible and actionable versions, that might eventually invite the temporal dimension as an additional "describing" layer. Another aspect that would be valuable of further research inquiries is about addressing the trans-disciplinary discourse in knowledge management, combined with a comparability study around shifts in organisational and governance practices when informed by trans-disciplinary "third places" of knowledge.
Notwithstanding the need to keep on testing and iterating the model and the approach, I would keep on venturing the crossroads of knowledge, to

inform and orientate next research routes: researching and practicing for the emergence of the Shapes of Trust, the shapes that contribute to the *formation of publics* — understood as the socio-material response to practices of interdependence and co-response-ability.

STEP 4_ WHAT THIS CHAPTER SET OUT

This chapter has delved deeply into the intricate nature of trans-sectoral collaborative practices aimed at fostering collective thriving and systemic transformation.

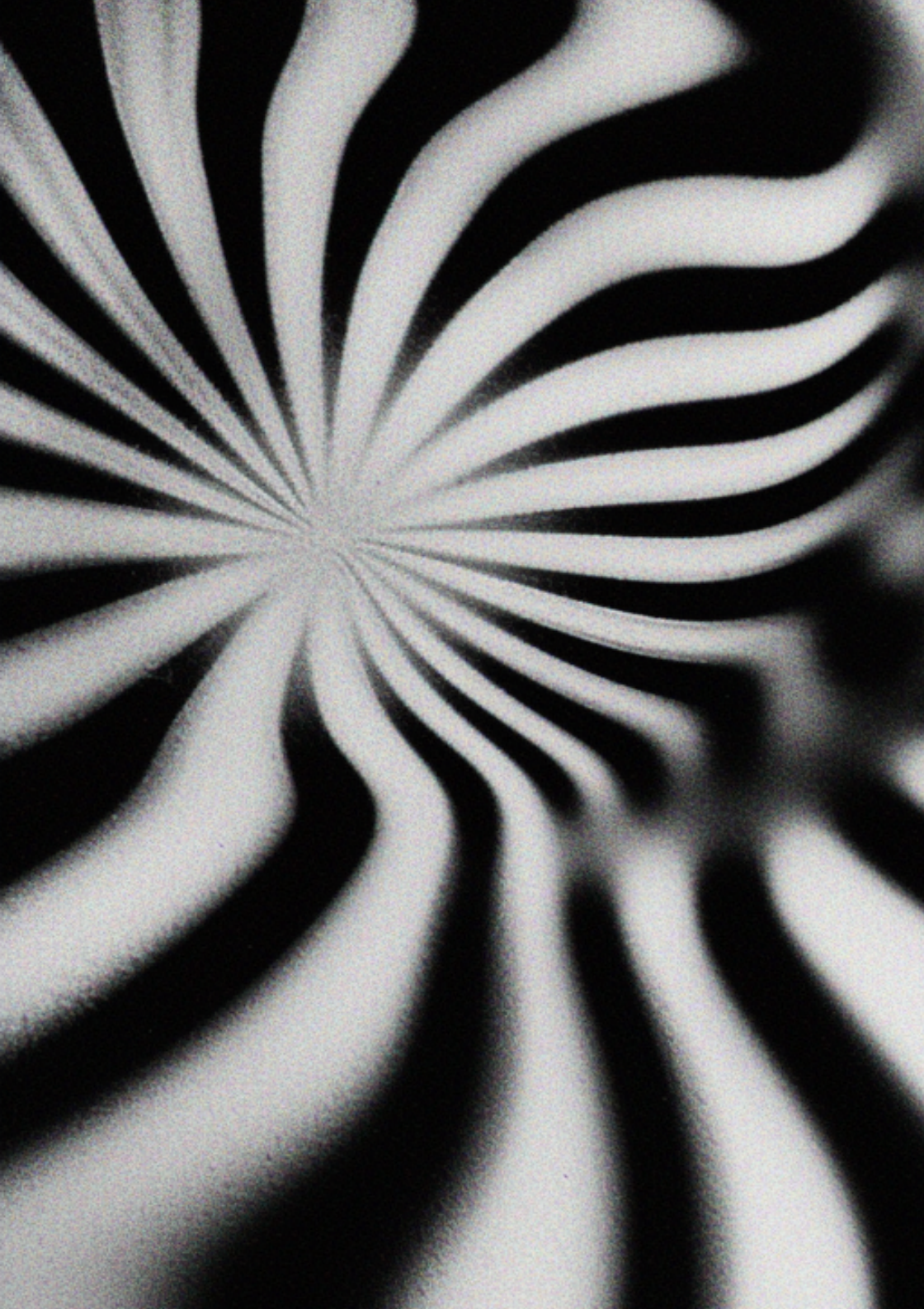
The key insights highlight the significance of visualising project-cases through interconnected ***qualities***, which collectively narrate dynamic and evolving pathways of transformation. The narrative approach underscores the emergent patterns and unsung stories that contributed in shaping meaningful collaborative efforts.

Central to these efforts is the concept of trust, which emerges not through intentional design but as an organic result of shared experiences and vulnerabilities. Trust is an unintentional outcome that thrives in environments where openness, dialogue, and relational engagements are prioritised. The stance of "whispering to trust" rather than “building it” emphasises the delicate and subtle nature of trust in collaborative endeavours.

The chapter also formulates the approach of **weaving scaffolds for trans-sectoral collaborative practices to thrive**, an overarching framework collecting the insights, findings, and tools proposed so far. Here, woven scaffolds provide a framework to focus on continuous re-orientation, appropriation, and mutual (un)learning, fostering holistic approaches to transformation that encompass both its internal and external dimensions. Scaffolds serve as platforms for experimentation, reflection, and the nurturing of systemic sensitivities, ensuring that collaborative practices are purpose-driven, adaptive, inclusive, and resilient.

Looking ahead, the proposed future developments include leveraging the compass model to establish trans-disciplinary lenses, which might contribute in inquiring trans-sectoral collaborative practices, by looking into ***design qualities*** and ***policy qualities of collaborative practices***. This approach aims to contribute to qualitative approaches of accountability and evaluation of collaborative practices within policy-driven endeavours, as they can be infused with design’s aesthetic literacy and systemic sensitivity. Such a turn in accountability is backed by design’s poetic objectivity, focusing on noticing the ***qualities*** of things, processes, and practices, rather than counting them.

By doing so, the work aims on the long-term to contribute to *transformed* governance models and partnership-leadership configurations, inspired by collective thriving, and elicited through aesthetic engagement and embodied participation.



STEP 5_

CLOSING

The journey so far

This doctoral research stemmed from the aspiration to practice connection in a disconnected world; to nurture engagement in disengaged stances of making sense of the world; to spell enchantment in disenchanted times.

The research has set up a conceptual framework, built on system thinking and transformation discourse. Here, the ultimate aim of systemic transformation is proposed and framed from the axiological standpoint of collective thriving: a working framework that grows on notions of co-development, infused with stances of staying with the trouble, together.

With such a direction, or overarching aspiration in mind, working (on) systemic transformation can be done by tapping into the disciplines holding a special grip onto socio-material arrangements: design and policy. Notwithstanding this research originates in design discourse, it understands the need to establish a trans-disciplinary body of practical knowledge to work with(in) socio-material arrangements along complexity-attuned ways of *doing*, *making*, *practicing*. Particularly, there is a need in harvesting knowledge on *practices* to collaborate under a shared mission: systemic transformation is a multilayered and multifaceted endeavour, in which exiting and bridging disciplinary siloes in trans-disciplinary third-places is a urgent need.

Building on the notions of Designing for Transforming Practices as a baseline, I looked into design and policy most recent interplays and challenges. Here, I identified three anchor-points that policy as a discipline is currently in need to tackle. Thus, I formulated them as areas of experimentation to be looked into from a designerly perspective:

_ the modes of consultation;

_the nature of the evidence;

_the delivery distance.

Once outlined the main conceptual framework, the research ventures into five applied project-cases, each addressing trans-disciplinary collaborative practices. Once introduced, I looked into all of the project-

cases and reflected on them through a three-lens compass, a tool that I designed building on the three areas of experimentation for design and policy to intertwine as a trans-disciplinary field to foster systemic transformation. Here, I looked for design's distinctive contribution into each project in correspondence to each area. As a result, I saw how, through design, I worked on trans-disciplinary collaborative practices by handling a specific set of (aesthetic) qualities underpinning those practices.

The qualities shed light onto the three areas, connotations them in a way that they have been reformulated as follows:

_ qualities of sense making nurture continuous re-orienting practices in modes of engagement;

_ qualities of capturing elicit practices of collective appropriation in modes of evidencing;

_ qualities of infrastructuring foster practices of mutual (un)learning in modes of bridging and scaffolding.

These formulations are hoped to contribute to the establishment of a trans-disciplinary field of practice where both design and policy engage with socio-material arrangements to work (on) systemic transformation. Qualities displayed in the three-lens compass have later been connected to elicit the emergence of additional insights.

The resulting lines draw the Shapes of Trust, namely the shapes emerging by the openness and commitment nurtured by aesthetic engagement and embed participation to venture into the wickedness of contemporary challenges, together.

To appreciate the Shapes of Trust, the research proposes the approach of weaving scaffolds, a perspective that raises, trains and nurtures systemic sensitivity, eliciting maturity in embracing and navigating complexity. Weaving scaffolds is the notion — and visualisation — by which trans-sectoral collaborative practices can be looked at and conceived through a qualitative approach; one that focuses on *qualities,* framed and worked on from a design-driven perspective and mode of practice.

These endeavours aim at working (on) systemic transformation to achieve collective thriving. It is on woven scaffolds that activities of resonance run through, contributing to the system's co-development.

Notes on the approach

This work sparked by the designerly standpoint provided by Designing for Transforming Practices approach and body of knowledge.
Designing for TP supported me in this inquiry through the lens of design. The aspect I resonated the most with are encapsulated in the focus on practices to be/work/realise transformations; particularly, practices are grounded in socio-material arrangements and framed under the lens of aesthetics: by crafting practices along certain qualities, it is possible to have socio-material arrangements responding, eliciting, ultimately, systemic transformation.
Aesthetic expertise as well as the notions of complexity, situatedness and co-development — as they are originally proposed in the approach — have played a key role to this work. With collaborative practices establishing as the grounded approach to venture into mission-driven *transformation* framework, the exploration of possibilities for diverse disciplines to meet and intertwine participates in the establishments of "playgrounds" for trans-disciplinary innovation. With this work, I hope that the design-and-policy formulations in matters of collaborative practices might contribute to expanding Designing for TP approach: particularly, I hope that the model might provide a deeper dive into the notion of "co-development"; a three-faceted notion (and model) that plugs into the mission-driven framework in light of a precise axiological standpoint — collective thriving. Through *the three-lens compass*, the *emergent setting* and the *weaving scaffolds* approach, Designing for TP might channel its body of knowledge into a trans-disciplinary "third place", participating by bringing in the design expertise, understood under the aesthetic

sensitivity and the focus on practices: the instances to harvest practical, in-the-making knowledge.

Notes on limitations and criticalities

This research builds on two key points:
_it engaged with large-scaled — European and national level — public-private collaborative practices;
_it has been pracitced right into the field.
As such, all of the work presented here wouldn't have been possible if there wasn't a whole team of design researchers supporting me and involving me directly into those endeavours — I am thankful to the Designing for TP research team and to my co-supervisor especially.
I understand that this is not always the case for design researchers, who still struggle to have access to systemic-scaled projects or, when they do, they are requested to back their presence by highlighting the strategic expertise they would bring to the room. I understand that because I have been there myself. Some contexts work along a varied level of maturity in design literacy, both from an inside-out and an outside-it perspective. While I am grateful to have had the opportunity to step into mature contexts, I am afraid that some geographical areas may fall behind. Certainly, this speaks of the need to engage with disseminating activities and third mission endeavours in higher education contexts. This is also the motivation behind a certain formulation of this works' research questions, which were about distilling design's distinctive expertise in contributing to trans-sectoral collaborative practices to achieve systemic transformation. The hope is that those formulation might contribute to a broader discourse both within the discipline as well as in its interplays with other fields.
An additional limitation that is directly linked to the systemic-scale of the project-cases, is the misalignment of timeframes: this doctoral research

covers a three-years period, whereas the majority of the project-cases I engaged with extend over many more years. Consequently, observations and reflections presented here have been based on the (limited) available content. Further steps in mitigating this aspect will be about trying to staying connected to the projects' ecosystems and carrie out further inquiries.

An inspiration for next routes

"What can be studied is always a relationship
or an infinite regress of relationships.
Never a 'thing'"
(Bateson,1978).

This research sparked from the need to think with aliveness and embrace wholeness. By venturing into embodied experiences of interdependence, one gets in touch with the most intimate facets underpinning the aspiration of thriving together. Here, the practice of *tactfulness*, the sensorial politeness that speaks to matters of diplomacy and dignity, comes rediscovered; it is a practice that acknowledges subjective perspectives and carries them into dialogical conversations aiming at co-development. Thus, relationships are initiated and sealed with mutual accords, celebrated by the reciprocal touch connecting two shaking hands.

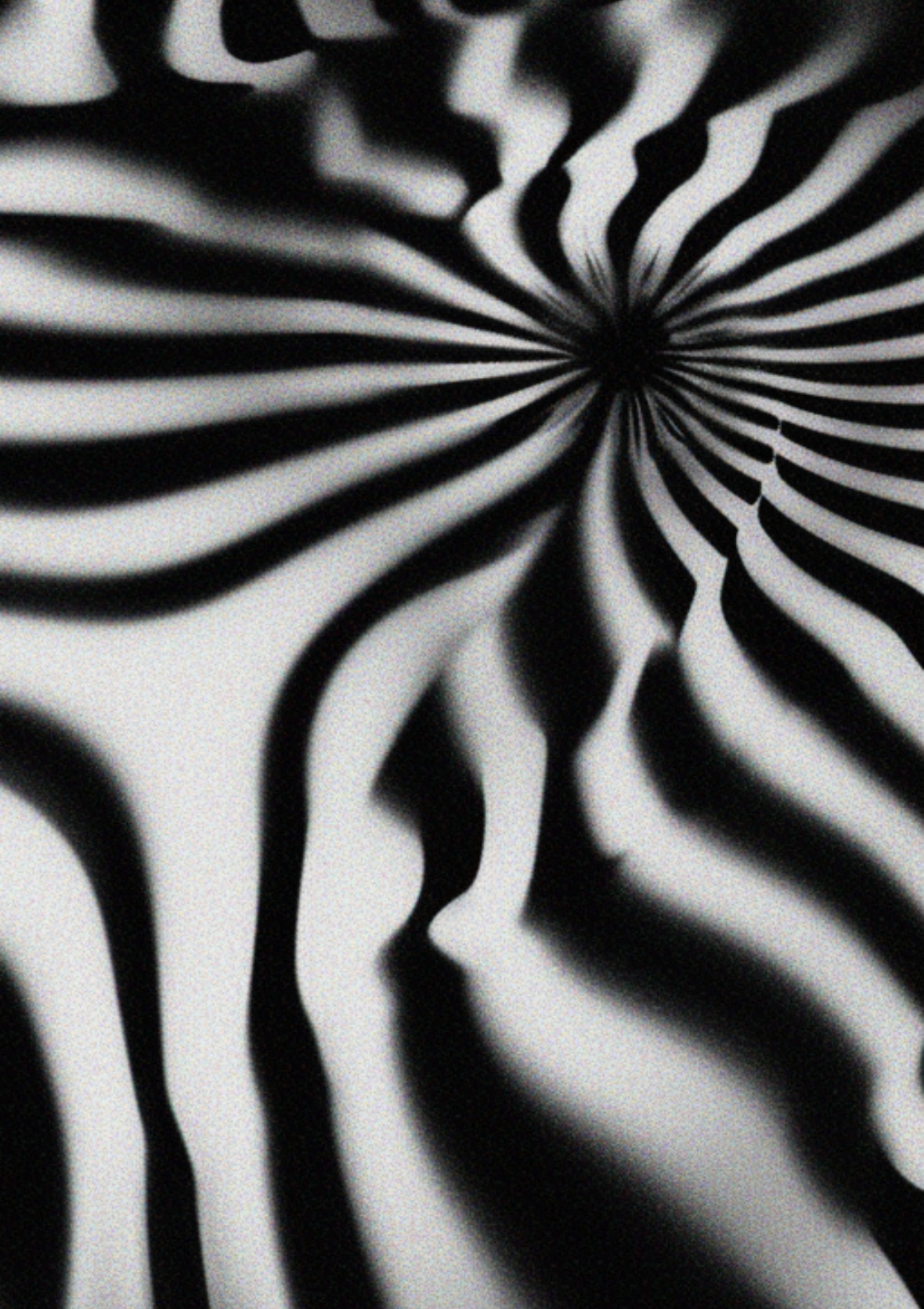
"The inclination for touch as a way of intensifying awareness of
materiality and immanent engagement [… and its] reclamation made me
wonder if the increased desire for touch manifests an urge to
rematerialise reliability and trust within a technoscientific culture
fuelled by institutionalized skepticism?
In other words, could the yearning for touch manifest also a desire to
reinfuse substance in more than human worlds
where digitalised technology extends and delocalises the networks
and mediations that circulate reliable witnessing?"
(de la Bellacasa, 2017).

Design is poetic; design makes, shapes, prototypes.
Design invites to think with making; to reflect while shaping.
Design contributes in heightening the senses and training intuition, so that one can pay attention to the experience channeled by the Shapes of Trust, namely the forms emerging from collective collaborative endeavours; the forms inviting proximity in mutual processes of (un)learning, making sense and appropriating knowledge, together.
The Shapes of Trust are experiential: they demand the practice of presence to be grasped. Getting in touch with interdependence, means not only touching it — acting upon it — ; primarily, it implies letting it touch us. Touch brings a inherent character of reciprocity into the entanglements of interdependent relationships. Here, such a "haptic" reciprocity turns individual statements of commitment into a meshwork of collective engagement, moved by a systemic sensitivity, the one that infuses the practice of being able to co-respond to others.
This is the practice of care:

> "care obliges in ways embedded in everyday doings and agencies; it obliges because it is inherent to relations of interdependency" (de la Bellacasa, 2017).

If care moves relational webs, even by creating critical cuts, those involved in caring are bound to be moved too. Caring for aliveness means stepping into thrivability, the systemic conversation about desirable futures where social dreaming occurs hand in hand with personal wholeness and social cohesion.
Collective thriving emerges just like beauty. They can be appreciated by just stopping by and sitting in the minor key, in the little things, in the qualities of the connections that have been woven, elicited by being aesthetically engaged in dialogical, designerly conversations.
Through design, conversations become living entities too, evolving and growing, as long as they are shaped by the continuous, pluriversal flow of perspectives, reflections, and experiences.

Design iterates, bridges, weaves; design does and undoes.
By working with aesthetic qualities, design makes all these practices experienceable and actionable, in a way that everyone can think with and even design with them.
Designing for collective thriving connects and elicits reciprocity, producing communal resonance of perspectives, that, even when divergent, vest the decision with a distributed sense of validation, respect and stewardship. In designerly conversation there is no closure, nor solutions; rather, It is the pathway to pluriversal instances, where designing is about caressing and tingling socio-material arrangements, to elicit unexpected responses and hopeful interplays.



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STEP 0_ INVITING

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