Commoning by Design

Exploring the Commons to nurture organisational stewardship practices towards regenerative economics

by Julia Amelie Schaeper

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We have work to do and the world to win.
Arundhati Roy

Abstract

In the face of converging global crises—climate change, conflict, and social injustice—the need for change has never been more urgent. Human health is intricately linked to the integrity of our planetary ecosystem. However, the dominance of neoliberal individualism and economic rationality has led to significant environmental degradation, including deforestation, pollution and biodiversity loss. The planetary challenges we face require us to rethink our design approaches to enhance systemic relationships, promote reciprocity, and acknowledge the significance of multi-species landscapes and cultural pluralities. This context underscores a critical argument: contemporary design practices that are narrowly focused on human perspectives may reinforce anthropocentric solutions, further exacerbating environmental challenges. Consequently, this thesis investigates planetary health challenges within contemporary design—approaches that prioritise relationality, planetary health, pluralities, and decentralisation—exploring the commons as a relational framework for systemic transition within a capitalist economic context.

Drawing from Elinor Ostrom's Nobel Prize-winning work on cooperative group dynamics, the research aims to broaden understanding of 'Commoning by Design' among designers and change-makers. By exploring the commons as a relational framework for system transition, the study seeks to address knowledge gaps in contemporary design practice (Working hypothesis 1), examine the limitations of neoliberal economic paradigms on designers' imagination (Working hypothesis 2), and explore the potential of commoning principles to improve collaborative governance (Working hypothesis 3). The corresponding research questions investigate how commoning—defined as the collaborative processes wherein individuals collectively manage and share resources, knowledge, and responsibilities, fostering a sense of shared ownership and sustainability—can fill information gaps, shift design towards a regenerative paradigm, and inform the creation of stewardship practices. Notably, this research contributes to the design and commons-based discourse by emphasising the unique application of commons theories and practices within a capitalist context, particularly in relation to transitioning towards regenerative economics.

The initial stage of the research involved exploring literature across design theory, systems theory, posthumanism, the commons and economic theory. The objective was to identify a theoretical framework that incorporates the research aim, working hypotheses, and research questions. A scoping review informed the empirical research design, ensuring real-world relevance. This process resulted in a preliminary outline for applying commoning principles to contemporary design. Moving to the third stage, practice-based research focused on an organisational ethnographic case study within a global sportswear manufacturer, investigating how commoning principles could advance service design practices within existing organisations. In the final reflection stage, the case study findings were evaluated in relation to the working hypotheses and research questions, resulting in the creation of 'Commoning by Design' artefacts. This assessment aimed to determine the potential effectiveness of applying commoning in contemporary design practice as a relational framework for planetary health. The discussion that followed explored a tiered approach to economic implementation and delved into the potential risks of co-optation.

The thesis results in the development of practical resources—a commoning compass, canvas and a set of commoning cards—intended to guide the design community in creating collaborative infrastructures rooted in planetary health. Three pivotal findings emerged from the study. First, commoning uncovers hidden, complex elements within systems, contributing to the resolution of knowledge and information gaps. Second, commoning inspires redesigning design, prompting reflections on systems that involve both human and non-human entities. Third, commoning provides a set of heuristics that empower

designers to shift focus from creating solutions to designing conditions for improved stewardship practices. It is argued that embracing the commons within contemporary design can challenge our prevailing neoliberal paradigm, urging designers to prioritise collaboration, shared ownership and community wellbeing over profit-driven, individualistic models.

While design practice can draw inspiration from the commons, the research found it is crucial to recognise that commoning itself requires intentional design, too. Deliberate acts of commoning can be realised through creative and participatory design activities within current economic structures, ensuring that key principles are integrated into the development of innovative solutions. For design practitioners and researchers, the significance of this research lies in leveraging the commons as a heuristic, guiding design towards collaborative infrastructures and 'ready-ing' change. Common scholars can appreciate how creative design practices support the proactive implementation of commoning principles when developing new approaches to address planetary health. While the analysis acknowledged possible limitations of the commoning framework within the context of current economic structures, the findings pave the way for future research exploring the intersection of design practice and the commons as a strategy for social transformation and sustainable living within the Earth's biophysical limits.

Keywords: *contemporary design practice, service design, systemic design, relational design, collaboration, cooperation, co-production, commons, commoning, designing commoning, commoning design, commoning by design*

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Thank you.

PhD Thesis Publications

This page presents a list of four publications that have been produced during the course of the PhD research. These publications are related to the thesis topic and serve as valuable contributions to the commons discourse and contemporary design field. Each publication is referenced in the text with the authors, year, title and source. The publications include a conference paper and a forthcoming book chapter, highlighting the research's dissemination and scholarly impact.

List of Publications:

Conference paper
Schaeper, J., & Robert, G. (2020). Radically self-organised care: what can designers learn from the evolutionary dynamics of cooperation. In K. Crister, C. Craig, & P. Chamberlain (Eds.), Proceedings of the 6th European Conference on Design4Health (pp. 589-596). Sheffield Hallam University.

Conference paper
Schaeper, J., Kothari, S., and Hamilton, G. (2022) Social commoning as a way to transition towards alternative systems by design, in Lockton, D., Lenzi, S., Hekkert, P., Oak, A., Sádaba, J., Lloyd, P. (eds.), DRS2022: Bilbao, 25 June - 3 July, Bilbao, Spain. https://doi.org/10.21606/drs.2022.511

Journal article
Schaeper, J. (2023). Reimagining Design Beyond Neoliberal Economics, Touchpoint, The Journal of Service Design, Vol. 14 No. 2 Redefining Value Creation, p. 6-11. Service Design Network. Available at https://www.service-design-network.org/touchpoint/tp-14-2-redefining-value-creation

Book chapter, forthcoming 2024
Schaeper, J. and Robert, G. (2024). Commoning for a regenerative world: realising new directions for Service Design. Manuscript in preparation. In D. Sangiorgi, L. Penin, & A. Prendiville (Eds.), Handbook of Service Design: Plural perspectives and a critical contemporary agenda Bloomsbury Academic.

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Glossary of Terms

Anthropocene - A term used to describe the current geological era, marked by human activity as a dominant force shaping the Earth's environment.

Aphanipoiesis - Bateson's concept of coalescing, where organisms and ideas mutually influence, emphasising the relational and responsive nature of change in living systems.

Autopoiesis - Living systems' self-maintaining and self-reproducing capacity, emphasising autonomy in continuous creation and sustenance, as coined by biologists Maturana and Varela.

Commons - The shared material resources and non-material processes and relations that are held in common by a collective of people.

Commons-based peer production - A mode of collaborative production in which a community of individuals cooperates in creating and sharing resources without relying on market mechanisms or hierarchical control.

Commoning - The social practices and processes through which shared resources are managed and sustained by a community of users.

Common-pool resources (CPR) - Resources collectively owned or managed by a group of individuals, such as water, forests, and fisheries.

Contemporary design practice - Innovative and critical design approaches that prioritise relationality and planetary health while advocating for pluralities and decentralisation.

Degrowth - A movement advocating a radical shift away from growth-based economic systems to reduce ecological impacts and promote social justice.

Doughnut economy - A conceptual framework for sustainable development that aims to balance the needs of people and the planet, as outlined by economist Kate Raworth.

Ecosystems - The complex web of living and non-living components of an environment that interact with each other and their physical surroundings.

ESG - Environmental, social and governance factors used to evaluate organisations' sustainability and ethical impact.

Organisational design - The process of structuring and organising an institution to achieve its goals by optimising its internal processes, culture and communication.

Planetary boundaries - The boundaries between safe and unsafe levels of human impact on Earth's natural systems, as identified by a group of scientists in 2009.

Planetary Health - An emerging field of study that focuses on the interconnections between human health and the planet's health in the context of global environmental change.

Pluriverse - A term used to describe the diversity of worldviews, cultures and ways of life that exist in the world, and the need to respect and value this diversity.

Polycentric governance - A model of governance in which multiple centres of authority and decision-making exist at different levels of society, allowing for greater flexibility and adaptability.

Post-growth - A vision of a society and economy that has moved beyond the imperative of endless economic growth and prioritises human wellbeing, social justice and ecological sustainability.

Ready-ing - Bateson's term denoting anticipatory readiness in transitions, emphasising the preparatory nature of systems to adapt to emerging complexities.

Regeneration - The process of restoring, renewing, or revitalising a system to enhance its resilience, health and functioning.

Resource management - The strategic planning, allocation and use of natural or human-made resources to ensure their sustainable and equitable use.

Resilience - The ability of a system to withstand and recover from shocks or disturbances and to maintain its essential functions and identity.

Self-governance - The process of collective decision-making and management of resources by a community of users without external control or authority.

Service Design - A design approach that focuses on creating and improving services by understanding and addressing the needs and experiences of users.

Sharing economy - An economic system based on sharing resources, skills or assets among individuals or communities, often facilitated by digital platforms

Social-ecological systems - A concept that emphasises the interdependence of social and ecological systems, where changes in one system can significantly impact the other.

Sustainability - Meeting the needs of the present without compromising the ability of future generations to meet their own needs, but simply aiming for sustainability is often deemed insufficient as it only aims to reduce harm rather than actively regenerate and heal the planet.

Sympoiesis - Donna Haraway's term for entities collaboratively generating and sustaining emergent phenomena, highlighting collective processes and interdependence.

Transcontextual - Inspired by Bateson, the term implies the need to transcend individual contexts, emphasising sensitivity and adaptability to diverse socio-cultural, economic, and environmental factors in design.

Transition Design - An approach to design that aims to create systemic change towards more sustainable and equitable futures by engaging diverse stakeholders and integrating multiple disciplines.

Working hypothesis - Rooted in Dewey's inquiry theory, working hypotheses are means for advancing exploration, guiding research without requiring rigid hypothesis testing.

CHAPTER 1

Opening

1.1 Personal motivation

Undertaking this research has been a deeply personal journey, rooted in emotions many of us share today – fear, anxiety and a profound sense of existential concern. These emotions are stirred by the looming climate crisis, a challenge that has the potential to reshape our world. As a child, I grew up noticing a division we, as a society, had created between humanity and nature, treating the natural world as subordinate to our desires and ambitions. I secretly questioned this status quo, but I also assumed it was an acceptable byproduct of the scientific and technological progress that surrounded us. After all, the world seemed OK.

I first heard about planned obsolescence while studying design in Glasgow – the idea that products were intentionally designed to become obsolete, thus contributing to endless amounts of waste and consumption. Thanks to my tutors, I learned about using 'design thinking' to tackle so-called wicked problems. And so I began to explore intangible solutions, experiences and what came to be known as services to issues around health inequality and environmental pollution. It felt like a positive contribution, using design to address broader societal challenges and reduce waste. These were the early days of service design, some 15+ years ago. An exciting time, filled with energy, experimentation and collaboration with peers who were equally passionate about driving change by design.

However, what followed was a more sobering realisation of how service design became commoditised, seeping into every corner of business and focusing on 'accelerating digitalisation', increasingly repeating the same processes. Experiments faded; it felt like creativity did, too. The predictability of outcomes in most design projects overshadowed the potential for transformative solutions. At that time, there was significant discourse surrounding the justification of service design as a discipline and discussions about its inherent value. Progress in technology soon took precedence and often resulted in solutions that predominantly revolved around apps or digital answers. As I began to question if this was the right area of work for me, I became a mum and started my PhD. Reading scientific articles during the early stages of my research in 2016, I felt increasingly worried about the future, especially when thinking about the world my children and the next generations would live in. The more I learned about how design was actively contributing to the commercialisation of our world – even within fields such as service design, which I once thought could promote sustainability and the dematerialisation of our economy – the more I felt a profound sense of despair.

My wake-up call occurred when reading Arturo Escobar's *Design for the Pluriverse*, shortly after reading the article 'World Scientists' Warning to Humanity: A Second Notice' in November 2017. I learned how those divisions we created were entirely human-made, arbitrary distinctions, and that as humans we are, of course, part of nature. Escobar's writing inspired a design practice in my mind that embraces collaborative and place-based approaches rooted in the profound interdependence of all life on Earth. Discovering more pluralistic design approaches triggered a significant transformation in my research focus. I embarked on a journey to explore the pressing need for a fresh approach to design; one that moves beyond the traditional binary separation of human and nature, which often serves capitalist interests. This shift led me away from solely focusing on designing for human wellbeing within the constraints of contemporary design to making a profound commitment to the overall health of our planet. I set out to contribute to redefining the very essence of design.

Throughout my research journey, I explored diverse fields including posthumanities, post-feminist studies, social systems theory, complexity theory, economic theory, degrowth, the commons and the critical realm of decolonisation. In this process, I recognised the complexities and responsibilities accompanying my identity as a privileged white woman from the Global North. I also realised that design carries the weight of colonial narratives, and the prevailing conversations on sustainability and

regeneration are heavily influenced by Eurocentric perspectives – also often overlooking traditional ecological knowledge and the realities of the Global South. My research led me to understand the urgent need for us to unlearn our current mechanistic ways of making sense of the world, remain humble and amplify the voices that colonial theory and practices have silenced for far too long. By embracing a learner's mindset rooted in humility, I have been able to rediscover a sense of purpose for design practice, albeit a humbler and less extractive one.

Our current polycrises cast a daunting shadow, but they also ignite sparks of hope and a yearning for a more just and equitable world. Design, in some instances, has contributed to these issues, so it needs the courage to question its practices and be willing to experiment again. My own path has taught me the importance of questioning, exploring and being comfortable with embracing ambiguity and pluralism. It means acknowledging our limits in controlling and predicting. I have also discovered that alternatives have existed for centuries, such as the commons and commoning perspective, centred on sharing resources, knowledge and responsibilities. I have come to believe that harnessing the power of the commons can be a means for degrowth by design. This thesis is about how strengthening the commons may serve as a stepping stone for reshaping current design practices. It aims to guide us toward a more intentional and collaborative future, forging a new design paradigm that nurtures a flourishing planet for everyone. I hope the ideas connect with you.

1.2 Research context

Humanity's impact on our planet is so profound that scholars across academia (i.e. Waters et al. 2016) talk about the Anthropocene as our current geological epoch. To seek progress, humanity has pushed natural systems out of balance. Too often, nature is viewed as a resource and ongoing sustainability efforts fail to recognise that humans and other living beings depend on each other for their wellbeing (Rupprecht et al., 2020). Four of the nine planetary boundaries (Rockström et al., 2009) have been crossed, increasing the risk of generating large-scale and irreversible environmental changes. Although pollution is already considered to be one of the biggest threats to human life (Landrigan et al., 2018), public health has traditionally focused on individual health (Brousselle & Butzbach, 2018) while neglecting the ecology of our planet as a primary determinant of planetary – and hence human – health (Redvers, 2021). At the heart of the emerging field of planetary health lies an acknowledgement of the need to transition towards an ecological, just and balanced society (Whitmee et al., 2015). As such, planetary health aims to tackle the challenges of environmental change and its adverse impacts on human health by studying and promoting solutions that protect both. Far from how we would traditionally approach health or healthcare (see Illich 1975), planetary health requires a systems-oriented approach to understanding the entangled relationships between economic development, environmental degradation and human health (Iyer et al., 2021). By arguing that planetary health can be achieved only through 'multispecies sustainability', which recognises and meets the interdependent needs of all species (Rupprecht et al., 2020), it presupposes a radically different way of organising our societies and economies. This way of thinking is recognised through alternative propositions such as 'The Doughnut' (Raworth, 2017), which proposes an economic framework where human needs are met without overshooting the Earth's ecological limits and which could be used to create health benefits for both humans and natural systems.

In this context, today's fragile state of the Earth has been described as an ultimate 'failure of design' (Escobar, 2018). Design – starting with how people understand and perceive the word itself – has drastically changed over the past 20 years. There has been a great interest in the transformative potential of service design, in particular, to contribute to innovation and help us tackle today's pressing social, economic and environmental challenges (Julier & Moor, 2009; Burns et al., 2006). In line with this, design has been applied to healthcare, social care, education and social justice challenges (i.e. Bate and

Robert 2006). At the same time, there has been an acknowledgement that the complexity of design contexts is growing as well, and with that, an increased realisation around methodological constraints of service design practice, especially when dealing with complex systems change (Thackara, 2006; Conway & Masters, 2017; Design Council, 2021). Unsustainable design practices, short-term thinking and planned obsolescence have come under fire for their devastating effects on the natural world and other species. Other authors (Rupprecht et al., 2020) have argued that the anthropocentric focus on human needs, which lies not only at the heart of the sustainability concept but also within design practice, has limited our ability to meet those needs long-term and instead caused an under-representation of non-human stakeholders. Human-centred design has thus been criticised for its reductionist attempt to satisfy human aspirations without considering the associated complex and interdependent multispecies entanglements (Metcalfe, 2015). Such under-representation of actors in decisions and actions around sustainability issues could be one leading cause of 'failure' that Escobar (2018) so poignantly describes. Consequently, scholars have noted that only a broadened concept of sustainability and health that includes more-than-human wellbeing is likely to nurture biodiversity on Earth, as species' needs are inherently interdependent (Rupprecht et al., 2020).

It has been argued that design alone is not enough and that to solve our most complex problems, we need to augment service design with other approaches that can teach us how to deal with complexity (Conway & Masters, 2017). It is in fields primarily associated with humanities and social sciences, including social theory, anthropology, feminism and philosophy (Braidotti, 2016; Haraway, 2016; Tsing, 2015; Münster & Locke, 2015; Kirksey & Helmreich, 2010), where the conceptual advancement of multispecies or more-than-human thinking has been developed. The term 'multispecies' was coined to be used in ethnographic contexts for work that acknowledges a deep interconnectedness between humanity and other life forms, be it plants, animals, fungi or bacteria (Münster & Locke, 2015). Multispecies practices aim to replace dualist ontologies with more relational perspectives to 'highlight the important intersections between ecological relations, political economy and cultural representation' (Münster & Locke, 2015).

There have been calls from within the design community to systemically address the erosion of biodiversity and humankind's alienation from nature, as design practitioners are beginning to see the planet as a living organism of complex, interconnected systems (Design Council, 2021). As a result, new design approaches emerged, including transition design (Irwin, 2015), multispecies design (Metcalfe, 2015), autonomous design (Escobar, 2018) and systemic design (Design Council, 2021), to mention a few. And although concepts around the need for more-than-human thinking have been adopted by design research and in academic contexts (i.e. Metcalfe 2015), there is still little evidence of the theory finding its way into mainstream practical applications – apart from some small pockets of design-led system change initiatives (Design Council, 2021). Consequently, it has been argued that the theory-practice gap in service design has widened (Mager et al., 2020).

The Rockefeller Foundation–Lancet Commission identified three categories of challenges that must be addressed in planetary health: first, information challenges based on knowledge failures existing across societies, including knowledge gaps in responding to health drivers, scarcity of transdisciplinary research, and decision-making uncertainty; second, imagination challenges based on conceptual and empathetic failures involving over-reliance on Gross Domestic Product (GDP), neglecting future health and environmental impacts, and disregarding poverty in developing nations; and third, governance challenges based on recurring implementation and administration failures, including delayed recognition and response to threats, especially in the presence of uncertainties, pooled resources and time lags.

Achieving planetary health in the face of increasing resource demands will require developing and implementing new solutions that address those complex challenges (Whitmee et al., 2015). Design will not give us all the answers. If progress towards planetary health implies the development of solutions built on understanding the connections between natural and human systems, then we ought to ask ourselves what role design practice could play and what areas design could learn from.

This involves drawing inspiration from ideas and movements such as the commons. When I discuss my research, I often get a puzzled response along with the question, "What exactly are the commons?" People's interpretations of 'the commons' vary based on cultural, historical and ideological backgrounds. It can represent traditional communal land use (Ostrom, 1990; Scott, 1998) or contemporary movements, like the sharing economy and environmental conservation (Bauwens & Kostakis, 2014; Hess & Ostrom, 2007). Others associate it with overuse and degradation, influenced by Hardin's 'Tragedy of the Commons' thesis (1968), suggesting vulnerability to depletion due to self-interest. Over the past 20+ years, however, a prevailing understanding of the commons has emerged (Bollier & Helfrich, 2019). It now signifies practices of sharing resources that emphasise collective stewardship and sustainability. This shift offers a potential framework for tackling global health issues through cooperation, responsible resource management and community engagement. In my research, I investigate this evolving understanding of the commons as a constructive force in contemporary contexts, particularly in the realm of planetary health and regenerative economics. In this context, my literature review begins as I explore how design practice could help address prevalent challenges in information, imagination and governance to achieve planetary health.

Table 1: Categories of challenges for planetary health, adapted by the author based on Whitmee et al., 2015

Planetary health challenge categories	**Examples**	**Research interest**
Information	• Failure to address social and environmental drivers of ill health due to knowledge gaps • Historical scarcity of transdisciplinary research and enquiries • Unwillingness or inability to deal with uncertainty within decision-making frameworks	**How could design practice help to address prevalent challenges in information, imagination and governance to achieve planetary health?**
Imagination	• Over-reliance on gross domestic product as a measure of human progress • Failure to account for future health of all living species and environmental harms over present-day gains • Failure to account for people experiencing poverty and those in developing nations	
Governance	• Governments and institutions delaying recognition and responses to threats especially when faced with uncertainties, pooled common resources, and time lags between action and effect	

1.3 Summary of research aim, working hypotheses & research questions

This thesis is motivated by the recognition of the limitations in contemporary Western design practices in effectively addressing the systemic challenges faced by planetary health. The literature review conducted in this study reveals the evolution of contemporary design practice from traditional problem-solving approaches to embracing pluralities and diverse perspectives, including the integration of disciplines, transdisciplinarity and systemic perspectives. However, it also uncovers the shortcomings of existing design theory, practice and pedagogy in adequately tackling the complex challenges of our modern era, known as the polycrisis.

The literature emphasises the interconnected nature of planetary health challenges. It underscores the need for new narratives, knowledge and skills that recognise the intrinsic relationship between humans and nature within specific place-based contexts. It also facilitated critical reflection on the evolution of design disciplines, culminating in the adoption of the umbrella term "contemporary design practices" to encapsulate pioneering design approaches. These practices prioritise relationality and planetary health, emphasising the importance of unity over divisive distinctions. In addition, the critique of human-centred design lies in its failure to consider the holistic wellbeing of the planet and the unintended consequences that design solutions may have, necessitating a shift towards a more relational and long-term approach to design. **Consequently, the research seeks to explore challenges in contemporary design practice related to planetary health and develop a relational framework for transitioning systems towards it.**

To delve deeper into the research aim, this study incorporates various theoretical disciplines beyond design, including general and social systems theory, posthumanism theory, and economic theory encompassing regenerative economics, post-growth and the commons. The literature highlights the transformative power of the commons, which provides an opportunity to reshape economic systems by prioritising community wellbeing and the regenerative capacity of the natural world (Kostakis and Bauwens, 2014). The commons encompass practices and systems where communities collaboratively manage and sustain resources, emphasising values such as care, autonomy and sufficiency (Ostrom, 1990; Bollier & Helfrich, 2012). In the face of our interconnected ecological, social and economic challenges, the commons offer an alternative framework that challenges the dominant growth-centric economic paradigm (Kostakis and Bauwens, 2014). By promoting community collaboration, equitable access to resources, and the wellbeing of both people and the planet, the commons present a pathway towards more inclusive and regenerative approaches to resource governance and human development (Gibson-Graham, 2008; Hess & Ostrom, 2007).

This research therefore explores how embracing commoning principles—such as ecosystemic perspectives (considering the organisation as part of a broader ecological system), participatory governance (involving stakeholders in decision-making), and a common purpose—can foster a culture of collaboration, innovation, and shared responsibility within organisations (Bauwens et al., 2018). It discusses existing research that highlights how caring and commoning offer viable alternatives to traditional capitalist frameworks (i.e. Sciannamblo, Cohn, Lyle & Teli, 2021) and examines how integrating these principles into participatory design practices can encourage the development of systems that prioritise community and collective actions over individualistic and profit-driven motives (Seravalli, Agger Eriksen, & Hillgren, 2017).

The empirical component of this thesis investigates how commoning principles can be practically applied as guiding values within existing organisational models and operational processes. Various factors drove the choice of the case study site - a global sportswear manufacturer. Firstly, the approach aimed to explore theoretically how commoning approaches could contribute to planetary health within

contemporary design practices taking place in today's organisations, most of which have not yet embraced regenerative business practices. Consequently, a case study organisation was sought that had not yet embedded regenerative approaches but showed a growing awareness and interest in exploring alternative economic models for their design practice. The specific site was chosen because it was in a transitional phase, actively seeking to define future practices that could integrate sustainability principles.

Importantly, however, in opting for a capitalist context when choosing the case study site, this research delved into relatively uncharted territory. While existing studies (i.e. Seravalli et al., 2017; Botero et al., 2020; Teli et al., 2022; Schranz, 2024) often draw from commons theories in design, they primarily focus on organisations or civil society groups with cooperative or community-based origins, as seen in the works of Seravalli, Eriksen and Hillgren (2017) on co-design, the commons and infrastructuring processes. This research, however, shifts its lens to explore the application of commons theories within capitalist contexts, as a way to explore the transitional space between a dominant and emerging system (see Wheatley & Frieze, 2007). It seeks to understand how commoning practices might support organisations in preparing for and embracing regenerative change, thereby fostering collaboration infrastructures conducive to a paradigm shift in economics. The study explores how commoning principles applied within a capitalist organisation can foster collaboration and innovation within existing economic structures. It recognises that traditional capitalist models prioritise competition, hindering sustainability efforts. By investigating commoning in this context, the research aims to reveal pathways for organisations to adopt inclusive and sustainable practices.

This approach, while subject to critical examination—especially regarding its integration into existing capitalist frameworks (see Section 7.2.4.3)—is argued to be necessary for steering current structures towards transformation (Kostakis and Bauwens, 2014). By embedding commoning principles, as proposed by Kostakis and Bauwens, alongside existing capitalist structures, this research aims to enhance existing organisational practices by design, foster resilience and facilitate the transition towards regenerative economic systems. This integration challenges conventional capitalist structures and offers a pathway for aligning them with emergent commoning economic frameworks. A critical discussion includes an examination of potential risks and challenges, such as the risk of commodifying communal assets or the difficulty of reconciling profit-driven motives with the ethos of commoning. It also considers the metrics for assessing resilience in organisational practices, including their adaptability to economic fluctuations and environmental changes.

Taking a broader theoretical perspective and focusing on the commons highlights the wealth of research, knowledge and inspiration that design practice can draw from. It also underscores the need to disentangle design from its mechanistic, colonial and neoliberal foundations and embrace non-Western perspectives. Based on the literature review, three key challenges emerge for contemporary design practice within planetary health: information, imagination and governance.

These challenges give rise to the theoretical framework of aligning design practice with the principles of the commons to foster regenerative change, including three working hypotheses that guide the research questions in subsequent fieldwork:

1. The **first working hypothesis** posits that there are knowledge gaps in contemporary design practice regarding systems, and the **research question (RQ1)** explores how commoning can address these to facilitate designing for living systems.

2. The **second working hypothesis** suggests that a human-centric and growth-oriented paradigm limits designers' imaginations, and the **research question (RQ2)** investigates how commoning can enable a shift from a human- and growth-centric paradigm towards a more relational approach.

3. The **third working hypothesis** highlights the lack of understanding of how to foster sustainable and collaborative governance through design, and the **research question (RQ3)** explores how commoning can inform contemporary design practices to facilitate creating collaboration infrastructures.

In my thesis, I adopt Dewey's notion of the working hypothesis as a fundamental component of his inquiry theory and use the word 'hypothesis' very differently from how it is used in scientific hypothesis-based research. Hypothesis-based science describes the use of the scientific method to assess explanations about a natural phenomenon. Dewey's working hypothesis, in contrast, serves as a tentative guide for action within an ongoing process of inquiry, emphasising continuous refinement through experience and experimentation rather than validation through testing against predetermined criteria.

Dewey defined working hypotheses as *"provisional means of advancing investigation"* (Dewey, 1938, pp. 142), emphasising their usefulness primarily at a research project's outset. Unlike the conventional approach to hypothesis testing in science, which relies on scientific principles of verification and falsifiability through statistical analyses, Dewey's working hypotheses serve as provisional tools for advancing exploration rather than definitive assertions of truth (Casula, Rangarajan, Shields, 2021). Rooted in contextualist epistemology, Dewey's framework acknowledges the unattainability of absolute truth and emphasises the concept of *"warranted assertability"* (Dewey, 1938).

By aligning with Dewey's concept of the working hypothesis, my thesis uses the concept of 'hypothesis' not as a rigid tool for hypothesis testing, but as a flexible and practical framework to structure exploratory research while learning from existing literature and theory as a starting point. It functions as a guide throughout the research, offering coherence across the various steps of the process and enabling me to analyse my findings in the context of my working hypotheses towards the end. This approach emphasises the dynamic nature of inquiry, allowing for the exploration of indeterminate situations and the emergence of unforeseen insights, thereby resonating with Dewey's pragmatic and phenomenological perspectives (Casula, Rangarajan, Shields, 2021). By exploring a set of working hypotheses and research questions, the study aims to contribute to developing a relational framework within contemporary design practice that supports system transitions and promotes planetary health.

1.4 Positioning of literature and theoretical framework

The theoretical research draws from multiple disciplines, including critical design theory, service research, post-development theory, systems theory, posthumanism and the commons theory. These specific streams of literature have been chosen to provide a comprehensive and interdisciplinary understanding of design for planet-centricity through service design and commoning practices. The rationale for selecting these literature streams is twofold. First, while the commons have often been explored from economic and ecological perspectives, there is a gap in the literature connecting the commons discourse with contemporary service design practice. By incorporating critical design theory, service research and post-development theory, this research aims to bridge this gap and explore the potential of commoning practices in contemporary design. Second, the chosen streams of literature offer insights into key theoretical frameworks and concepts relevant to understanding and analysing the relationship between service design and the commons. Systems theory and posthumanism provide valuable perspectives on complex adaptive systems and the inclusion of non-human actors, which are essential considerations in designing for planet-centricity. These theories help contextualise the design challenges and opportunities associated with commoning practices in service design. By incorporating these literature streams, this research seeks to provide a comprehensive and multidimensional understanding of the intersection between contemporary service design and the commons discourse. Although the commons have frequently been used as an analysis framework to explore the existence of commoning design principles in hindsight, little attempt has been made to connect them to the design of commons-based collaboration structures. This thesis aims to fill this gap by offering novel insights into the design of commons-based collaboration structures and proposing a Commoning by Design framework to guide the design of systemic and collaborative conditions. Through this interdisciplinary approach, the research aims to advance the field of service design and contribute to the broader discourse on designing for the common good.

The theoretical research began with a comprehensive literature review, rooted in the practice and theory of service design as an emerging field that began in the 1990s as an object of theoretical debate and developed as a practice in the early 2000s (Kimbell, 2011; Wetter Edman, 2011; Sangiorgi & Prendiville, 2017). Service design has been understood in different terms through the lens of service marketing (Shostack, 1982), New Service Development (NSD) (Johnson et al., 2000; Edvardsson & Olsson, 1996; Edvardsson et al., 2013) and service innovation studies (Prestes Joly et al., 2019) – more recently defining service design as the activity of planning and organising people, infrastructure, communication and material components of a service in order to improve its quality and the interaction between a service provider and customers (Sangiorgi & Prendiville, 2017). This research follows the specific notion of understanding service design as a human-centred, creative and iterative approach to service innovation (Wetter-Edman, 2014) that needs to evolve in order to find creative solutions for achieving planetary and multispecies health (Escobar, 2018). In pursuit of evolution, the research embraces a more expansive concept of 'contemporary design practice,' departing from the confines of traditional service design terminology.

In order to define a clear research aim and questions, I explore various theoretical frameworks – from design to social systems to economic theory. To allow for increased knowledge integration from other fields and to refine my research questions, three additional theory inputs were chosen due to their alignment with the overall research aim and their complementary perspectives. My literature review and theoretical framework, therefore, consist of two parts: first, a review of design literature to refine my overall research aim, and second, a review relating economic and system-based theories and practices of the commons, which allowed me to extract three specific research questions for my empirical work as well as inspire routes for the empirical research moving forward.

1. For the first part, Chapter 2, entitled 'Tracing contemporary design practice', I have selected literature from critical design theory, service research and post-development theory that has helped me recreate a historical trajectory of service design practice and theory over the past 20+ years to identify knowledge, theory and practice gaps, especially in the context of the transformative potential of service design. This mapping process formulated my research aim to frame my anticipated contribution to knowledge creation. This literature review highlights that connecting service design to social change has increased awareness in academia for innovative design practices (Escobar, 2018). These practices prioritise relations over individuals and needs (Conway & Masters, 2017) and acknowledge the situated nature of designing (Akama & Prendiville, 2014). However, how these findings could translate into practice remained unclear, as scholars noticed a discrepancy between the academic knowledge and the day-to-day practices of designing for services through organisational or systemic design (Mager et al., 2020). This resulted in the definition of my research aim.

2. For the second part, Chapter 3, entitled 'Theoretical framework, underlying theories and synthesis of research questions', I chose to complement the research with additional literature outside the design field that could help me refine a set of specific questions to explore. First, I look at information challenges for design practice, and how systems theory (Meadows, 2009; Bertalanffy, 1968) can potentially add a more relational, dynamic and non-linear understanding of the complexity inherent in service and social systems. I zoom in on social systems theory (Luhmann, 1995), as defined by Niklas Luhmann, which sees systems as consisting of networks of connected and related decisions and which could provide a deeper understanding of how to create relationships between actors, environments and social structures. I expand on Luhmann's theory and focus on aspects of posthumanism theory based on the writings of feminist and posthuman scholars (Haraway, 2016; Braidotti, 2016; Tsing, 2015) in order to explore a frame suitable for de-centring service design away from human-centricity and towards relations. Second, I explore imagination challenges and investigate the economic foundations inherent in contemporary design practice and to which extent these aid or hinder developing more regenerative solutions. I deepen the theory with topics of regeneration, degrowth and alternative economics (Fullerton, 2015; Raworth, 2017; Hickel, 2020) to reimagine contemporary design beyond neoliberal economic structures. Third, I investigate governance challenges through the theory of the commons (Ostrom, 1990; Wilson et al., 2020; Bollier & Helfrich, 2019) to explore in more practical terms some of the ideas that could help shift design practice towards a relational ontology, and that views and designs for a world as a dynamic set of living and integrated systems.

Having reviewed a much broader spectrum of literature – from complexity theory, complex adaptive systems, post-feminism, posthuman studies, transition studies and economic theory – I chose to focus on specific streams of literature. These included systems theory, posthumanism, economic theory and the commons, because they provided promising alternative ideas to address the identified theory-practice gap. The rationale for choosing literature from systems theory (i.e. Luhmann and Meadows), posthumanism (i.e. Haraway and Tsing), regenerative economics and degrowth (i.e. Raworth and Hickel), and the commons (i.e. Ostrom and Bollier & Helfrich) as my theoretical framework is rooted in the need for an alternative, yet comprehensive and transitional approach. Collectively, these theories seem to address the complex and interconnected challenges faced by organisations seeking to integrate sustainability principles and regeneration practices.

Systems theory offers a holistic perspective on organisations and their interactions with the environment. It allows for examining the intricate relationships between different components of an organisation and the larger ecological systems they are embedded in. This perspective is critical for

recognising the interdependence and feedback loops that shape an organisation's impact on its surroundings. Posthumanism challenges anthropocentrism and advocates for considering the perspectives and agency of non-human entities in systems theory. Regenerative economics and degrowth theories propose alternative economic models that prioritise ecological wellbeing and social equity over relentless growth and consumption. They highlight the need to transition away from unsustainable economic practices and offer pathways to create regenerative and equitable economic systems. And finally, the framework of the commons as an alternative economic lens emphasises collaborative decision-making and collective ownership, providing a promising and mostly untapped perspective for organisations seeking sustainable ways to manage material and immaterial shared resources.

While my literature underscores the imperative to depart from established Western frameworks and explore alternative avenues of knowledge creation, it is important to note that my thesis and research method predominantly adhere to Western epistemology rather than intuitive knowledge or experimentation with Eastern epistemology. Despite acknowledging and advocating for embracing non-Western approaches, including indigenous knowledge and ways of knowing, the research was conducted within Western organisational settings entrenched in a neoliberal paradigm. Hence, employing a commons framework based on Ostrom, for example — which could reasonably be critiqued for their cultural bias and focus on formal Western institutions, potentially overlooking the complexities of non-Western contexts — seemed appropriate for initiating essential transitions within these specific Western contexts. The empirical data obtained from case study research further underscored the necessity for a gradual approach towards sustainability and regeneration that speaks to the language of a large-scale corporate Western context. Consequently, the chosen theories are aligned with this requirement, focusing on facilitating transitioning approaches to integrate sustainable practices within the existing landscape in Western organisations. While the starting point is grounded in Western frameworks, I would like to stress that this thesis does not discount the importance of embracing diverse cultural perspectives and alternative ways of knowing to pursue sustainable and regenerative practices in the future.

The chosen theoretical framework has allowed me to develop working hypotheses that pertain to the three categories of challenges essential for achieving planetary health (Whitmee et al., 2015). Building on this foundation, I have formulated three specific research questions that centre on the role and practice of contemporary design, which I aim to address through empirical fieldwork.

Challenges and constraints in decolonising the bibliography

At the inception of my research, the discourse on decolonisation was not as advanced as it is today. The prevailing academic landscape at that time often overlooked the valuable contributions and perspectives from the Global South. Consequently, during the literature review process, the references and sources I encountered were not as diverse as they could have been. By adopting a more robust postcolonial perspective, I could have potentially addressed the prevailing dominance of Western narratives that have dominated literature for centuries. Reflecting on this, I now recognise that the timing of my literature review was a factor. I am aware that conducting a literature review today would need to entail a more intentional effort to seek and include diverse voices and representations from the Global South, ensuring a richer and more comprehensive exploration of the subject matter.

1.5 Structure of the dissertation

The thesis is divided into three key stages and eight subsequent chapters. Here is a refined and edited summary of each stage and its corresponding chapters:

Stage 1: Theory
The theoretical stage involves a comprehensive review of existing theories at the intersection of design, systems theory, economic theory and the commons. It uses an in-depth literature review and dissemination of research. The areas of inquiry include social systems theory, posthumanism theory and economic theory, encompassing regenerative economics, post-growth and the commons. This stage identifies the main research aim, working hypotheses and questions and synthesises a theoretical framework to guide the empirical research in the subsequent stage.

> **Chapter 1: Opening**
> Introduction to the research motivation, context, aim, working hypotheses and questions, thesis structure, positioning of literature and summary of knowledge contribution.
>
> **Chapter 2: Tracing contemporary design practice and defining the research aim**
> Description of the literature and theories on contemporary design practice leading to the definition of the research aim.
>
> **Chapter 3: Underlying theories, theoretical framework and research questions**
> Discussion of other theoretical lenses employed, including general and social systems theory, posthumanism theory, economic theory, economic foundations of contemporary design practice, regenerative economics, post-growth, degrowth and the theory of the commons. This chapter concludes the theoretical stage by highlighting the opportunities of the commons and commoning practices, establishing the research scope, a set of working hypotheses and research questions. It proposes a theoretical framework based on the commons for exploring a relational approach within contemporary design practice that facilitates system transitions for planetary health.

Stage 2: Practice-based research
The practice-based research stage involves research design and methodology, a scoping review and an organisational ethnographic case study. In reference to the theoretical framework developed in stage 1, stage 2 explores, in-depth, the planetary health challenges related to information, imagination and governance in each case study, analysing them in the context of their current design practices.

> **Chapter 4: Research methodology**
> Summary of the research philosophy, epistemological stance, research design, empirical methods employed, their relevance and limitations, approach to research evaluation, data collection and analysis, research validity, reliability, generalisation and the researcher's own position.
>
> **Chapter 5: Scoping research**
> Presentation of empirical insights synthesised through a series of scoping review activities, revealing the realities and challenges of situated contemporary design practice aiming to achieve sustainability and planetary health and testing the application of a commoning framework.

Chapter 6: Case study
Presentation of an in-depth organisational ethnographic case study focusing on a global sportswear manufacturer with an internal service design capability. The case study provides the main body of empirical evidence to address the working hypotheses and questions. The descriptions of the case study summarise the organisational context and background, data collection and synthesis of interview scripts, participatory observations, secondary research through archival documents, site-specific insights and data analysis.

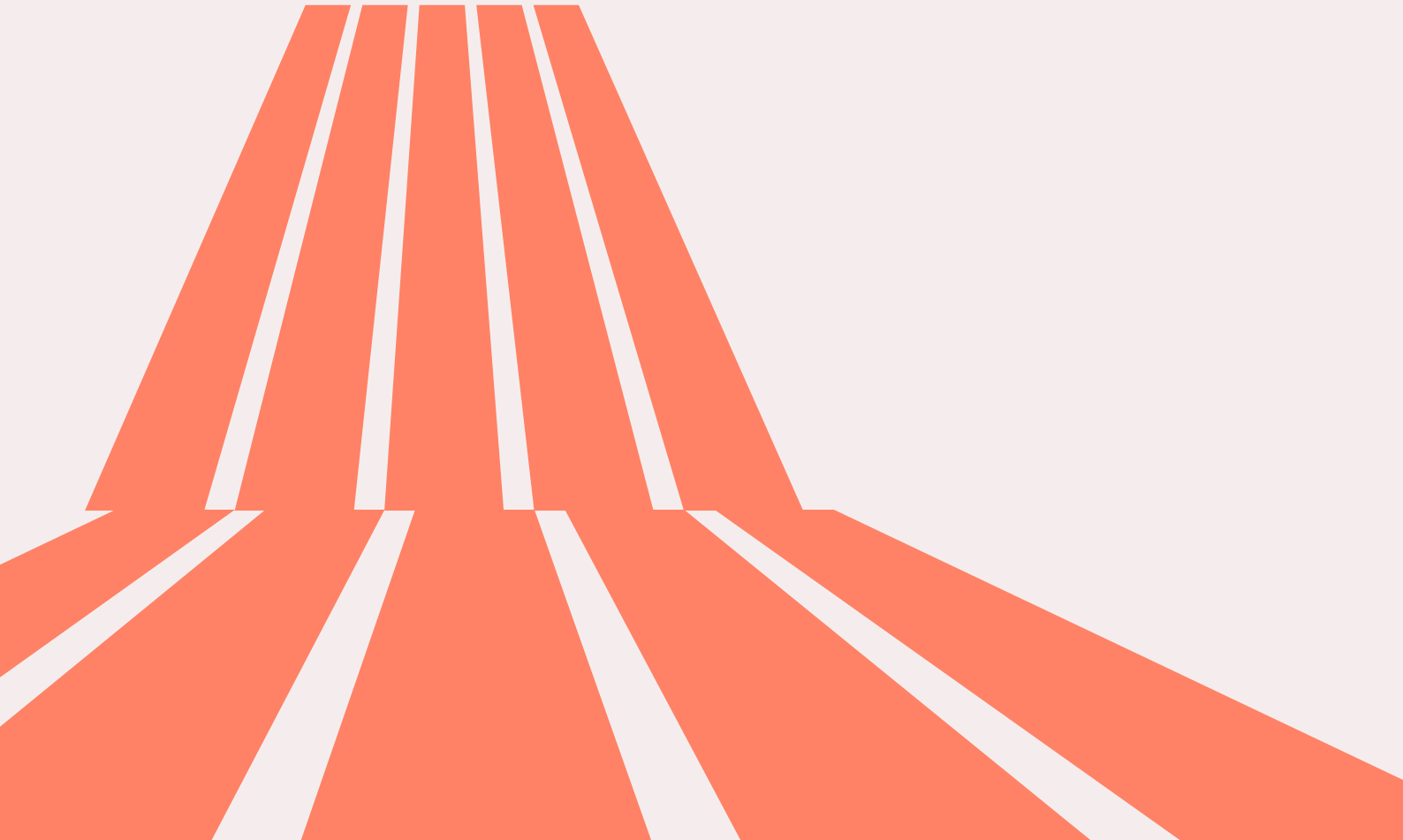
Stage 3: Analysis and discussion
The analysis and discussion stage includes the case study findings, examining the potential for applying commoning processes in existing organisations and explores the application of commoning in different contexts and organisational levels. It also presents reflections on the need to avoid cooptation of the commons in the context of design practice.

Chapter 7: Designing Commoning; Commoning Design
A discussion of the similarities and divergences in applying a commoning approach to contemporary design practice. This chapter summarises a set of potential commoning resources for contemporary design practice. It informs an adjusted commoning framework borrowing from Bateson's theories of warm data, double binds and transcontextual research (2021, 2023) to enhance planetary health through 'Commoning by Design'.

Chapter 8: Conclusions
The thesis concludes with a final chapter that summarises all previous sections and presents the contributions of the thesis to knowledge in the fields of contemporary design practice, design research and the commons discourse. The chapter also discusses the implications, limitations and opportunities for future research. The Appendix includes details about the empirical approaches used in chapter 4 and 6 and example materials.

CHAPTER 2

Tracing contemporary design
Defining the research aim



Introduction

In the following section, I trace the key developments in contemporary design practice – referring to design approaches that prioritise relationality and planetary health— through service marketing, service design and critical design literature streams. I explore questions including: How did contemporary design practices develop, what do service designers design, what is the design process, what are some potential limitations and how is the practice evolving? Adopting design approaches to complex systems, including government, public services and corporate organisations, led me to identify emerging issues in service design application – specifically, its ability to suitably deal with pressing sustainability challenges, complex organisational legacies, dynamics and power interrelations (Junginger, 2015). A stimulating discourse emerged around the need for service design practice to evolve into a critical, decolonising design practice (Escobar, 2018; Schultz, 2018; Duan et al., 2020). Thus, as a whole, I refer to 'contemporary design' practice as opposed to 'service design' to allow for differentiation between the emerging practices and break free from the confines associated with the latter. This deliberate distinction focuses on a more expansive and adaptive approach, encouraging exploration beyond the traditional boundaries of service design. As I aim to highlight limitations in the current practice of service design, particularly in its historical context, I emphasise the opportunities for an evolutionary shift that could enable a much broader application. This expansion seeks to redefine the scope and context of the service design field, extending from services to systems and encompassing human/non-human relations. By exploring the evolving landscape of contemporary design practices, I highlight a shift towards pluralistic approaches. Concerns over design's historical alignment with capitalist models prompt a growing emphasis on self-awareness, critical inquiry and speculative engagement among designers. The concept of the commons emerged as a critique of capitalist practices within the context of pluriversal design where designers increasingly explore grassroots-driven value chains like the commons, fostering collaborative approaches organised from the bottom-up (i.e. Seravalli, Agger Eriksen, & Hillgren, 2017; Teli, McQueenie, Cibin, Foth, 2022). Examples across from urban planning to digital realms, illustrate how commons approaches inform co-production models for public services, highlighting adaptability, shared ownership and ongoing collaboration. In this context, scholars have argued for a design philosophy that is deeply interwoven with the values of caring and commoning to reconfigure socio-technical systems in ways that prioritise planetary health over economic efficiencies or profits (Sciannamblo., Cohn, Lyle & Teli, 2021).

2.1 From Service Design to Designing for Service

The theoretical underpinnings of service design stretch across academic fields, from design to marketing to management and draw on interdisciplinarity between fields and theories to position service design as a vehicle for change. I summarise some key points in the following section.

The term 'service design' originated in the context of service marketing and blueprint design (Shostack, 1982) and was used to describe a specific step within the New Service Development (NSD) process (Scheuing & Johnson, 1989). It presented the part of the innovation process that focuses on generating ideas and formulating service concepts (Johnson et al., 2000), and was considered one of many processes contributing to service innovation. Identified as a missing resource within organisations (Sangiorgi & Prendiville, 2017), the designer's specific contribution to NSD was described as their ability to engage users and communities in the design process and integrate this with qualitative and quantitative data to imagine and shape possible futures. Going hand in hand with developing and articulating service design practice, was an evolving understanding of what services are. Assumptions about value and exchange have been challenged (Vargo & Lusch, 2004; 2018; Vargo et al., 2008) due to globalisation, digitalisation and the rise of the service sector (Prahalad & Ramaswamy, 2000). In an

attempt to increase market competition and differentiation, traditional manufacturers were looking to create new revenue streams across the product lifecycle and to improve competitive advantage through service provision (Baines et al., 2009). It can be hard to explain in simple terms what a service designer offers against this background. In service marketing literature, the earliest reference of objects that can be designed relates back to the ideas of peripheral and essential 'service evidence' (Shostack, 1982). Peripheral evidence is the physical object that is possessed during a purchase (i.e. an airline ticket) (Shostack, 1982). On the other hand, essential evidence cannot be possessed by the customer but is key to facilitating the service interaction (i.e., an aeroplane) (Shostack, 1982). Beyond the idea of service evidence that can be designed, NSD literature describes how a service consists of a combination of tangible and intangible elements and is generated through a process. Although we cannot control these processes (Meroni & Sangiorgi, 2012), we can design the elements involved as well as the surrounding prerequisites to ensure the best possible service outcome and make the service possible in the first place (Edvardsson & Olsson, 1996).

2.1.1 A framework for human-centricity

Various streams of literature explored how designers think and practice, while defining a commonly shared approach to designing that is deeply rooted in human-centricity (Norman, 2013). The dual dimension of understanding human experiences and engaging people in the design for better services characterises this 'human-centeredness' in service innovation (Sangiorgi & Prendiville, 2017). This is supported by the authors of *This is Service Design Thinking* (Stickdorn & Schneider, 2012), who define a set of service design qualities: user- or human-centred, co-creative, sequencing, evidencing and holistic. As a human-centred, co-creative and holistic approach, service design has been linked to a phased design process for designers and non-designers alike (Design Council, 2004). However, in light of the growing complexity of our social, economic and environmental challenges, the Double Diamond has recently been updated to reflect a broader Framework for Innovation and service design practice to achieve necessary and more significant, long-lasting change (Design Council, 2021).

Figure 1: Double Diamond design process;
UK Design Council, 2004

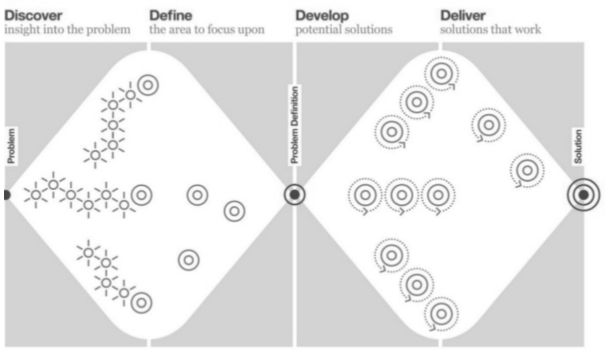
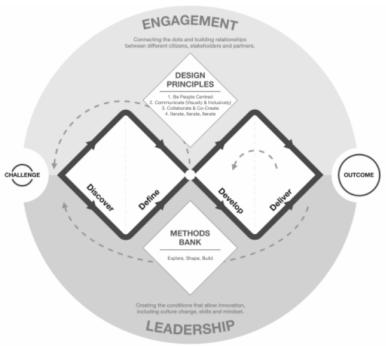


Figure 2: Framework for Innovation;
UK Design Council, 2019

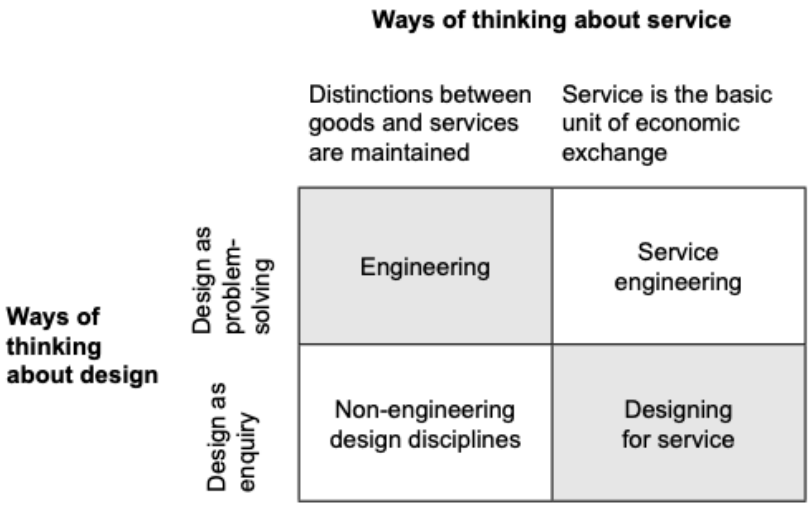


2.1.2 Designing for service: from outcome to conditions

'Design for services' was introduced as an evolution from service design, to describe the capacity of design practice for creating the right conditions for service interactions to take place (Meroni & Sangiorgi, 2012). Echoing the key concepts of NSD and the idea of creating the right prerequisites of service, Lucy Kimbell (2011) first used the term 'designing for services' as a way of conceptualising service design, while also emphasising that the "purpose of designers' enquiry is to create and develop

proposals for new kinds of value relation in a socio-material world" (Kimbell, 2011, p.49). By differentiating between service design through an NSD lens and designing for services, she consequently distinguished between a design practice that designs a service as an end result, and a design practice that focuses on designing a service "platform for action with which diverse actors will engage over time" (Kimbell, 2011, p.45). Designing for service thus began to describe an ongoing value co-creation between actors within a service context. It supported the view that design can be both the "medium and the outcome of action" (Garud et al., 2008).

Figure 3: Approaches to conceptualising service design; Kimbell, 2011, p.45



Designing for service, as described by Kimbell (2011), differed from how service design was interpreted at the time, in that it encompassed the possibility for service design to play a role in system transformations while navigating the practices associated with it. Just as the object of design evolved in the context of service design, Kimbell (2011) showed that the context of service design application also evolved towards creating new value propositions and supporting the socio-material configuration for organisations (Kimbell, 2011). Consequently, design for services gained traction and credibility over service design as part of NSD, sparking further discussion about opportunities and limitations inherent in service design practice when applied at an organisational level (Sangiorgi, 2010).

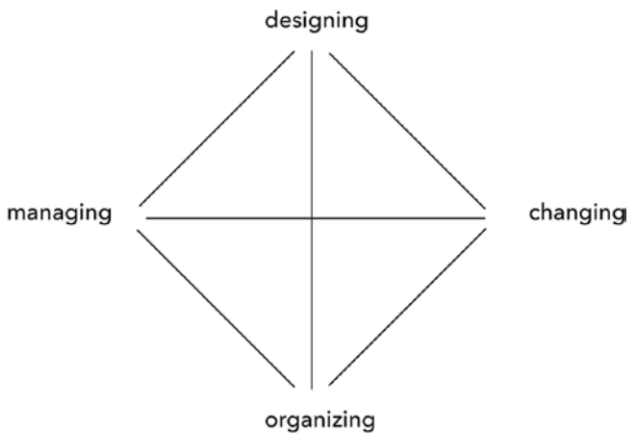
Table 2: Comparing perspectives on service design, author's own, 2020

	Service Design	**Designing for Service**
Service design perspective	Service design as problem-solving	Service design as enquiry
Focus of service design activity	Service as the 'end'; Creating the service	Service as a 'means'; Creating the conditions for services to occur
Outcomes	Service as product	Service as value co-creation, organisational & behavioural change
Object of design	Service encounters & service artefacts	Socio-material configuration of service

2.2 Organisational designing: Increasing complexity

In the past 10 years, we saw increasing numbers of organisations investing in design-led initiatives as a way to become more innovative and as a way to embrace creating capabilities for continuous improvement and development (Lima & Sangiorgi, 2018; Wetter-Edman & Malmberg, 2016). As service design had been recognised as a useful approach for organisations (Meroni & Sangiorgi, 2016), design professionals began introducing design-led changes (Junginger & Sangiorgi, 2009) that dealt with fundamental organisational issues around capability building and organisational strategy. In other words, design became an essential organisational activity required to function and survive (Junginger, 2015). By building on the idea of seeing organisations as living organisms, Sabine Junginger (2015) identified a set of 'organisational design legacies' that must be understood, articulated and engaged with to create impactful organisational change. They highlight three succinct elements essential to an organisation's DNA: organisational purpose (the reason why an organisation exists), organisational design approaches (values that underpin an organisation) and organisational design practices (how design activities take place and surface within an organisation). Thinking of organisations as having innate design legacies changed the role of design in organisational contexts to recognise the ongoing design work, alongside existing management and change efforts (Junginger, 2015). Hence, designers began to look to change management and organisation theory for inspiration.

Figure 4: The four core organisational activities and their interdependent relationships, Junginger, 2015

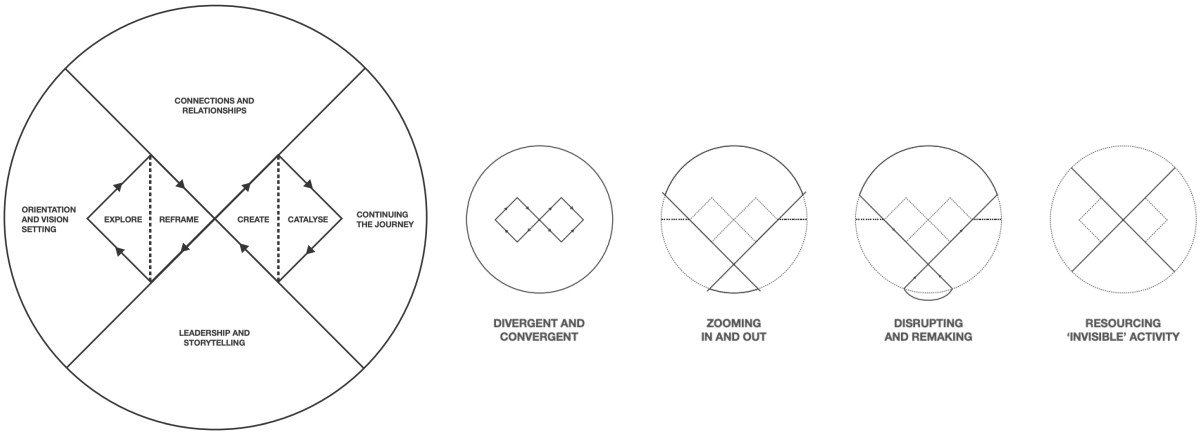


Considering design as a core organisational activity, rendered design as an activity that can no longer be 'owned' by a designer (Junginger, 2015; Junginger & Sangiorgi, 2009; Manzini, 2015). This insight changed the practice and context of design dramatically. By taking into account that everybody designs (Manzini, 2015), designers allowed for new levels of complexity to emerge and for a whole new range of ethnographic and participatory design practices to unfold (Escobar, 2018). The design challenge was no longer to resolve a product-service-system problem, but a cross-functional and organisation-wide concern, often tackling issues around becoming more customer-centric by design (CX design). Barend Klitsie and Frithjof Wegener (2020) analysed the service design approach against organisational design. They suggested that service designers, who work with complex issues or within organisations may need to learn how to deal with complex organisational design issues in addition to complicated service design problems. They go as far as stating that while service design is an appropriate framework when addressing complex problems, where stakeholders and their needs are dynamic and uncertain, service design needs evolution in its approach (Klitsie & Wegener, 2020).

2.3 Systemic design: Recognising relationships and connectedness

Recent work of design researchers showed an increased interest in the potential of systems thinking to support design theory and praxis (Jonas, 2007; Sevaldson, 2011). By acknowledging the issue of complexity and aiming to avoid reductionism (due to the inevitable omission of some aspects in the design problem space), scholars and design practitioners have emphasised the need for a new set of design tools and approaches to help manage system complexity (Klitsie & Wegener, 2020; Darzentas & Darzentas, 2014). This arguably paved the way for systemic design. System thinking and design practice are the two fields that integrate with systemic design (Design Council, 2021). Systems thinking requires us to consider not only individual parts but how these interact and engage with one another to ensure an interdependent, balanced system as a result (Meadows, 2009). Adopting a systems perspective requires a shift from traditional reductionist design thinking to focus on relationships, connectedness, and processes instead of separate touchpoints and structures (Darzentas & Darzentas, 2014). It involves considering the whole system rather than just its parts and recognising emerging patterns over specific contents within the system. When applying systems thinking to service design, it has been found that the focus of service design practice on 'solutionism' (i.e. the unchallenged belief that every problem has a solution that can be designed) needs to be expanded to allow for multiple problems and multiple solutions to co-exist (Design Council, 2021). Following this notion, it is not the solution designers ought to be creating, but the context in which a system can unfold in which "any intervention will set off another train of interactions which could ... positively reinforce the system as a whole" (Design Council 2021, 27). By recognising the limitations of service design when applied to complex challenges, the UK Design Council (2021) put forward a new overarching working practice that replaces the Double Diamond process and recognises the interconnected, complex nature of problems and the need to prioritise planetary health.

Figure 5: Systemic Design Framework; Design Council, 2021



Josina Vink and Vanessa Rodriguez (2016) point to succinct characteristics inherent in service and systemic design, but argue that instead of being sub-disciplines of their own, systemic design should be integrated into the existing service design discipline (Vink and Rodrigues, 2016).

Table 3: Service vs. systemic design; adapted from Vink and Rodrigues, 2016 and built upon by the author

	Service design	**Systemic design**
Outcome	Value co-creation (Financial, social, environmental)	Context driven systemic health
Focus	Solutionism: Creation of solutions & action-oriented bias	Multiplicity of problems & solutions: Understanding of complex problems & analytical bias
Practice	Method & tool based	Mindset & competency based
Approach	Reductionist (breaking the service system down to its components and analysing it to describe the complex phenomena in simpler terms)	Holistic (acknowledging the wickedness of complex problems and the tensions of designing)
Rhetoric	Importance of a human-centred approach and the benefits of user and provider involvement	Engagement of a wider pool of diverse stakeholders (human & non-human), and emphasising the need to work through conflicting interests and understand relationships within the system
Theory	Anthropology and service-dominant logic	Systems theory, cybernetics, organisation theory and evolution theory

Although design practitioners are working across fields and sectors today, literature points to an emerging practice gap: designers are not yet using their skills and knowledge to sufficiently support systemic challenges in the way that they could (Design Council, 2021). Much existing design work is considered 'superficial', making only obvious changes without tackling the underlying issues. Besides, design practitioners are seen to have a limited conception of the tools and approaches necessary to design for emerging systemic issues (Design Council, 2021). This describes the context in which a much stronger integration between system thinking and service design is needed to allow for greater complexity to be tackled by design (Vink & Rodrigues, 2016). Disruptive design (Acaroglu, 2017) or speculative design (Tonkinwise, 2015) have been proposed as new ways for design practice to address systemic issues from the present into the future.

2.4 Pluriversal design: Evolving beyond human-centred design based on Western ideologies

The impending climate crisis, recent inclusion and diversity movements, as well as the local and global disruptions caused by the COVID-19 pandemic, have sharpened the need to reflect on some tensions and limitations of service design practice in the context of cultural, economic, historical and environmental plurality. As a result, critical design theory scholars, post-development thinkers and anthropologists began to interrogate neoliberal modernity, individualism and colonialism through a design lens. Escobar pertinently points to design and design theory as the enablers of expansionist capitalism that contributed to a fragile, uncertain socio-economic world and our civilisational challenges today (Escobar, 2011; 2018). Escobar (2018) further analysed the role of design and positioned it as a process driven by Western ideologies and within a first-world, globalised and capitalist context. He critically reflects on the celebration of human-centred design as a deeply technocratic practice that advocates the individual and the sovereignty of the human species.

In light of that, Escobar argued that the context and to which extent design tools are used remain problematic (Escobar, 2018). In other literature, there is a growing recognition, too, that design tends to be regarded through a Western Eurocentric design lens (West, 2020; Yee & Akama, 2020) and that designers filter their observations through their own perspectives, therefore influencing what they know to be true (Darzentas & Darzentas 2014). Consequently, there is a growing interest in seeking alternative views of design that go beyond the Western paradigm of designing, which has excluded local histories and perpetuated cultural colonisation (Sosa, 2020). Akama and Yee (Akama & Yee 2016) also pointed to the risk of a Eurocentric design approach inadvertently replacing the cultural, traditional and heterogeneous practices with imported, dominant Western paradigms that fundamentally do not cater for local contexts, mindsets and ways of living. Therefore, it was argued that only through conscious efforts of active decolonisation and focusing on problem framing (rather than solution finding), we may be able to find our way out of the predicaments that design is facing today (Sosa, 2020; Schultz, 2018; Escobar, 2018).

Following this development, there have been calls for practices that move towards planet-centred, life, or 'zoe'-centred (Braidotti, 2016) practices that put individual human needs alongside the needs of nature and other species. Several authors have argued for more plural and inclusive versions of contemporary design practice that can free us from commonly held assumptions (Escobar, 2018; Akama & Yee, 2016; Yee & Akama, 2020). As such, authors began to formulate alternatives: Escobar (2018) proposed autonomous design as a means for proliferating resistance to our prevalent and malfunctioning systems and repositioning it as an open-ended process of invention and creation directed to solve challenges associated with capitalism, colonialism and patriarchy (Escobar, 2018). Ontological design (Escobar, 2018) was also proposed to reflect a greater diversity of design approaches, grounded in people's realities of life and based on interdependent relations between system agents (Escobar, 2018, p.132). Design for Justice (i.e. Costanza-Chocks, 2020) seeks to dismantle structural inequality, foster collective liberation and contribute to ecological survival. Grounded in principles of equity and empowerment, this perspective underlines the significance of prioritising marginalised voices in the design process to develop solutions that address systemic injustices of the Global North and foster an inclusive and sustainable future. Similarly, Tristan Schultz (2018) identified decolonising design as a way to break out of a dominant Western mindset of designing. To challenge anthropocentrism, he suggests 'Cognitive Redirective Mapping' (CRM) as a decolonising design tool. CRM experiments with new ways of mapping, categorising and creating knowledge, giving validity to diverse forms of being and knowledge through storytelling, dance, and transcendent narratives (Schultz, 2018). This tool establishes a dialectic between everyday human experiences and surrounding conditions, emphasising respect for non-anthropocentric perspectives in design. Metcalfe (2015) points to the idea of multispecies design as a theoretical framework for supporting the shift to more biodiverse human habitats.

Hilary Cottam explored similar questions in the Western context of design practice and advocated relational welfare (Cottam, 2015). Frederick Van Amstel (2021a) continued this notion and described relational design as a profound transformation in the theory and practice of design towards a practice away from designing performative objects (interactions, experiences or services) and towards designing them in relation to other objects through systems (van Amstel, 2021b). Like Escobar, he points to critical ontological design practice and experiments with the hybridisation of design methodologies to overcome the Western dichotomies between rationality and irrationality, method and chaos, and, ultimately, design objects and systemic interrelations (van Amstel, 2021a). With transition design, Terry Irwin (Irwin, 2015) proposes a new era of design practice, study and research that should support design-led societal transitions beyond Western paradigms and towards more sustainable, planet-centric futures based on the "interconnectedness of social, economic and natural systems" (Irwin, 2015).

The literature review revealed a notable shift towards pluralistic approaches in contemporary design discourse, following concerns about design's previous integration into current economic models driven by capitalist production and consumption (i.e. Escobar, 2018). These emerging approaches are marked by self-awareness, critical inquiry, and a tendency towards speculation and political engagement (Schranz, 2024). Designers are increasingly employing critical questioning and speculative experiments to test and challenge social frameworks from a design-centred perspective. Emerging practices integrate inter-, trans-, and cultural perspectives within design disciplines (Prendeville & Kohtala, 2024). As design evolves into disciplines that blend design practice with knowledge creation, designers are also urged to adopt a responsible and critical stance in their work (Prendeville & Kohtala, 2024). Within this context, the notion of the commons has gained prominence in design discourses more recently, serving as a critique of capitalist practices (i.e. Seravalli, 2014). The Commons, rooted in the Latin words cum (meaning "with") and munus (meaning "service" or "obligation"), refers to collectively managed resources such as water, seeds, code, creative works, knowledge, and culture (Schranz, 2024). These resources emerge through self-organised processes and collective action, a phenomenon known as "commoning" (more in 3.3). Projects based on the commons thrive on user participation and are characterised by self-regulation, continuous revision and collective development (Bollier & Helfrich, 2019).

As design moved from craft (design maker) to mass production (design professional) to post-professional models (everyone designs), grassroots-driven value chains like the commons are emerging (Teli, McQueenie, Cibin, Foth, 2022). Collaborative commons, organised from the bottom-up, are positioned as alternatives to top-down design approaches (Schranz, 2024; Teli, McQueenie, Cibin, Foth, 2022). This extension of the commons concept spans from traditional resources to intangible goods, shaping a new perspective for designers and design researchers to explore. By emphasising the sharing of designs, workspaces, and techniques, recent research emphasised agility and flexibility in design and production (Botero et al. 2020). Many contemporary design practices mentioned above explore reimagining services or resource use within the framework of the commons, whether in urban planning or digital realms (Schranz, 2024). For instance, in the context of co-producing public services, there is a growing recognition of the limitations of traditional management practices influenced by market logics (Seravalli, Agger Eriksen, & Hillgren, 2017). Instead, we see a shift towards co-production models involving collaborations between public providers, citizens, and societal actors using approaches like infrastructuring and commoning (Seravalli, Agger Eriksen, & Hillgren, 2017). Infrastructuring emphasises the importance of flexible and open design processes that adapt to evolving needs and contexts. It involves a long-term effort to rework relationships among various stakeholders by aligning their interests and navigating existing bureaucratic structures. Commoning in this context focuses on shared ownership as socio-material practices. It aims to ensure collaborative value creation and shared responsibility among participants, often acting as a compass in co-production processes. Anna Seravalli and colleagues's research showed how applying infrastructuring and commoning principles in co-production processes offered guidance for civil servants to navigate complexities and develop more inclusive and responsive public services. These approaches resulted in public services that emphasise adaptability, shared ownership, and ongoing collaboration, contributing to the evolution of public sector practices towards more equitable and effective service delivery.

Another example is Maurizio Teli and colleagues' (2022) exploration of the concept of intermediation in design practice, particularly focusing on commoning and institutioning. They present two case studies—a community radio project in Europe and a food supply chain project between Australia and China—to illustrate how intermediation is intertwined with the practices and competencies of designers. Their findings highlight the significance of commoning-enabled intermediation as a central aspect of design work, showcasing another pluralistic design approach inspired by the commons (Teli,

McQueenie, Cibin, Foth, 2022). The discussion of findings in Chapter 7 will further explore into the potential role design intermediaries could play in supporting, amplifying, accelerating, and expediting commoning approaches, emphasising their capacity to catalyse and enhance collaborative efforts within organisations. Despite promising examples of service-based commoning and infrastructuring in design practice, the literature revealed a gap in research when it comes to exploring how commoning principles could shape and improve today's organisational practices as opposed to creating commons-based services, resources, or communities. While designers and design researchers acknowledge the potential of commons in envisioning collective modes of operation and scholars recognise that commons are not isolated from existing social structures like capitalism — and instead coexist with them (Prendeville & Kohtala, 2024) — the translation of commoning into organisational contexts remains relatively uncharted. This calls for a deeper exploration into how commoning principles can inform organisational structures and practices, offering insights into fostering collaboration, equity, and sustainability as a transitional step within contemporary institutions (see 3.4.1).

Conclusion: Evolving to pluriversal contemporary design practices

Service design as a problem-solving methodology underwent its own developmental process, from building legitimacy to demarcation and integration (Sangiorgi & Prendiville, 2017). Based on the design literature review so far, I propose to build on this representation and to add a stage called experimentation that precedes legitimacy, where designers established the first frameworks for applying design thinking in previously unknown service contexts. The recent evolution of the design process towards embracing the needs of natural systems (Schultz, 2018; Metcalfe, 2015), greater interconnectedness and reciprocity (Escobar, 2011) points towards another stage following integration. Given a clear acknowledgement of the systemic nature of services (Acaroglu, 2017), the need to achieve planetary health (Whitmee et al., 2015) and the existence of ecosystems and relationships needed to sustain them (Vink et al., 2021), there is a diversification of contemporary design approaches emerging, some of which I described earlier. I, therefore, add another stage to create a full trajectory of service design, which I call pluriversality – as a counter-narrative to our Northern assumptions of the 'universal' and which describes new ways of thinking and designing that are not grounded in the Western cosmology but in the need for greater integration and transdisciplinarity. An increasing number of design practitioners are already operating in this pluriversal stage, where different design disciplines, including Autonomous design, Ontological design, Decolonizing design, Multi-species design, Relational design, and Transition design, converge. They begin to pay much closer attention to the cultural and multi-species pluralities that exist, while discussing a more decentralised position beyond human centricity and, by doing so, avoid perpetuating a single and static understanding of 'culture' (Duan et al., 2020). These practitioners and academics are shaping a wider plurality of contemporary design approaches while interrogating their own biases and default practices to find more suitable ways of designing to acknowledge a more profound relationality of all life. Thus, contemporary design practices evolve from being solution-focused in the service of industry to a practice of inquiry in the service of relationality and planetary health (Escobar, 2018; 2011).

In this thesis, I use 'contemporary design practices' as an umbrella term as opposed to disciplinary design definitions like service or system design, emphasising the shift towards inquiry-based design approaches that prioritise relationality and planetary health. Contemporary design practices, as explored in this thesis, are innovatively pioneering changes in response to ecological degradation through their deliberate integration of sustainable principles, thereby setting new standards for responsible design solutions. This evolution in design recognises the systemic nature of solutions, the imperative of planetary health and the necessity of integrating diverse cultural and multi-species perspectives. Practitioners within this framework challenge traditional hierarchies, advocating for

pluralities and decentraliation. As such, contemporary design practice, as referred to in this thesis, encompasses pioneering practices, methodologies and approaches within the field of design that respond to complex grand challenges and the polycrises of our present era. This includes the exploration of innovative frameworks, methodologies and mindsets that go beyond traditional problem-solving approaches and instead focus on fostering relationality, sustainability and inclusivity in design processes and outcomes. In opting for the term pluriversal contemporary design practices rather than a disciplinary definition like service design, I aim to underscore the urgency for change inherent in emerging design disciplines, emphasising the importance of unity amidst diversity and prioritising commonalities over divisive distinctions. This choice reflects a commitment across design disciplines today to addressing ecological, social and governance degradation by fostering inclusive and regenerative approaches within the field of design.

Table 4: 'Tracing contemporary design: From service to pluralities', Illustration adapted from Sangiorgi and Prendiville 2017 and built upon by the author based on literature findings

Stage	**EXPERIMENTATION & LEGITIMACY**		**DEMARCATION**	**INTEGRATION**	**PLURIVERSALITY**
Practice	**Service Design**		**Organisational Design**	**Systemic design**	**Pluriversal contemporary design**
	Design for Service		*CX design* *EX design*	*I.e. Speculative design; Disruptive design*	*i.e. Autonomous design; Ontological design; Design for Justice; Decolonising design; Multi-species design; Transition design*
Aim	**WHAT**	**WHY**	**HOW**	**WHERE**	**WHAT FOR**
	Creating and applying a new approach and methods for the design and innovation of service experiences	Building legitimacy in the design community over why services can be considered 'design objects'	Defining how people design services and what their area of contribution or *value* is	Exploring approaches to scaling & how service design could be integrated with other design and business practices	Challenging fundamental assumptions within design, aligning with living systems and embracing plurality of design practices & planetary health
Focus	**Human-centred** Understanding human experiences & translating insights into improved customer journeys	**Human-centred** Developing collaborative design approaches & applying dual dimension of understanding and engaging people in the design for better service experiences	**Human-centred** Considering the hidden organisational system and processes behind the service experience and designing the mechanisms and processes that facilitate the service delivery	**Human-centred** Understanding experiences as the result of complex social systems and exploring how service design practice can lead to sustainable transformation from within an organisation, as well as imagining new, collaborative, co-productive service models	**Multi-species** Understanding how service design needs to evolve beyond methodologies of the Global North and embrace practices of ecological, cooperative and multi-species cohabitation for planetary health. Considering pluriversal design practices as transition practices for better futures.

Deliverable	• Interfaces & service artefacts • Service encounters and interactions between service providers & users	• Customer journeys • End-to-end service front-of-house experiences (private & public sector) • Service touchpoints • Service blueprints	• Service back-of-house experiences • Organisational processes & infrastructures that enable the service experience • Process flows	• Organisational systems, values, behaviours • Organisational capabilities & training • Service Design Toolkits & Playbooks	• Ecosystems • Infrastructures and conditions for cooperation • Multi-species ethnography • Ecosocial blueprints
Paradigm	**Interaction paradigm** (Pacenti, 1998; Sangiorgi, 2009)	**Service paradigm** (Shostack, 1982, 1983, 1984; Norman and Ramirez, 1994; Vargo and Lusch, 2004; Cottam and Leadbeater, 2004; Thackara, 2007; Meroni and Sangiorgi, 2011)	**Organisational paradigm** (Rousseau, 1995; Stanford, 2005, 2007, 2015; Morelli, 2006, 2009; Junginger, 2006; Junginger and Sangiorgi, 2009; Laloux, 2014; Junginger 2015)	**Transformation paradigm** (Rousseau, 1995; Stanford, 2005, 2007, 2015; Morelli, 2006, 2009; Junginger, 2006; Junginger and Sangiorgi, 2009; Laloux, 2014; Junginger 2015)	**Living Systems & Pluralism paradigm** (Irwin, 2015; Tsing, 2015; Akama and Yee 2016, 2020, Braidotti, 2016; Haraway, 2016; Escobar, 2018, Schultz, 2018; Vink, 2020, Raworth, 2015)
	Moving from products to services as interaction between provider & user	Moving from products & services to complex product-service systems (PSS)	Moving from service experiences to understanding the dimensions of service implementation, including organisational infrastructures and mechanisms required to deliver the service	Moving from organisations as processes to organisations as social systems and supporting the creation of norms, values, beliefs and behavioural patterns for transformation and social design purposes	Moving from applying design in organisations to addressing wicked problems of our times, including climate emergency and social justice challenges and the creation of new sustainable ecosystems
Examples of overlapping theory	**Design theory** (i.e. Sangiorgi, Prendiville, Kimbell); **Service research & service marketing** (i.e. Vargo & Lusch, Shostack); **(Change) Management theory** (i.e. Rogers, Kotter); **Social science & anthropology** (i.e. Bateson		**Organisation theory** (i.e.Weber, Luhmann); **Pragmatism** (i.e. Dewey, Schön)	**Systems theory** (i.e.v. Bertalanffy, Parsons, Senge, Luhmann, Meadows); **Social systems theory** (i.e. Luhmann)	**Complexity theory** (i.e. Holland); **Evolution theory** (i.e. Darwin); **Posthumanism** (i.e. Barad, Latour, Haraway); **Postfeminism** (i.e. Braidotti); **Commons theory** (i.e. Ostrom, Helfrich & Bollier) ; **Living systems theory** (i.e. Miller)

2.5 Summary of research aim

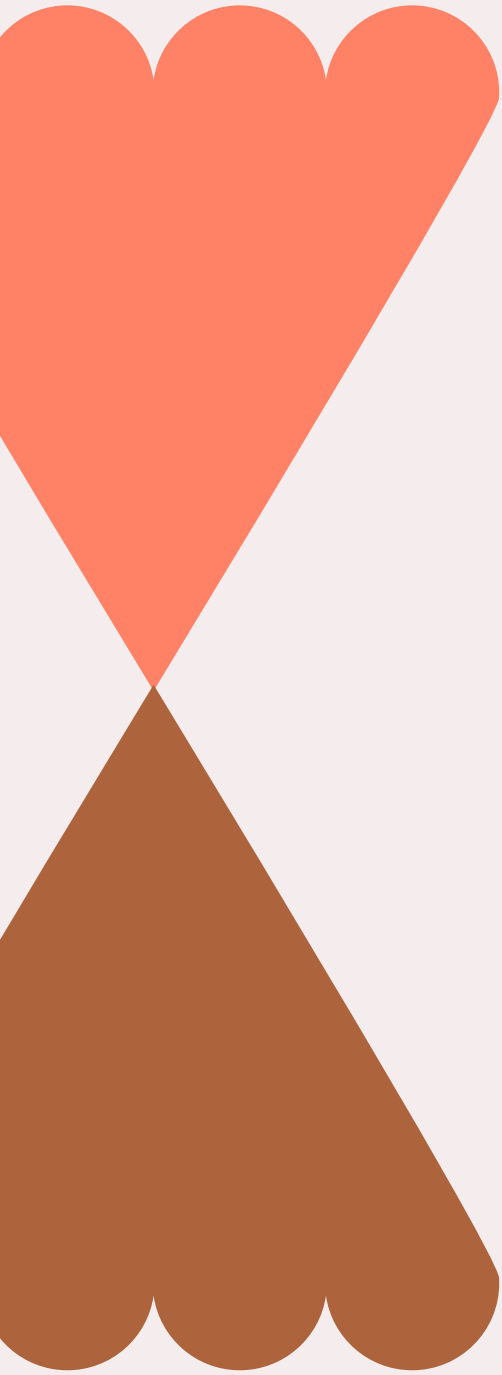
This section of the literature review underscores that research in non-Western cultures has identified dimensions in narratives, knowledge, skills and practices that cannot be adequately addressed by relying solely on Western design methods. The implication is that a more comprehensive approach is needed in design—one that embraces a plurality of methods and recognises the interrelatedness and embeddedness within specific place-based conditions able to dismantle structural inequalities (Akama and Yee 2016). A fundamental design critique has therefore emerged around how Western human-centred design overlooks the wellbeing of our planet and the unintended consequences a design solution might have on our natural habitat (Irwin, 2015; Tonkinwise, 2015; Escobar, 2018). At the same time, more designers understand their design work as more relational, long-term and transformative than previously assumed (Design Council, 2021). This shift led to an acknowledgement that if design challenges of today require us to go beyond the design of services and to improve systemic relationships and aspects of reciprocity, we need to embrace those phenomena currently lacking in Western design practice – including the personal, cultural, tacit, affective and spiritual dimensions that lie at the heart of relationships.

However, literature also reveals that design theory, practice and pedagogy are not yet appropriately equipped to deliver the kinds of new knowledge, understanding, connection and practical solutions that are adequate to address the complex, prevailing challenges we are facing. To foster more equitable, sustainable and healthy futures, it is argued that design must evolve into a practice that adeptly translates theory into shared, collective and relational approaches. This evolution should encompass embracing invisible, heterogeneous differences in designing while addressing the situatedness of our social, cultural and spiritual encounters. **Against this background, the research aims to explore challenges in contemporary design practice related to planetary health and develop a relational framework for transitioning systems towards it.**

CHAPTER 3

Underlying theories

Theoretical framework and research questions



Introduction

According to COP26 projections, global temperatures are expected to increase by at least 2.4 degrees Celsius by the end of the century, leading to numerous health and environmental disasters that will disproportionately affect the most vulnerable populations (IPPC, 2022). Historical evidence substantiates these predictions, with mortality rates from extreme weather events notably higher in impoverished countries than in wealthier regions. This raises ethical concerns regarding equality, fairness, and resource distribution in climate adaptation and mitigation efforts (IPCC, 2022). Rising sea levels, droughts, floods, heatwaves and storms are anticipated to result in increased famines and the displacement of communities, exacerbating socio-economic divisions, social injustice and inequality. Our current trajectory falls short of the transformative actions needed to address these environmental crises within the necessary timeframe. Consequently, global climate action is widely regarded as insufficient (UN et al., 2022), with criticism aimed at the slow pace of implementation (IPPC, 2022). While design has been recognised as a driving force for innovation and sustainable interventions in addressing climate-related challenges (Sangiorgi & Prendiville, 2017; Prendeville & Bocken, 2016), recent criticism has emerged concerning its inadequate consideration of non-human needs (Akama et al., 2020) and its reinforcement of an economic system focused on Gross Domestic Product (GDP) growth (Stern & Siegelbaum, 2019). The concept of green growth, which seeks to balance economic growth with the preservation of natural assets and environmental services (OECD), has failed to deliver the desired societal benefits regarding wellbeing, health and sustainability (Hickel, 2018). Consequently, the challenges we face today, both environmental and social, have been attributed to the flaws in our design approaches (Escobar, 2018).

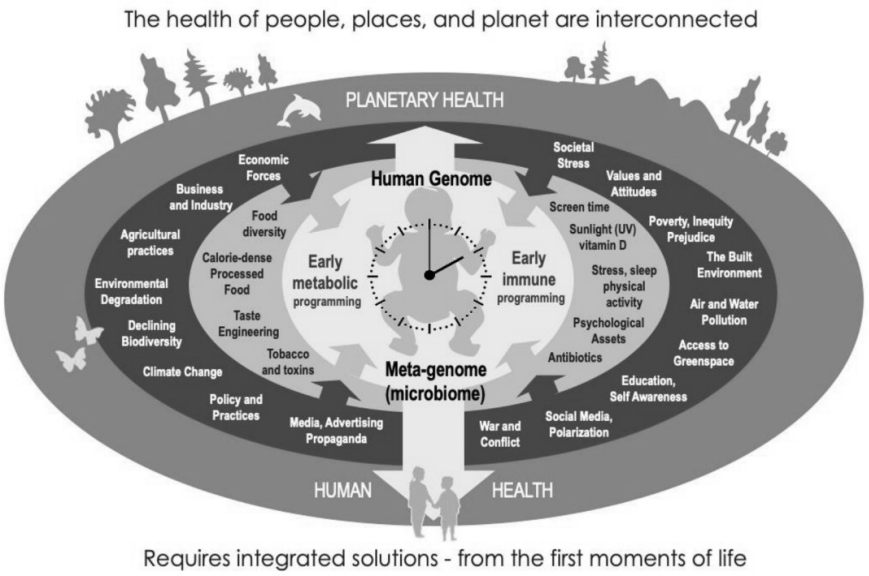
In order to allow for increased knowledge integration from other fields, and to refine my research questions, three additional theory inputs were chosen due to their alignment with the overall research aim and their complementary perspectives. First (section 3.1), I look at how systems theory (Meadows, 2009; Bertalanffy, 1968; Luhmann, 1995) can potentially add a more relational, dynamic and non-linear understanding of the complexity inherent in service and social systems. I explore key concepts from general and social system theories, including autopoietic, sympoieitic and aphanipoietic systems, with the aim of addressing critical gaps in design practice. The background is that exploring approaches that see systems as consisting of networks of connected and related decisions, could provide a deeper understanding of how to create relationships between actors, environments, and social structures. I also focus on aspects of posthumanism theory based on the writings of feminist and posthuman scholars (Haraway, 2016; Barad, 2007; Braidotti, 2016; Tsing, 2015) in order to explore a frame suitable for de-centring service design away from human-centricity and towards relations – as well as embracing the entangled nature of life and exploring socio-ecological systems (Ostrom, 2009) as a more practical framework for designers to embrace living system perspectives. Second (section 3.2), I explore the economic theory underlying contemporary design activity, analysing the ties between contemporary design and neoliberalism. I examine the prevailing neoliberal economic paradigm that largely shapes contemporary design practices in the Western world. Design practice has been criticised for complicity in these political and economic transformations. I draw inspiration from regenerative practices and a growing movement advocating for a post-growth economy and a mindset of degrowth, highlighting the potential for transformative change in service design. Third (see 3.3), I investigate the theory of the commons (Ostrom,1990; Wilson et al., 2020; Bollier & Helfrich, 2019; De Angelis, 2017) to explore in more practical terms some of the degrowth ideas that could help shift design practice towards a relational ontology, was a way to see the world as a dynamic set of living and integrated systems. Within each of these three sections, I highlight emerging research questions and aim to address them through subsequent fieldwork.

Chapter 3 focuses on the need for design to adopt a living systems perspective and understand the necessary economic foundations to contribute to creating autonomous, caring and regenerative societies for planetary health. It builds upon a book chapter I co-authored, titled 'Commoning for a regenerative world: Realising new directions for Service Design' (see Phd Thesis Publications), which further informed my literature research. The chapter delves deeper into the existing gaps in contemporary design practice, encompassing information, imagination and governance challenges as identified in the research context. By critically evaluating the role of contemporary design practice in advancing planetary health, the chapter highlights the challenges designers face in shifting the prevailing narrative that humans are separate entities residing on an inferior planet.

3.1 The information challenge: Designing for living systems

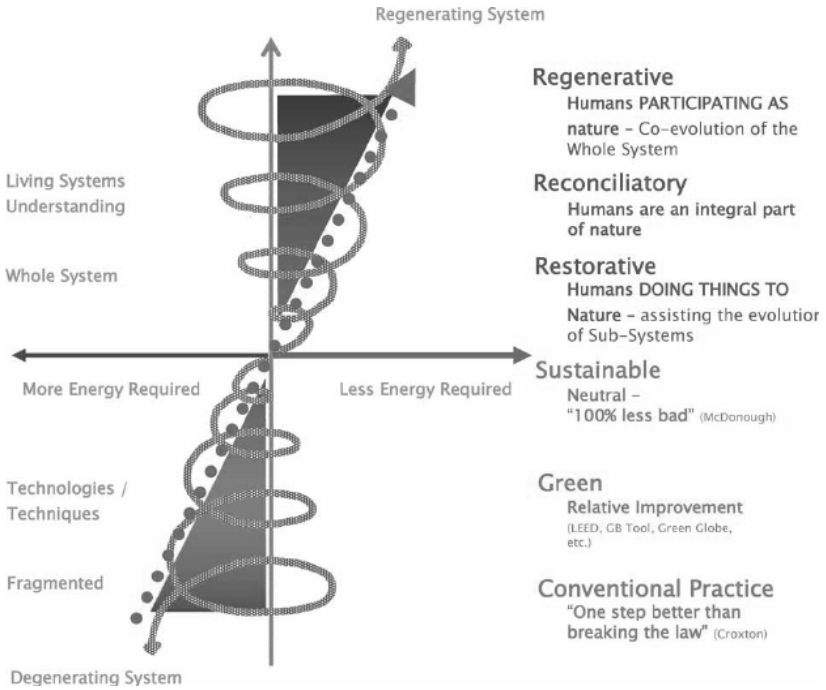
Planetary health is a multidisciplinary field that investigates the intricate connections between human wellbeing and the health of the natural environment (Whitmee et al., 2015). It aims to safeguard human health while ensuring the long-term sustainability of our planet. This field encompasses the social, political and economic systems that impact humans and the planet, emphasising the profound interdependence between the health of individuals, communities and Earth's natural systems (Brousselle and Butzbach, 2018).

Figure 6: An integrated approach to health on all scales: including the attitudes and value systems that govern these—for mutual benefits to individuals, communities, and natural systems we depend on; Logan et al., 2021



Drawing upon indigenous approaches from around the world, the Planetary Health agenda highlights the imperative for Western practices to reestablish the link between individual human health, and the wellbeing of the planet and its ecosystems (Redvers, 2021). In doing so, it exposes the shortcomings of current Western approaches to sustainability, prompting us to critically examine the nature of designing for planetary health – and consider how contemporary service design must evolve to embrace living systems that restore harmony between humans and nature, with a particular emphasis on concepts such as symbiosis, mutualism and reciprocity. Bridging the gap between the planetary health agenda and designing for living systems requires going beyond conventional sustainability practices (Fullerton, 2015). While sustainability initiatives are increasingly integrated into business cycles, there is a pressing call to move towards regenerative economics and a living systems understanding (Reed, 2007).

Figure 7: Trajectory of Environmentally Responsible Design; Reed, 2007



The necessary shift challenges the limitations of existing economic and sustainability-driven approaches, placing significant emphasis on the wellbeing of both humanity and the planet while recognising the interconnectedness of all life forms. Based on Bill Reed's analysis, designing for living systems entails acknowledging ourselves as integral components of a larger whole and reassessing our design practices within a broader planetary context. However, this perspective requires designers to understand ecological interdependence more deeply to design and care for a healthy planet (Storm & Hutchins, 2019). To accomplish this, we must embrace a narrative of interdependence and interconnectedness among all life forms, rejecting the notion of a separate self from nature (Fullerton, 2015). Designers aiming to create living systems need to gather new information and knowledge to comprehend and engage with the complexities of these systems. Yoko Akama and colleagues (2019) argued that this shift demands a different narrative and fundamentally different approaches to design to reconsider our design practices within a planetary context, which involves examining the mindsets, ethics and systemic foundations that underpin our design activities. This section highlights important information and knowledge challenges and points out that adopting a systems perspective is essential to recognising the interdependence of all ecological systems on our planet.

3.1.1 From general to social systems theory

We are currently seeing a renewed appreciation of systems thinking in a variety of fields, including biology, law, social sciences, engineering, management – and design. As systems theory recognises the world as a complex, self-regulating network rather than a machine (Capra & Luisi, 2014), scholars have argued that adopting a system and network-based lens can generate insights into not only better understanding but also potentially driving desired behaviours within a system (Meadows, 2009). Combined with an emphasis on recognising a system's underlying beliefs, assumptions and mental models, adopting a systems perspective is interesting when defining system structures, interactions and behaviours. In the following section, I will summarise key aspects of general system and social systems theory before highlighting potential implications for design practice.

Systems thinking comes from the shift in attention from separate parts to the whole (Checkland, 1999; Jackson, 2003). It considers the relationships between the parts and the events they produce through interactions and sees system elements as being relationally connected towards a shared purpose (Luhmann, 1990). A system perspective implies a dialogue between holism and reductionism (Becht, 1974). Regarded as a general science of 'wholeness' (Bertalanffy, 1968), systems theory claims that we, as humans, cannot fully comprehend a phenomenon by breaking it up into elementary parts and then reforming it (Meadows, 2009). Instead, we require a holistic view to acknowledge the interactions and relationships between the parts to understand an entity's organisation, functioning and outcomes (Bertalanffy, 1968). In her work, Donnella Meadows (2009, p.2) defined a system as "a set of things – people, cells, molecules, or whatever – interconnected in such a way that they produce their own pattern of behaviour over time. The system may be buffeted, constricted, triggered, or driven by outside forces. However, the system's response to these forces is characteristic of itself, and that response is seldom simple in the real world". In that context, a system can be considered an entity with clear boundaries that help differentiate between internal and external elements (Ng et al., 2009). As an assemblage of objects, systems share some form of regular interaction or interdependence (Tien & Berg, 2003). However, they appear in different forms: from natural systems (e.g., lake) to built systems (e.g., government) to physical systems (e.g., space shuttle) to conceptual systems (e.g., plan) to closed (e.g., chemicals in a stationary, closed bottle) or open (e.g., tree), static (e.g., bridge) or dynamic systems (e.g., human) (Tien & Berg, 2003, p.24).

Introduced in 1951 by the biologist Ludwig von Bertalanffy (1951), systems theory provides the basis for a model and theoretical framework through which more complex system phenomena began to be explored (Capra, 1996). Since the 1960s, general systems theory has developed into specific sub-theories that aimed to describe the differences in biological, social and psychological systems. Social systems have been discussed as being non-linear, dynamic, complex and fundamentally different from technical systems, which demonstrate primarily linear and causal relationships and rationalities (Meadows, 2009). It is argued that recognising general systems theory and its subsequent sub-theories can lead to a more holistic view of life that integrates biological, cognitive, social and ecological dimensions, overcoming the Cartesian division between mind and matter (Capra & Luisi, 2014). Instead of beginning with causalities, systemic approaches start with understanding underlying interrelations, feedback loops and modes of self-organisation that allow systemic structures to emerge through practice. Bertalanffy speaks of organised complexity (Bertalanffy, 1968) here, highlighting the idea of systems being entities where the interaction between parts forms a structure that becomes the starting point for new interactions.

Over the years, there have been shifts in the systems theory discourse, revealing new insights into what constitutes social systems in particular. By building on Talcott Parsons' (1951) work, which defined a social system as a network of interactions between actors, Luhmann developed the social systems theory (Luhmann, 1995). Although he frequently refers to general systems theory, Luhmann makes an important change in his approach: he moves from focusing on the conditions of stable systems to analysing the dynamics of an emerging social order and, in doing so, explores fundamental questions relating to how systems are created, how social order is made possible, how communication takes place and how systemic functions evolve in the short and long run. Within each system (e.g., health) are smaller sub-systems, which reduce complexity even more (e.g., primary care, specialist or emergency care). When it comes to analysing the form and functioning of a sub-system and the processes of organisational decision-making, Luhmann's theory provides a range of insights into the way in which organisations are set up, establish boundaries and adapt to their environments (Seidl & Becker, 2005; Luhmann, 2018). His concept of social systems began to influence organisational theory development. From the 1990s onwards, systems theory focused on 'systems archetypes' – the understanding of patterns of behaviours in organisations (Senge, 2006; Meadows et al., 2004).

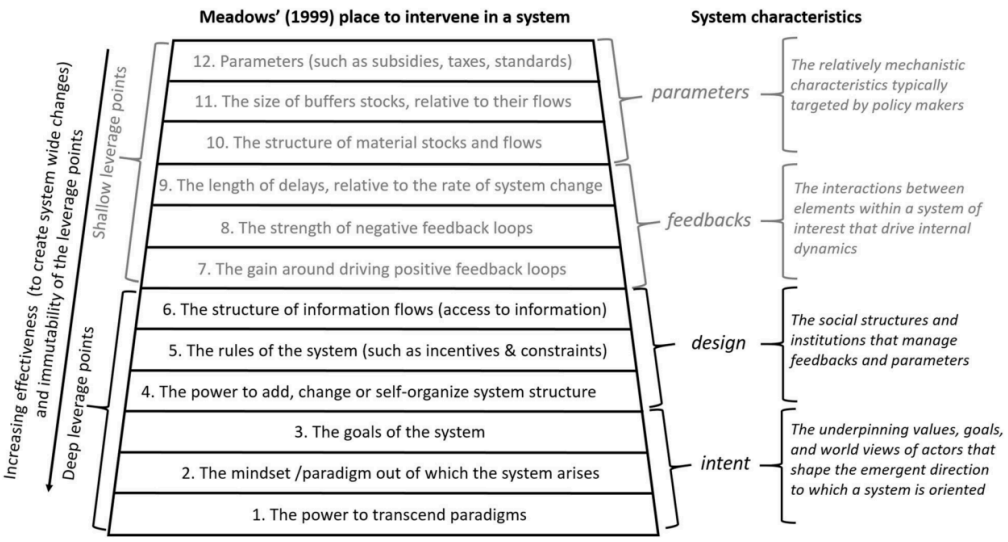
This contributed to significant developments in organisational theory and a stronger connection between systems thinking and service design, eventually leading to the onset of systemic design (Jones, 2014; Design Council, 2021). In light of the theoretical perspectives of system thinking and their influence on organisational theory and systemic design, it became apparent that designers must acquire a significantly greater amount of information and knowledge in order to comprehend and engage with the complexities of these systems (i.e. Jones, 2014). In what follows, I am focusing on four relevant aspects for understanding how systems work and, therefore, how designers could impact them.

3.1.2 System leverage points

Meadows' leverage point perspective (1999) offers a valuable framework for comprehending systems theory, ranging from general to social systems. It serves as a means to understand how transformative change can happen within various contexts, including organisations. The key point to understand is that we cannot directly change the system itself; our influence is limited to the variables around it. Meadows identified a list of variables, known as leverage points, that can be acted upon to affect the system (1999). She arranged these leverage points from the most basic and least effective, to the most challenging but most powerful for creating change. Elaborated upon by David Abson and colleagues (2017), the concept of systemic leverage points revolves around identifying strategic points of intervention within a system to influence its behaviour, trajectories and, ultimately, its outcomes. Meadows defined a leverage point as "a place in the system where a small change could lead to a large shift in behaviour" (Meadows, 2009: 145).

As a concept, leverage points imply that achieving deep transformations in a system often requires starting with shallow or more easy-to-access changes, and gradually working towards deeper shifts. It acknowledges that profound changes, such as shifts in paradigms and culture, are typically rooted in and influenced by a system's more tangible and observable aspects, including everyday practices and behaviours. To effectively grasp this concept, Meadows devised a hierarchical framework consisting of 12 intervention points. These range from points with limited potential for transformation to more potent intervention opportunities that confront higher systemic resistance (Meadows, 1999). Abson and colleagues (2017) synthesised Meadows' original 12 leverage points into four overarching system characteristics that serve as focal points for sustainability interventions: system parameters, system feedback, system design and system intent. System parameters encompass a system's mechanistic attributes, such as taxes and standards, along with its physical structure, including buffers and flows. System feedback pertains to the interconnected relationships between system elements, steering either reinforcing (positive) or dampening (negative) feedback loops. System design encompasses the practices and architecture of information flows, the rules governing the system and its power dynamics. Finally, system intent delves into the purpose and underlying awareness, paradigm or mindset from which the system emerges (Abson et al., 2017). These four system characteristics are organised on a spectrum from shallow to deep, each encapsulating three of Meadows' original leverage points. As a conceptual framework, it offers a transformation lens through which diverse systemic sustainability challenges, associated interventions and resulting outcomes can be understood. The leverage point concept provides a structured approach for identifying and leveraging intervention opportunities at different levels within complex systems (Abson et al., 2017).

Figure 8: System leverage points; Meadows, 1999 and system characteristics; Abson et al., 2017



3.1.3 Autopoiesis, sympoiesis & aphanipoiesis

Luhmann argued that modern society is largely differentiated into systems (such as health, economics, politics and law), each with its rationality, functional differentiation and ability to reproduce itself through operational closure (aka 'autopoiesis') (Luhmann, 1995; Lee, 2000). Autopoiesis, which means self-(re)production (from Greek: autos = self and poiein = to produce), lies at the heart of Luhmann's social systems theory. Like a plant reproducing its own cells, autopoietic systems, he argues, can reproduce and organise themselves from within themselves. Beth Dempster (2000) further evolved the concept of self-organising systems proposed by Luhmann, by building on Francisco Varela and Humberto Maturana's (1974) original explanation of autopoietic biological systems. She highlights the limits of autopoietic thinking and distinguishes between sympoiesis and autopoiesis. Two basic features characterise autopoietic systems: first, they are self-referential and create relations between their components, allowing them to reproduce the same pattern of relations. Second, they are self-defining as they can create their own boundaries and be considered organisationally 'closed' but 'structurally open', meaning they are not completely autonomous. She, therefore, proposes the idea of sympoietic systems. Sympoietic systems have loosely defined boundaries and are organisationally open to a flow of organisational information, allowing them to continuously evolve and adapt to changing conditions (Dempster, 2000). Donna Haraway (2016) adopts Dempster's idea of sympoiesis as a framework for understanding systems through kin-based relations among its components. Using the idea of 'tentacular thinking', Haraway advocates for a non-linear, multiple, networked existence – a multi-species network of entwined ways of being (Haraway, 2016).

Connected to the concepts of autopoiesis and sympoiesis within systems theory, Nora Bateson's (2021) definition of aphanipoiesis takes another approach. While autopoiesis and sympoiesis centre on self-maintenance and collective creation within systems, aphanipoiesis explores the often hidden aspects of pathology and vitality in living systems. Describing how life converges towards vitality in invisible ways, aphanipoiesis combines 'aphanis' (meaning obscured or unseen) and 'poiesis' (to bring forth) (Bateson, 2021), extending the two aforementioned concepts. Contrary to linear causal responses in complex systems that often lead to unintended consequences, aphanipoiesis challenges conventional perspectives and emphasises the need to understand intricate relationships when assessing health or addressing global issues. In the realm of living organisms, maintaining relationships

becomes crucial, within which mutual learning and information create resonances for communication. Importantly, aphanipoiesis introduces a theoretical foundation for comprehending processes before emergence. Although it does not provide a method to unveil the unseen, it promotes a unique approach to instigating change. It allows for the recognition of the importance of significant, unattainable changes unfolding through small and indirect actions, thereby offering a valuable perspective for reflection.

Autopoiesis focuses on a system's internal dynamics and self-maintenance, while sympoiesis emphasises the interconnectedness and collaborative interactions that shape the system. Laetitia Van den Bergen and Robin Van den Akker argue that these concepts offer a comprehensive design framework, emphasising different aspects of living systems and their systemic relationships (Bergen & Akker, 2021). Autopoiesis can help us understand the internal dynamics and self-maintaining nature of systems. Sympoiesis, on the other hand, emphasises the interconnectedness and embeddedness of the system. Aphanipoiesis explores the concealed elements of health and illness within living systems, examining aspects that are not readily visible. By learning from all three perspectives — autopoiesis, sympoiesis and aphanipoiesis — designers may take a holistic and regenerative approach, considering relationships, cooperative behaviours and a deeper engagement with the intricate dynamics of natural systems.

3.1.4 Posthuman conditions of systems

"This idea of humanism cannot continue. Who would seriously and deliberately want to maintain that society could be formed on the model of a human being, that is, with a head at the top and so on?" Niklas Luhmann (Luhmann, 1995, p. 213)

According to Luhmann (2018), organisations are not merely collections of individual actors but social systems. As social systems, organisations depend on closed networks of communication processes that mutually reinforce one another. From this perspective, Luhmann suggests that humans are just another social system alongside others with no conceptual, empirical or sublime priority. I believe this insight is crucial for design practice, which has long been defined by human-centricity. Although human beings form part of the system environment, Luhmann argues that social systems consist only of communications (Luhmann, 1995). Consequently, he argues that the focus on humanism is flawed (Lee, 2000), especially when seeking to understand how systems constitute and evolve. Both advocates and critics of Luhmann's social systems theory agree that Luhmann presents a significant challenge to anthropocentric models of society. A comparison can be drawn between Luhmann's anti-humanism and posthuman philosophical perspectives, as discussed in literature by Katherine Hayles (1999), Haraway (2006) or Bruno Latour (1993), for instance. These authors look to Luhmann's work to rethink the subject-object distinction and propose that the conditions of consciousness in the 21st century are posthuman, where humans are fully embedded and perhaps subordinate to complex social systems of communication and control. In her writing, Haraway (2016) suggests a world where humans and non-humans are inextricably entangled and where some of our most pressing societal and ecological challenges require radical new ways of relating to each other across systems and differences. Haraway's notion of tentacularity (2016:30) offers a fresh perspective for design practice, reminding us that we are not singular or reductive beings but complex multi-species of entangled existence. Therefore, tentacular thinking can inspire a shift in design practice from a processual understanding to a non-linear, multiple and networked approach. It can encourage cooperation and interrelationships between human and non-human components.

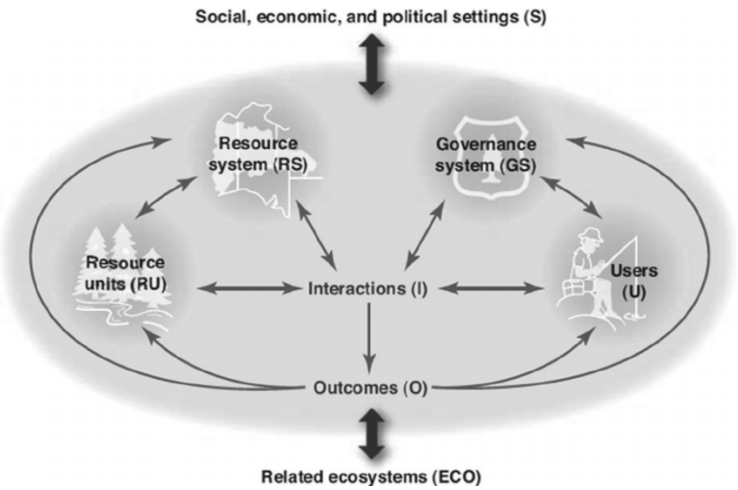
By embracing 'making-with', design practice could transcend human-centricity and recognise the importance of inclusive, ecological and socially complex systems. This shift would challenge traditional notions of design rooted in mechanistic, linear and neoliberal structures, and pave the way for a more holistic and regenerative approach.

3.1.5 Integrating non-human dimensions through Socio-Ecological Systems (SES)

Luhmann's social systems theory provides valuable insights into self-referential and autopoietic social systems. However, they often overlook the sympoietic co-evolution of diverse entities and the entanglement of human and non-human actors in shaping our world. To bridge this gap and enrich our understanding of living systems, socio-ecological systems (SES) could provide an interesting perspective of integrating sympoiesis and aphanipoiesis into systems thinking. Combining concepts from Ostrom's work on socio-ecological systems (2009), Haraway's notion of sympoiesis (2016), and Bateson's ideas around aphanipoiesis (2021), SES could offer a holistic framework that embraces the interplay between social, ecological and non-human elements. SES, as defined by Ostrom (2009), encompasses the intricate interplay between social and ecological components within a specific context. These systems recognise the interconnectedness and interdependence between human communities and their surrounding natural environments. They embody dynamic, often invisible relationships, feedback loops and co-evolutionary processes that shape the sustainability and resilience of the overall system. By adopting a socio-ecological systems perspective, we can acknowledge that social and ecological systems are intertwined and mutually influence each other. This understanding highlights the necessity of an integrated and interdisciplinary approach, when studying and managing planetary challenges.

Ostrom's work is a key reference for understanding SES. She emphasised the importance of understanding the social and ecological dimensions of common pool resources to manage them effectively (Ostrom, 1990). Her SES framework helps to better understand the interactions between human and non-human components in a system and how they relate to each other (Ostrom, 2009). It provides an analytical lens to study the relationships and interactions between the social and ecological components of complex systems. According to Ostrom (2009), SES can be broken down into several components for analytical purposes. These components include the resource system (RS), the resource units (RU), the governance system (GS), the users (U), the interactions between users and resources (I), outcomes (O), and the biophysical environment (ECO and S). By analysing these components, we can better understand the intricate dynamics of the system and the relationships between the various actors involved (Ostrom, 2009).

Figure 9: Socio-ecological systems (SES) Framework; Ostrom, 2009



The SES concept has numerous practical applications in natural and social sciences. For instance, Michael Cox (2014) used Ostrom's SES framework to assess the sustainability of community-managed irrigation systems in Mexico. Their study revealed that the success of these systems was closely tied to strong community relationships and social norms developed around water management. This highlights the importance of the community dimension in Ostrom's framework and offers new insights for improvement. Similarly, Darlin Botto-Barrios and colleagues (2020) employed Ostrom's SES framework to analyse the management of small-scale fisheries in Columbia. Their research emphasised the significance of local community involvement in decision-making processes. These findings had implications for policy design and interventions promoting sustainable resource management (Botto-Barrios, 2020). In another example, Louis Bouchet and colleagues (2019) applied the SES framework to examine the groundwater governance systems in the Pacific Small Island Developing States. Through their analysis, they identified institutional and ecological factors influencing the sustainability of groundwater use in the region. Their findings advocate for using SES as a means to transition from the conventional command and control model to adopt a collaborative and interdisciplinary approach to managing groundwater systems in the face of heightened environmental and social uncertainty.

The SES framework has also been instrumental in developing simulation models to understand system behaviour and test management strategies. For instance, Emilie Lindkvist , Xavier Basurto and Maja Schlüter (2017) assessed the effectiveness of different management approaches for a small-scale fishery in Northwest Mexico. By applying the SES framework, they gained insights into the complex interactions between social and ecological components and were able to design management strategies to enhance fishery sustainability. Their simulations showed that combining strategies, such as fishing quotas and cooperative management, yielded the best outcomes in promoting sustainability. While there has been significant research on the SES framework in various fields, including ecology, resource management and sustainability (e.g., Nagendra & Ostrom, 2014), the specific application of SES within the context of design and system design is an area that has room for further exploration. There is an opportunity to test how SES components can inform the analysis, design and management of human-made systems to enhance their adaptability, sustainability and positive impact on human wellbeing and the environment. Previous studies and initiatives have touched upon integrating SES concepts into design practices. For example, the book *Resilience Practice* (Walker & Salt, 2012) explores the application of resilience thinking, which is closely related to understanding SES. It emphasises the importance of considering social-ecological dynamics and feedback in designing resilient cities. Additionally, *Design with Nature* (1969) by Ian McHarg advocates for designing with an understanding of ecological systems and processes in urban planning and landscape architecture, highlighting the need to incorporate ecological factors into human settlement design.

Applying Ostrom's SES framework is still evolving, with ongoing research and experimentation. Within this context, Ostrom's SES framework might inspire contemporary design practices to proactively create rules, norms and infrastructures to manage resources more sustainably and ensure equitable access for community members. While Luhmann's theory focuses on the self-referential nature of social systems, SES emphasises co-evolution, interdependence, deep collaboration and the importance of adaptive and flexible governance systems that empower local communities to self-organise in relationships with others. As the SES framework has been employed to shape interventions and policies aimed at enhancing the resilience and sustainability of socio-ecological systems (McGinnis & Ostrom, 2014), it could offer a valuable methodology for comprehending complex living systems. By acknowledging the interconnectedness of human and non-human components and identifying potential leverage points for systems change, SES proves instrumental in understanding and navigating intricate living systems.

Conclusion: Understanding the entangled nature of life

This section begins by highlighting that designing for living systems in the context of planetary health is crucial for achieving sustainable outcomes. Drawing upon general and social system theories, designers can explore existing knowledge relevant to their practice. System leverage points, as well as the concepts of autopoiesis, sympoiesis and aphanipoiesis could provide valuable frameworks for understanding system dynamics and interconnectedness and exploring the posthuman condition of systems. This idea is further echoed by Haraway's concept of tentacularity, emphasising intricate relationships between human and non-human elements. This section of the chapter continues to explore how the SES framework, proposed by Ostrom, could allow for a holistic perspective that embraces the intricate interplay between social, ecological and non-human aspects.

Implication for design practice

In Section 3.1, a central argument surfaces, highlighting the inseparable connection between human and planetary health. To design for living systems, a fundamental shift in design thinking is necessary, moving beyond reductionist and linear approaches and embracing systems thinking and interrelational practice. Concepts like autopoiesis, sympoiesis, aphanipoiesis, making-with and tentacular thinking can challenge anthropocentric and neoliberal frameworks. They encourage a reevaluation of fundamental principles, fostering alternative design approaches rooted in comprehending entire systems and prioritising regenerative practices, inclusivity, and sustainability. By incorporating system theory and acknowledging interconnectedness between human and planetary health through lenses like SES, designers could enhance their understanding of socio-ecological contexts. This, then, might enable the development of interventions that consider broader implications and system interactions. Systems theory could serve as a way to understand systemic phenomena, offering designers the means to integrate diverse knowledge for a more systemic, dynamic, and contextual understanding of social ecosystems.

Shifting the focus toward aphanipoiesis (Bateson, 2021), making-kin (Haraway, 2016), and understanding how system components relate to each other (Luhmann, 1995; Dempster, 2000; Ostrom, 2009) presents an opportunity to build foundational knowledge and methods for relational designing. This shift can change the starting point of design practice, moving from analysing individual motives and user needs centred on humans to understanding systemic relations as the basis for future design interventions. As such, the first working hypothesis and research question in pursuit of the overall aim are as follows:

Working hypothesis 1 and Research Question RQ1

Research aim	Planetary health challenge 1	Working hypothesis 1	Research question RQ1
Explore planetary health challenges in contemporary design practice and develop a relational framework for system transition and multispecies health.	Information	There are inherent information and knowledge gaps around how systems operate, constitute and reproduce themselves in contemporary design practice today.	How might we address knowledge gaps in contemporary design to facilitate designing for living systems?

In the forthcoming section, we will delve into the current economic discourse and explore how it can contribute to developing more holistic and equitable economic systems, which acknowledge human and non-human actors' inherent complexity and interrelatedness.

3.2 The imagination challenge: Transforming economics

It is hard to imagine a world beyond economic growth. Humanity is tasked with providing a good quality of life for more than seven billion people, while safeguarding the delicate balance of essential planetary systems and ensuring the wellbeing of countless other living species that coexist with us on this planet. By reconsidering humanity's impact on Earth and shifting it from being exploitative and destructive to regenerative and health-generating, we are prompted to reflect on key questions that shape the story we create about our world and our place in it. These questions extend beyond posthuman philosophical perspectives to also encompass the fundamental economic foundations that underlie and facilitate human existence on Earth.

As we struggle with polycrises, traditional economic models are proving inadequate in offering sustainable solutions, leading to the emergence of new economic thinking (Raworth, 2017; Andreucci et al., 2021; Fullerton, 2015). The existing economic system heavily exploits natural resources, often pursuing economic growth at the expense of social and environmental wellbeing (O'Neill et al., 2018). However, it is increasingly evident that pursuing infinite economic growth on a finite planet is untenable (Hickel, 2020). Consequently, alternative and more regenerative economic practices garner attention as avenues to cultivate a sustainable and equitable economy that values both natural and social capital (Raworth, 2017).

Regenerative economics is a developing field that focuses on creating systems that can function indefinitely and promote wellbeing for both people and the planet (Raworth, 2017). It deviates from traditional economic models by acknowledging the interdependence of social, economic and ecological systems (Fullerton, 2015). Through regenerative practices, closed-loop systems are envisioned, utilising renewable resources and eliminating waste, all while fostering social equity and community development. The urgency to embrace regenerative economic practices intensifies as we confront global challenges, like climate change, biodiversity loss and inequality (Raworth, 2017). The current economic system exacerbates these predicaments by prioritising economic growth over social and environmental wellbeing (O'Neill et al., 2018). Degrowth has emerged as a prominent framework that challenges the prevailing growth-centric paradigm and provides alternative pathways towards sustainability and wellbeing (Hickel, 2020). Consequently, transitioning towards regenerative economic practices becomes imperative to ensure a sustainable and equitable future. The subsequent section explores the ties between contemporary design practice and neoliberal foundations. It examines the principles and practices of regenerative economics, along with its potential benefits. This section does not seek to offer yet another critique of capitalism. Instead, its purpose is to actively engage in the ongoing conversation surrounding post-capitalist construction and explore the potential for an alternative world, further explored in section 3.3.

3.2.1 Unravelling the ties between contemporary design and neoliberal economics

"In an age of mass production when everything must be planned and designed, design has become the most powerful tool with which man shapes his tools and environments (and, by extension, society and himself). This demands high social and moral responsibility from the designer." (Papanek 1985, p.ix)

In the following section, I explore the intricate relationship between contemporary design and neoliberal capitalist economics by unravelling the neoliberal paradigm in the Global West, particularly its influence on supporting design activities. Neoliberalism, which emerged in the 1970s, encompasses a range of political and economic tendencies, such as market integration, weakened labour movements and a relentless pursuit of economic growth (Harvey, 2005). Design practice has faced criticism for its complicity in these neoliberal transformations (Stern & Siegelbaum, 2019). Guy Julier (2017) critically examines the relationship between design practice and neoliberal economics in his work, highlighting its close ties and complicity. He argued that design has actively aligned itself with neoliberal goals and objectives, organising itself according to neoliberal political, economic and social agendas and promoting and reinforcing neoliberal structures and values. This includes prioritising economic growth, market integration and entrepreneurialism. Julier's research has also shed light on how neoliberal economic policies have profoundly shaped and constrained design practices. For instance, the advent of Design Thinking in the 1990s, propelled by influential institutions like IDEO and Stanford University's d.school, marked a significant shift in the perception of design. It transitioned from being primarily craft-oriented to a strategic approach focused on identifying and engaging new markets (Irani, 2018). Julier found that design was no longer limited to creating tangible objects but extended to include intangible skills such as empathy and ideation, expanding its reach and applying Design Thinking to various organisational activities. Arden Stern and Sami Siegelbaum (2019) argued that this shift towards dematerialisation and a market-driven emphasis on value propositions aligned with the neoliberal mantra of "better, faster & cheaper" facilitated the continuous commodification of previously unexplored business areas. Other critics suggested that design's success is not solely determined by serving consumers but by creating and exploiting new markets to stimulate consumer desires. This intentional overproduction and planned obsolescence contribute to economic, ecological and social crises (Heskett, 2005). People, groups and consumers have been reduced to mere resources to be further extracted and exploited for economic growth, perpetuating a cycle of exploitation (Arvidsson, 2008). Consequently, this intentional overproduction and planned obsolescence have contributed to today's economic, ecological and social crises (Latouche, 2009). Design activity is a key driver at the centre of it (Escobar, 2018), supporting extractive economic models of capitalism and contributing factors in expanding and implementing economic growth (Stern & Siegelbaum, 2019).

Julier (2014) has argued that by participating in these systems, inevitably, design perpetuates and reproduces capitalist and neoliberal ideologies and practices. Design practices contribute to capitalism by shaping consumer culture, promoting consumption and facilitating the production and marketing of goods and services. Besides, design decisions within organisational structures may influence power dynamics, resource allocation and the overall functioning of capitalist companies. To illustrate this relationship, Stern and Siegelbaum (2019) examined Apple's products, often lauded for their good design. However, they shed light on a crucial aspect: Apple outsources its manufacturing to companies such as Foxconn in China, notorious for their harsh labour conditions. While the design of Apple's products is hailed as the primary value-generating factor, it is essential to recognise that this design relies entirely on exploiting undervalued labour within the globalised production system. The profits derived from the global exchange of commodities primarily benefit importing countries, further highlighting the intricate and contingent connection between design and neoliberalism.

Fifty years ago, Victor Papanek critiqued design practice as being complicit in reproducing extractive economic models (Papanek, 1971). He described early on the negative effects of "pollution through products" through seven phases inherent in the design process, thus linking design practice to the cause of environmental harm:

1. The extraction and destruction of natural resources when creating a product
2. The pollution caused by resource mining methods
3. The mass manufacturing processes used to create products, which in turn create even more pollution
4. The same mass manufacturing processes also cause worker alienation and anomie
5. The product packaging uses more resources, essentially entering phase 1 again
6. Using the product often creates additional pollution (for example, a car)
7. The disposed product often ends up in landfills, creating long-lasting sources of pollution

He argued that all of our underlying systems – from private capitalist to economic to governmental – are built on the assumption that we must buy more, consume more, waste more and throw away more. Therefore, design practices that continue to participate in these systems would be complicit in supporting and reproducing extractive economic models (Papanek, 1971, p.252). As design creates new styles, trends, aesthetics, experiences and now 'desires' through products and services, intentionally or not, it becomes an accomplice in the neoliberal growth-based economic approach. For design to be more ecologically responsible, designers would need not only to reduce the environmental impact of what they do but uncouple their design activities from an underlying growth-based economic model.

"...design has put murder on a mass-production basis. By designing criminally unsafe automobiles that kill or maim nearly one million people around the world each year, by creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breathe, designers have become a dangerous breed." (Papanek 1985, p.ix)

Against this backdrop, I would argue that Papanek's critique can be reasonably extended into the field of contemporary service design. The point is that service design practice not only reflects neoliberalism but also contributes to its expansion and implementation (Stern & Siegelbaum, 2019). Widespread criticism, notably articulated by David Harvey (2010), contends that despite the challenges posed by capitalism, educational systems often persist in perpetuating failing models of capitalism and neoliberalism. The current generation of academicians, intellectuals and experts in the social sciences and humanities is notably ill-equipped to engage in the collective task of "big picture thinking" (Harvey, 2010, p.239). Harvey's critique can be applied to the inadequate questioning of the economic underpinnings within design education, too, where the prevailing curricula often neglect to equip designers with the tools to interrogate the foundational principles upon which they are designing.

Understanding the neoliberal roots of design brings to light an additional crucial issue in the design disciplines: the need to address the pervasive colonial structures that underlie and intersect with design practice. Decolonising design practice becomes imperative when we recognise the entanglement of neoliberal and colonial influences within the field. Scholars of the Decolonising Design Collective (Abdulla et al., 2019) have argued that design theory, practice and pedagogy have failed to address the systemic issues of power embedded in design artefacts, systems and practices over the past century. This failure is further underscored by critiques, which contend that the prevailing capitalist economic structures and educational frameworks – which, I argue, also include those within design – often perpetuate and reinforce capitalist ideologies, necessitating a reevaluation and transformation of current educational paradigms (Harvey, 2010).

These are all issues that result from modernity's ideologies and institutions and perpetuate colonial power dynamics that globally oppress and marginalise subaltern peoples. Danah Abdulla and her colleagues (2017) suggest that mainstream design discourse has predominantly focused on Anglocentric/Eurocentric perspectives, neglecting alternative and marginalised discourses from non-Anglo-European contexts. The narrow horizon and lack of criticality observed in mainstream design discourse indicate the limitations imposed by design institutions and their integration into larger socio-economic and political systems. This limited perspective results from the dominance of Anglocentric/Eurocentric ways of seeing, knowing and acting in the world, while paying little attention to alternative and marginalised discourses from the non-Anglo-European sphere. Moreover, it fails to adequately address the multifaceted issues arising from the intersectionality of class, gender, race and other factors within contemporary design. To address these shortcomings, critics argue that broadening the scope of design inquiry and incorporating non-Western ways of thinking and being, is essential (Abdulla et al, 2017).

The need to incorporate non-Western approaches arises from the stark contrast between the dominant Western and indigenous land-based worldviews. Philosopher and author Charles Eisenstein (2013) highlights how Western civilisation is built upon the myth of the separate self, which perceives individuals and the planet as discreet and separate entities. This perspective, he argues, led to the belief that nature is something to be controlled and exploited. In contrast, indigenous land-based worldviews emphasise the interconnectedness of all life and the bonds between humans, spirit and nature. Indigenous traditional knowledge recognises the profound impact of human interference on the balance of natural systems, affecting both physical and mental wellbeing (Schultz, 2018; West, 2020). Indigenous knowledge assigns a spiritual value, rather than a materialistic one, to life and nature. However, it has been stated that this deeply relational worldview, held by many indigenous peoples, clashes with the transactional and scientific worldview predominant in Western cultures (United Nations Department of Economics, 2021; Guillot, 2022). In the chapter I co-authored, 'Commoning for a regenerative world: Realising new directions for Service Design' (Schaeper & Robert, forthcoming), we contrast a Western and an indigenous healthcare framework (Robert et al., 2015; Robert & MacDonald, 2017; Robert et al., 2022; Odom et al., 2019) as an example to demonstrate how the limitations of traditional Western design and improvement approaches are deeply rooted in prevailing systems shaped by neoliberal economic structures. We highlight that to unlock transformative change, it is crucial to critically examine and challenge these structures to incorporate non-Western ways of knowing and broaden our understanding and appreciation of the interconnectedness of all life.

"Many would argue that no other economic system than capitalism has produced so much wealth. On the other hand, some might claim that no other system has produced so much destruction." (Kostakis and Bauwens 2014, p.2)

The prevailing economic system, built upon neoliberal principles, is known for its narrow focus on economic growth, privatisation, deregulation and free trade (Hickel, 2020). By emphasising economic growth as the primary driver of prosperity and wellbeing, the current economic model has been widely adopted and promoted by international organisations, such as the International Monetary Fund, the World Bank and many countries worldwide. However, this system is increasingly criticised for its shortcomings, including exacerbating inequalities and causing environmental degradation (Stiglitz, 2013). In his book on income inequality in the United States, Joseph Stiglitz addresses the issue of growing wealth disparity and its wide-ranging effects on the economy. He criticises the widening gap between the wealthy and the rest of the population and highlights its consequential impact on overall economic wellbeing and planetary health. Jason Hickel further explores this idea in his book *Less is*

More (2020), including how pursuing economic growth often results in exploiting natural resources and neglecting environmental consequences like climate change and biodiversity loss.

In her Nobel Prize-winning work, Ostrom revealed that these shortcomings arise from the historical development of economic thought, which perceives the world as a machine and humans as self-interested actors (1990). This worldview reduces complex social and ecological systems to their individual parts, ignoring the interdependence and relationships that exist between them. This reductionist perspective overlooks the complex interdependencies and relationships within social and ecological systems, leading to the commodification of nature and the marginalisation of social and environmental considerations in economic decision-making (Kostakis & Bauwens, 2014). There is a widespread belief today that capitalism has been responsible for generating substantial wealth, while simultaneously facing criticism for causing extensive destruction (Hickel, 2020; Kostakis & Bauwens, 2014). John Fullerton (Fullerton, 2015) highlights the stark contrast between the narrative of the prevailing neoliberal theories and building a resilient economy rooted in regenerative systems theory. He argues that while democratic enterprise systems are designed to empower individuals and promote overall wellbeing, the current neoliberal form of capitalism is faltering due to its propagation of misguided notions regarding economic health.

Fullerton (2015) continues to challenge the conventional definition of capitalism as a system controlled by private owners for profit and argues that the modern capitalist economy is dominated by multinational corporations driven by short-term profit maximisation. He criticises the flawed shareholder primacy ideology and highlights the need for corporations to recognise their regenerative role in the larger system. Despite recognising alternative forms of capitalism, such as cooperatives and non-profit social enterprises, which are governed to different extents by democratic processes and managed for the common good, the idea of continuous and undifferentiated growth prevails.

Table 5: Comparing the conventional (Reductionist) theory of our current system with the regenerative (Systemic) theory that we need; adapted from Fullerton 2015

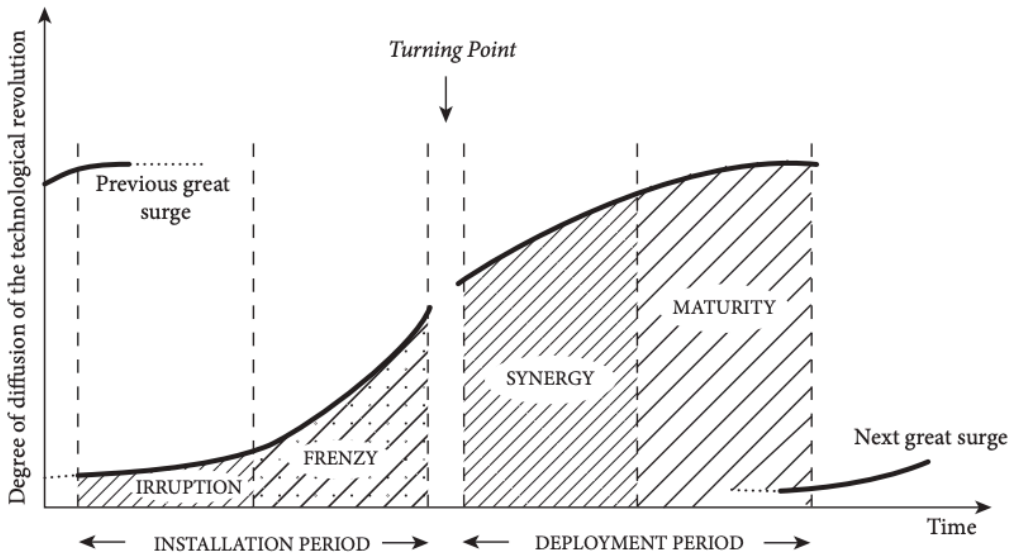
Conventional (Reductionist) Theory	**Regenerative (Systemic) Theory**
Focuses on the growth of the system measured by GDP as the path to prosperity.	Focuses on how the system grows as the key to long-run prosperity, not the system's growth per se.
Acts in ways that tend to benefit the wealthy and powerful, often at the expense of harm done to other parts of the system, subject only to after-the-fact mitigation by government policy.	Acts in ways that support the long-term health of the whole society and planet, with feedback loops designed into the system to ensure systemic health rather than treating the symptoms of ill health after the fact.
Maximises profits to owners by minimising benefits to other stakeholders and then relying on government programs to fill the gaps (or not).	Maximises long-term health by ensuring equitable benefits to all stakeholders.
Values money and short-term profit ahead of human beings and the environment.	Values long-term vitality of human beings and essential ecosystem function.
Concentrates money/wealth/information increasingly, subject only to regulation/redistribution debates after the fact.	Circulates money/wealth/information robustly.
Polarised debate over the value of individual freedom (laissez-faire) versus the need for government regulation in response to market deficiencies. Added regulation comes after the damage is done with all the unintended consequences such a reactive approach entails.	Balances the freedom upon which innovation thrives and the constraints necessary for collaborative community by building self-regulating mechanisms into the system's design aligned with the principles of systemic health.
Increases owner and superstar profits by maximising size and efficiency enabled by technology.	Maintains long-term health by balancing a variety of critical but competing factors.
Stresses selfishness and effective exploitation of land and labour for capital benefit.	Centres on reciprocity, mutual benefit, and common cause.
Long-term investment is displaced by short-term extractive speculation and manipulation of the system benefitting a small elite.	Invests long-term in people and common-cause infrastructure.
Ignores looming social, economic and environmental crises, arguing that profits and growth must come first because they are the key to economic strength.	Argues that addressing social, economic and environmental crises is an excellent way to increase profits and economic health.

3.2.2 The economic turning point

Vasilis Kostakis and Michel Bauwens (2014) explain this phenomenon. According to their analysis, pursuing new avenues for growth is essential for sustaining the capitalist system. The system relies on continuous capital accumulation and faces challenges such as finding new labour forces or reducing wages to maintain growth. It introduces new means of production and technological innovations, creating new needs and attracting customers. However, capitalism is prone to crises when profitable reinvestment becomes difficult, leading to stagnation, unemployment, impoverishment and social turmoil (p.3). It is argued that the world is at a critical turning point, where we must recognise the flaws and unsustainability of current practices and implement regulatory changes to channel desperation and anger into creative solutions. As such, Kostakis and Bauwens suggest that capitalism should be managed and regulated to soften its destructive impact while maximising its creative power. Their book, *Network Society and Future Scenarios for a Collaborative Economy*, explores the theory of techno-economic paradigm shifts (TEPS), exploring the focus of technological revolutions in driving economic development. They describe how every techno-economic paradigm (TEP) revolves around a unique set of technological and organisational advancements that act as the primary drivers of economic growth (Perez, 2010).

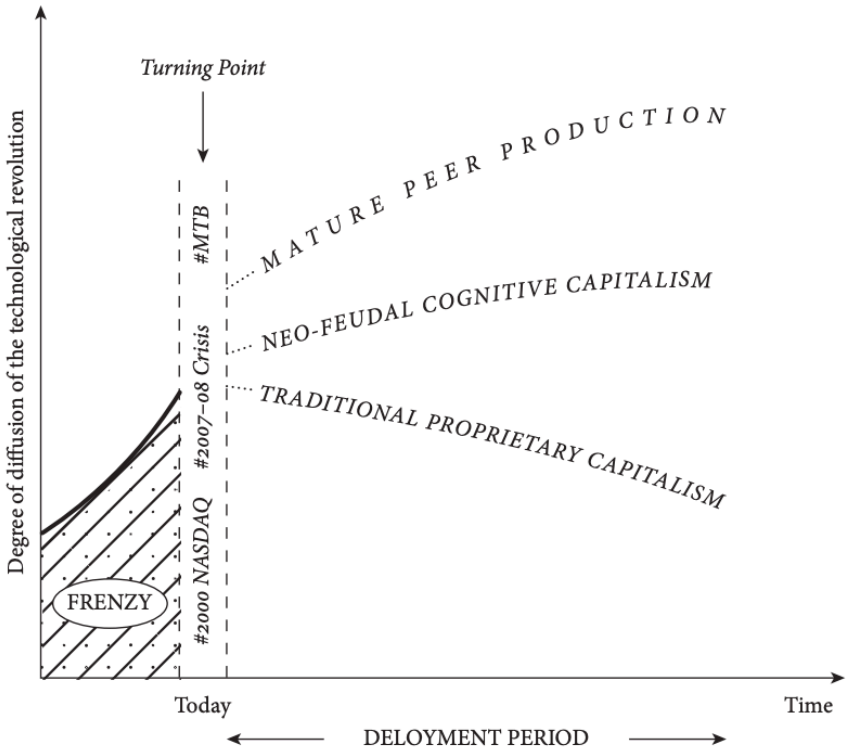
TEPS theory identifies five technological revolutions in the past three centuries: the first industrial revolution (starting in 1771 in Britain), the age of steam and railways (starting in 1829 in Britain), the age of steel and heavy engineering (starting in 1875 in Britain, the US and Germany), the age of automobile and mass production (starting in 1908, in the US) and the age of information technology (starting in 1971 in the US). Each of these processes can be observed to have four distinct phases, which, while not wholly distinct, exhibit common characteristics throughout history (Perez, 2002). First, there is an irruption phase (Irruption), where new technologies emerge alongside declining industries. Then there comes a frenzied phase (Frienzy), characterised by rapid technological advancements driven by financial investments, sometimes leading to economic bubbles. Following that, turbulent times arrive, with economic instability and collapse. This is known as the turning point, where institutions undergo changes to support the widespread adoption of new technologies and ensure their benefits reach society. During a deployment period, both the synergy phase (Synergy) and growth (Maturity) phase exist until a productivity limit is reached. Social unrest may arise at this stage, paving the way for the next technological revolution and establishing a new paradigm.

Figure 10: The Dynamics of Bubbles and Golden Age; Perez, 2002



In the turning point of our current techno-economic paradigm, Kostakis and Bauwens argue that three competing value models influence how institutional changes will take place. Based on labour value and proprietary knowledge, the first value model is still dominant but declining rapidly. The second model is gaining dominance, while a third model is emerging.

Figure 11: Three competing value models; Kostakis & Bauwens, 2014



Kostakis and Bauwens explore different scenarios for the future of collaborative economies, including the emergence of resilient communities and the global commons (Kostakis & Bauwens, 2014) (see also 7.2.4.2). In either scenario, we are reaching a turning point where we can no longer ignore the topic of regenerative transformation and revitalisation of socio-economic systems. Regeneration can be seen as a key aspect of future economies, as it involves the renewal and restoration of social, economic and ecological systems, aligning with sustainability principles and the potential for positive change in the face of environmental and societal challenges.

3.2.3 Regeneration rising

The concept of regeneration, drawing from ecological and sustainable principles, suggests an alternative economic paradigm (Fullerton, 2015; Hutchins & Storm, 2019). It recognises the interconnections between economic, social and ecological systems and advocates for closed-loop systems that utilise renewable resources, minimise waste and prioritise social equity and community development (Fullerton, 2015). This paradigm shift in economic thought acknowledges the importance of social and ecological wellbeing, positioning them above mere economic growth (Hickel, 2020). Our current economic model assumes that economic growth is the key driver of prosperity and wellbeing. The idea is that through deregulation, privatisation and free trade, markets will allocate resources efficiently, resulting in higher economic growth and improved living standards. However, our current

model has come under increasing criticism for its negative impacts and has been criticised for exacerbating inequalities and causing environmental degradation (Fullerton, 2015; Raworth, 2017; Hickel, 2020; Stiglitz, 2012). As economic growth is pursued, wealth becomes concentrated in the hands of a few, exacerbating inequalities between the rich and the poor. According to Stiglitz, this concentration of wealth can lead to political and social instability, as those who are left behind by the system become disenfranchised and marginalised.

Pursuing such economic growth can also lead to environmental degradation, as natural resources are exploited and environmental externalities, such as climate change and biodiversity loss, are ignored (Daly, 2005). These described shortcomings are deeply rooted in the historical development of our economic thought (Ostrom, 1990). Bauwens and Kostakis argue that the mechanistic worldview reduces complex social and ecological systems to their individual parts, ignoring the interdependence and relationships that exist between them. This reductionist view of the world has led to the commodification of nature, and the marginalisation of social and environmental considerations in economic decision-making (Kostakis & Bauwens, 2014).

Therefore the notion of regeneration originates in the principles of ecology and sustainability and in recognising the interconnectedness of economic, social and environmental systems (Fullerton, 2015). It emphasises the need for closed-loop systems that use renewable resources and eliminate waste, while promoting social equity and community development. As a concept, regeneration has recently gained significant attention in organisational studies (Hutchins & Storm, 2019; Wahl, 2016), sparking debates regarding its unique characteristics and how it differs from concepts such as sustainability and circular business models. Jan Konietzko, Ankita Das and Nancy Bocken (2023) researched organisations with regenerative business models to clarify the precise distinctions and defining features of regeneration and found that these organisations prioritise planetary health and societal wellbeing. They identified three principles defining regenerative organisations (Konietzko, Das, and Bocken 2023):

1. **Embrace the interconnectedness:** Acknowledge that human societies are intricately intertwined with the biosphere and recognise that their wellbeing is intertwined. Understand that the biosphere's health directly affects human societies' health and prosperity.

2. **Promote planetary health and societal wellbeing**: Foster a value proposition centred on the preservation of planetary health and the overall wellbeing of society. Prioritise actions and initiatives that contribute to the betterment of nature and society.

3. **Strive for net positive impact:** Aim beyond sustainability and mere resource conservation. Aspire to give back more to the environment and society than what is taken. Actively pursue strategies and practices that positively impact the environment, communities and stakeholders.

These principles form the foundation for regenerative organisations, guiding their actions and decisions towards creating a positive and thriving future for both the biosphere and humanity. According to Giles Hutchins and Laura Storm (2019), these qualities can be achieved through activities that promote regenerative leadership, co-creative partnerships with nature, and justice and fairness. Realising that humans are deeply interconnected with and dependent on nature is the starting point for regenerative thinking within organisations (Wahl, 2016). The importance of effective institutions at the local community, civil society and national levels is highlighted in enabling regenerative markets. These institutions, which involve trust, clear rules, observation, cooperation, verification and enforcement, play a vital role in ensuring social-ecological systems' sustainability, as Ostrom (2009) notes.
While sustainable and circular business models have gained recognition and are already making strides towards responsible practices (Konietzko, Das, and Bocken, 2023), it is essential to differentiate them

from what literature defines as regenerative economic practice. Regenerative business models share some design approaches with sustainable and circular models, but their main goals and systemic perspectives differ. Konietzko, Das and Bocken (2023) identify a set of key differentiators. According to their analysis, sustainable and circular business models have similarities and differences compared with regenerative business models: Sustainable business models primarily focus on socio-technical systems, such as product-service systems, and operate at organisational, inter-organisational and societal levels. The main goal of sustainable business models is to balance economic, social and environmental value creation, often called the triple bottom line. They aim to mitigate negative impacts on the natural environment and communities affected by business operations. While sustainable business models are based on the understanding that the planet has finite resources and cannot sustain infinite economic growth, increasing consumption and population growth, they tend to work with existing paradigms and economic structures. Circular business models, like sustainable models, emphasise the need to minimise negative environmental impact. They focus on closed-loop economic systems that aim to improve resource efficiency and minimise material and energy throughput in industrial systems. Circular business models prioritise increasing material productivity and value creation while minimising the use of new resources. The circular economy concept considers the planet a closed-loop system of material, energy and information flows.

Regenerative business models, on the other hand, take a broader perspective by considering social-ecological systems, encompassing the interdependence of natural ecosystems and human societies. The primary goal of regenerative business models is to promote planetary health and societal wellbeing. These models are rooted in the concept that the planet is a self-regulating organism, where organisations should aim for the regeneration of ecosystems and the overall health of social-ecological systems. Regenerative approaches go beyond minimising negative impacts and focus on actively restoring and nurturing the natural environment.

Regarding design, sustainable and circular business models share a common emphasis on the circular technosphere. This involves designing for the technical cycle and maximising material productivity, while minimising waste and resource consumption. Sustainable and regenerative business models focus on the sustainable human sphere, designing to meet human needs within planetary boundaries and considering the wellbeing of individuals and communities. Circular and regenerative business models converge on the regenerative biosphere, emphasising the importance of designing for the biological cycle and ecosystem regeneration.

Table 6: Summary of key differing factors of sustainable, circular and regenerative business models, adapted from Konietzko, Das, and Bocken, 2023

	Sustainable Business Models	**Circular Business Models**	**Regenerative Business Models**
Dominant Systems View	Socio-technical systems, focusing on product-service systems and organisational levels	Closed-loop economic systems, emphasising resource efficiency and material flows	Social-ecological systems, considering the interdependence of natural ecosystems and human societies
Main Goals	Triple bottom line: Economic, social, and environmental value creation	Material productivity and value creation through closed-loop systems	Planetary health and societal wellbeing, promoting regeneration and overall system health
Design Focus	Circular Technosphere: Design for the technical cycle and material productivity	Circular Technosphere: Design for the technical cycle and material productivity	Regenerative Biosphere: Design for the biological cycle and ecosystem regeneration
Example Approach	Designing low-impact products, reducing ecological footprint	Minimising material and energy throughput, maximising value creation	Actively restoring and nurturing the natural environment, promoting human wellbeing

Regenerative business models are still evolving, and different views exist within the literature (see different frameworks and approaches proposed by Wahl, 2016; Fullerton, 2015; Raworth, 2017; Hutchins & Storm, 2019). Some authors argue that regenerative organisations focus on restoring the self-renewable capacity of damaged or overexploited natural systems (Morseletto, 2020). Gregory A. Norris and his colleagues define regenerative business as being based on the notion of net positive impact, where the organisation's handprint (positive impact) exceeds its footprint (negative impact) throughout the product or service lifecycle (2021). Paul Polman and Andrew S. Winston found that organisations must take responsibility for all their impacts to achieve net positivity, work towards the long-term benefit of both business and society, and cultivate a strong sense of purpose (2021).

Regenerative leadership plays a crucial role in this context (Hutchins & Storm, 2019), emphasising the development of meaning, observation, deep listening and generative conversations (Hardman, 2013), but also design approaches, including nature-inspired restorative and regenerative design (Reed 2007), circular economy principles (Wahl, 2016; Caldera et al., 2022), as well as multi-capital accounting methods and the reinvestment of profits into the surrounding environment or local communities (Fullerton, 2015). Regenerative economics, as defined by John Fullerton in his book *Regenerative Capitalism* (2015), is based on the fundamental assumption that economic vigour is rooted in ecological health and the inclusive development of human capabilities. Fullerton argues that regenerative economics challenges conventional economic thinking that prioritises GDP growth as the measure of economic health. In a regenerative economy, he says, the focus shifts to the long-term health of the whole society, recognising the inseparability of economic, financial, human, societal and environmental health. The goal is to develop a mosaic of healthy human networks embedded in healthy societies and the biosphere. Unlike neoliberal and Keynesian approaches, regenerative economics acknowledges biophysical limits to exponential growth and emphasises the development of healthy human networks as the path to prosperity. Fullerton calls for a shift in mindset, embracing regenerative principles and patterns that support the richness, variety, responsiveness and integrity of inclusive human networks at every level of global civilisation. Fullerton (2015) proposes that the regenerative narrative rooted in the fundamental principles and patterns observed in stable, thriving and sustainable

natural systems can guide the design of economic systems. These universal principles serve as a model for creating an economic system aligned with the dynamics of a healthy and balanced ecosystem. He argues that a "Regenerative Economy also requires a clear statement of purpose. A regenerative system is self-organizing and self-sustaining" (p.21), and its purpose is to foster and uphold human prosperity and wellbeing, within an enduring and sustainable economic framework. Analysing what qualities make an economy healthy and sustainable, he finds that "A Regenerative Economy maintains reliable inputs and healthy outputs by not exhausting critical inputs or harming other parts of the broader societal and environmental systems upon which it depends." (p.21)

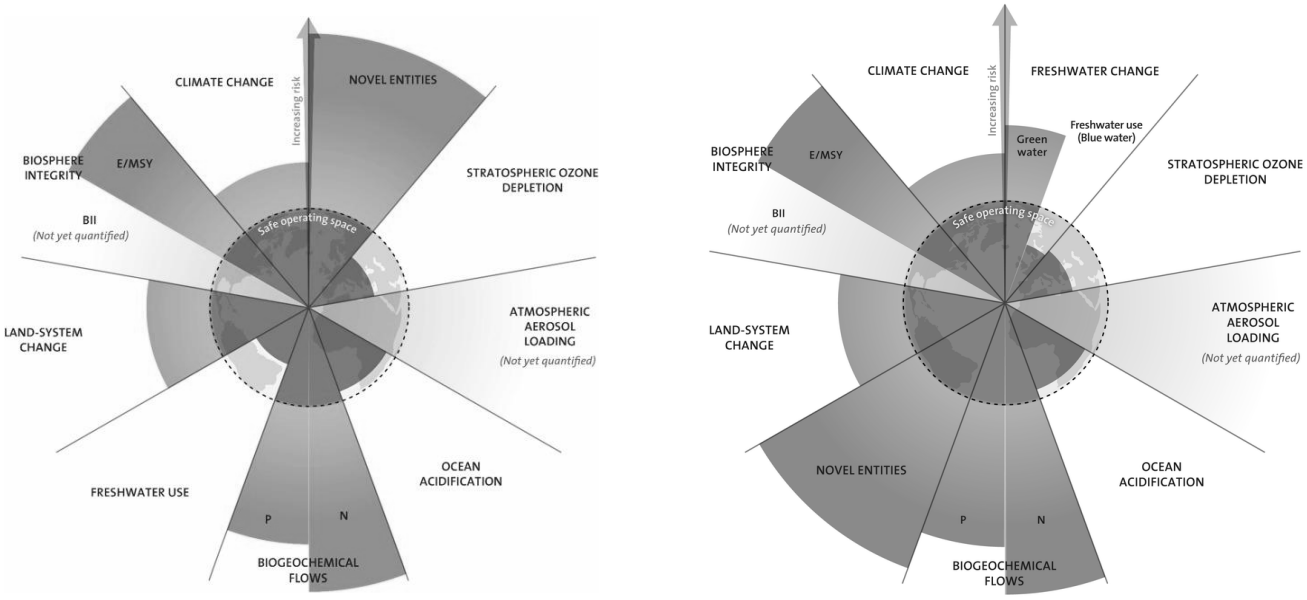
Regenerative design principles, which have been applied in various fields such as agriculture and architecture, should be extended to the global economic system of modern capitalism. The overall aim of such an economy should be to operate regeneratively, mimicking the regenerative potential and abundance found in natural systems. Unlocking this creative regenerative potential and aligning with natural systems design thinking are identified as key challenges by Fullerton in transforming our economics. Fullerton concludes that our task is to illuminate the interconnected narrative of life and living systems and create a coherent storyline that aligns with the supporting evidence, replacing the concept of perpetual growth.

The concept of regenerative economics has been gaining traction in recent years, with some organisations and communities adopting its principles and practices (i.e. BMW Foundation RESPOND). For example, the Ellen MacArthur Foundation has been promoting their circular economy model, which is based on the principles of regeneration and has been working with businesses and governments to develop and implement circular business models (Ellen MacArthur Foundation, 2021). The Regenerative Communities Network, a network of organisations and communities, is working to promote regenerative economic practices and to build resilient, sustainable communities (Regenerative Communities Network, 2021). An influential voice in this discourse is Kate Raworth who proposes an alternative economic framework to address the pressing issues of inequality, environmental degradation and social justice (Raworth, 2017). She argues that an alternative economic paradigm built on regeneration recognises the importance of social and ecological wellbeing, and the need to prioritise these over economic growth.

Regenerative economics represents a paradigm shift in economic thought, recognising the interconnectedness of economic, social and ecological systems. It is a proposition that seeks to restore and enhance social, economic and environmental systems, recognising that their wellbeing is necessary for human prosperity and wellbeing (Raworth, 2017). As an alternative economic model, it is based on a number of principles that are different from those that underpin the current economic system. These principles include circularity, which emphasises the need for closed-loop systems that use renewable resources and eliminate waste; diversity, which recognises the importance of ecological and social diversity in building resilient systems; and cooperation, which focuses on the need for collaboration and partnership between diverse stakeholders (Raworth, 2017). Raworth introduces the concept of 'Doughnut economics' based on the Planetary Boundaries framework (Rockström et al., 2009a; 2009b). The concept of Planetary Boundaries, developed by Rockström et al. (2009), highlights critical thresholds within the Earth System. These boundaries define a safe operating space for humanity, aiming to prevent irreversible transformations and tipping points that could disrupt the stability experienced during the Holocene period. They serve as protective guardrails to preserve societies as we know them by preventing global tipping points. These boundaries are intentionally set conservatively to account for uncertainties, acknowledging the potential risks of crossing these thresholds.

The current status reveals that five out of the nine boundaries have already been exceeded, as depicted in Figure 12 (Steffen et al., 2015; Persson et al., 2022; Wang-Erlandsson et al., 2022).These breaches include atmospheric carbon levels, agricultural pollution in river systems, land use changes and biodiversity loss. Additionally, freshwater stress is intensifying in specific regions. These actions jeopardise the interconnected life support systems of our planet. It is important to recognise that everything is interconnected and breaching even a single critical boundary can destabilise the entire system.

Figure 12: Planetary Boundaries based on analysis in Steffen et al., 2015; Persson et al. 2022; Wang-Erlandsson et al. 2022 [1]

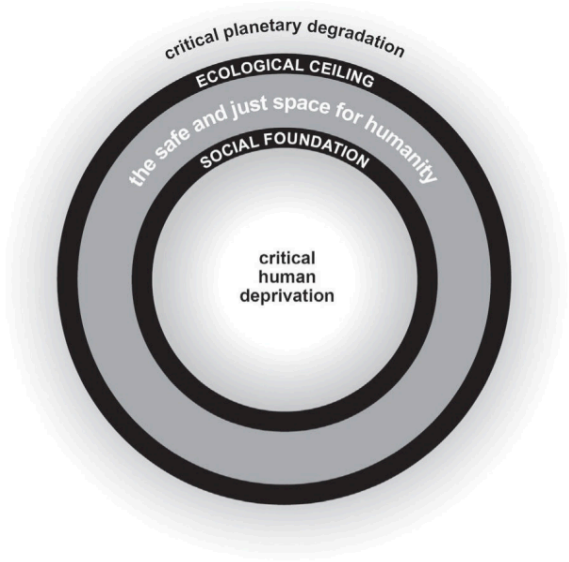


2015 2022

The concept of Planetary Boundaries has sparked extensive discussions and research (i.e. Ferretto et al. 2022). Various studies have proposed additional boundaries and explored suitable variables for defining them at global and regional levels. There has also been a focus on incorporating social considerations into the concept, as seen in the development of the Doughnut model by Raworth (Raworth, 2017). This model combines the Planetary Boundaries with a social foundation, representing the conditions necessary for a meaningful life without deprivation. Raworth visualised an area between the outer circle (representing the Planetary Boundaries) and an inner circle (representing the social foundation), which is known as the "safe and just space" where humanity should strive to live.

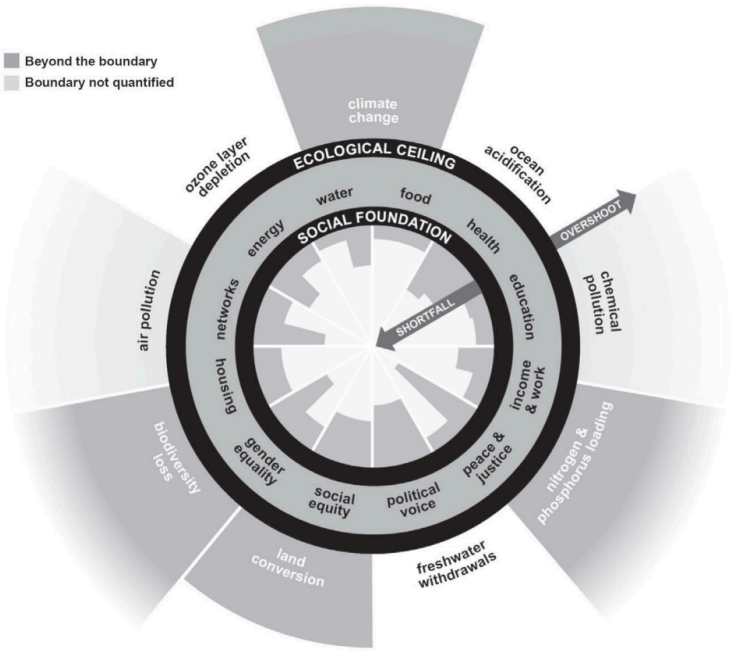
[1] The dashed circle represents the safe operating space identified by the Planetary Boundaries, and the dark grey areas indicate the current position in their respect. Inside the safe operating space means that the boundary has not been exceeded, while outside of the dashed line means that the boundary has been exceeded. The more the boundary has been exceeded, the bigger the area; Licenced under CC BY 4.0

Figure 13: The essence of the Doughnut: is the equilibrium between a social foundation of wellbeing for all individuals and an ecological ceiling of planetary limits, Raworth, 2017



Drawing from the initial diagram, Raworth presents a transformative economic framework that guides humanity towards a future where everyone's needs are met while preserving the integrity of the natural world. Within the Doughnut, there are shortfalls in human wellbeing below the social foundation and beyond the ecological ceiling there is an overshoot of pressure on Earth's systems. However, the sweet spot between these boundaries represents a doughnut-shaped space that is both ecologically safe and socially just. The challenge of the 21st century is to ensure that all of humanity can exist within this space.

Figure 14: The dark wedges below the social foundation show the proportion of people worldwide falling short of life's basics. The dark wedges radiating beyond the ecological ceiling show the overshoot of planetary boundaries; Raworth, 2017, p.49



Raworth argues that the pursuit of these social priorities should not come at the expense of environmental concerns; instead, they are intertwined and can be addressed together through policies. The Doughnut concept, therefore, provides a visual framework with which to guide efforts towards achieving both environmental and social goals. In her book *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (2017), she details seven ways how the economic model could be achieved through a series of approaches. One key aspect is changing the goal from pursuing endless economic growth to prioritising wellbeing and sustainability, which involves redefining success in meeting the needs of all individuals within the planet's ecological limits. Another approach is to see the big picture and understand the interconnectedness of social, economic and environmental systems. By taking a holistic view, policymakers and economists can design interventions that address multiple dimensions simultaneously and avoid unintended consequences. Nurturing human nature is also crucial: recognising that people are not purely self-interested individuals but social beings with intrinsic values, and designing economic systems that promote cooperation, empathy and social connections can contribute to a more inclusive and sustainable society. Understanding the complex dynamics and feedback loops that shape our economies is also essential.

Raworth (2017) argues that design plays a crucial role in the context of Doughnut Economics, because it shapes the systems and structures that underpin our economic activities. “Inequality, it turns out, is not an economic necessity: it is a design failure” (p. 29). She argues that the design of our economic systems can either perpetuate unsustainable and inequitable outcomes or contribute to regenerative and just outcomes. By reimagining the design of our economic systems, we can create environments that enable human wellbeing within the planet's ecological boundaries. Design thinking allows us to explore innovative solutions, challenge traditional assumptions and create new models that align with the principles of Doughnut Economics. Raworth references Marjorie Kelly, a prominent theorist in next-generation enterprise design, who distinguishes between extractive and generative ownership designs in terms of their impact on economic power:

Figure 15: Extractive vs generative ownership design; Kelly, 2012, p.39

EXTRACTIVE OWNERSHIP	GENERATIVE OWNERSHIP
1. *Financial Purpose:* maximizing profits in short term	1. *Living Purpose:* creating the conditions for life over long term
2. *Absentee Membership:* ownership disconnected from life of enterprise	2. *Rooted Membership:* ownership in human hands
3. *Governance by Markets:* control by capital markets on autopilot	3. *Mission-Controlled Governance:* control by those dedicated to social mission
4. *Casino Finance:* capital as master	4. *Stakeholder Finance:* capital as friend
5. *Commodity Networks:* trading focused solely on price and profits	5. *Ethical Networks:* collective support for ecological and social norms

Kelly identifies five layers of organisational and economic design, including living purpose, rooted membership, mission-controlled governance, stakeholder finance and ethical networks. She found that these design elements significantly influence an organisation's capacity to transition towards regenerative practices or maintain exploitative approaches (Kelly, 2012; 2013). Generative ownership

models prioritise wealth generation and preservation, sustainable wealth distribution and providing secure homes for families, while extractive ownership models prioritise maximising physical and financial extraction (Raworth, 2017; Kelly, 2012). Raworth draws upon Kelly's insights in her proposed Doughnut Economics model, utilising them as foundational principles for organisational design. The workshops conducted by DEAL (the Doughnut Economics Action Lab) focus on turning Doughnut Economics from a radical idea into transformative action and emphasise reimagining five essential layers of design: purpose, networks, governance, ownership and finance. By reshaping these elements, it is argued that organisations can actively contribute to the transformative journey of applying the Doughnut, embracing regenerative and distributive principles (Raworth, 2017). This approach could therefore enable organisations to play a crucial role in shaping a sustainable and equitable future (Raworth, 2017).

In the context of Raworth's Doughnut Economics model, post-growth, or degrowth, emerges as a critical perspective that challenges the conventional notion of perpetual economic expansion. Raworth acknowledges the limitations of the growth-driven economic paradigm and emphasises the need to prioritise human wellbeing and ecological sustainability. Her Doughnut provides a conceptual framework for post-growth aspirations. It aligns with the work of economist Jason Hickel, who has extensively explored the concept of degrowth as a pathway to address social inequality and ecological degradation (Hickel, 2020).

3.2.4 Beyond growth

"Degrowth is not a passive critique, but an active project of hope, with vivid utopian visions of another, better world with equality, decolonization, reparations and social justice as its foundation." (Schneider & Pope, 2020)

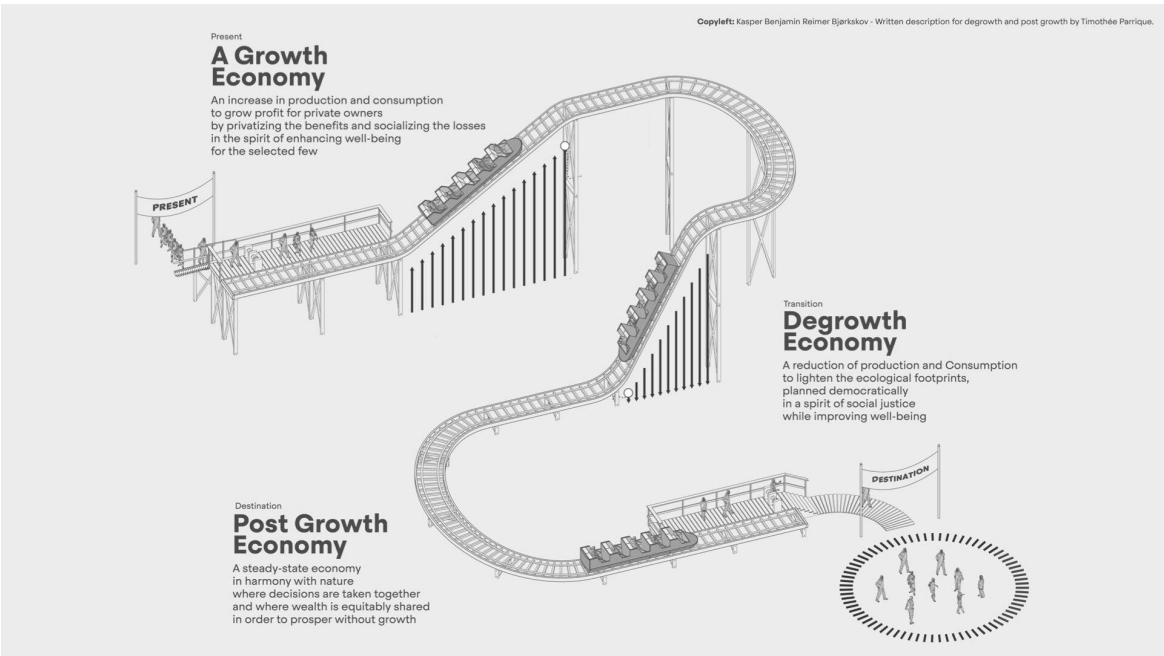
The question of whether exponential economic growth is both feasible and desirable has been a central point of contention within the environmental movement for the past five decades. This debate gained significant momentum following the release of 'The Limits to Growth' report by the Club of Rome in 1972 (Meadows and Club of Rome, 1972). The report ignited discussions surrounding the finite nature of Earth's resources and the long-term implications of relentless economic expansion. As the urgency of the climate crisis intensifies and the carbon budgets outlined in the Paris Agreement diminish, climate science and ecology experts increasingly highlight the impact of economic growth (Hickel, 2022). Hickel analysed that the connection between growth and energy demand presents a major challenge for a swift transition to clean energy, crucial for avoiding disastrous global warming. In response, IPCC (Intergovernmental Panel on Climate Change) scientists argue that actively reducing the material throughput of the global economy is necessary to meet the Paris Agreement targets, as it reduces energy demand and facilitates the transition to clean energy sources. The concepts of post-growth and degrowth offer distinct perspectives, each with its own focus and objectives.

Post-growth (Daly, 1996; Blühdorn, 2017; Post Growth Institute, n.d.) emerged as a response to those pressing challenges, urging a fundamental re-evaluation of our economic systems and priorities. Rooted in the principles of regenerative economics, it envisions a paradigm shift away from the relentless pursuit of endless economic expansion towards a more sustainable and equitable future (Blühdorn, 2017). Post-growth understands the limitations of traditional growth-oriented models and seeks to redefine progress, wellbeing and the relationship between humans and the natural world. At the core of the post-growth movement lies the recognition that our current economic model, reliant on endless growth and consumption, is incompatible with the planet's ecological limits. Post-growth seeks to redefine societal goals and wellbeing in ways that prioritise ecological sustainability, social equity and human flourishing. It acknowledges the need for a fundamental transformation of our economic

systems to achieve a more sustainable and just future, and questions the feasibility of green growth approaches that aim to maintain economic growth while reducing environmental impacts. Post-growth advocates for alternative measures of progress beyond GDP, seeking a balanced and sustainable relationship between society and nature (Latouche, 2009).

Conversely, degrowth, while part of the broader post-growth thinking, recognises the need for active reductions in economic activities that cause environmental harm and worsen inequality. While post-growth is considered an approach, degrowth is considered to have a specific agenda (Savini and Schönfeld, 2022), advocating for a deliberate trajectory of scaling down production and consumption, and prioritising sufficiency over endless growth. Timothy Parrique proposes the concept of degrowth as a transitional phase towards achieving a post-growth economy Parrique et al., 2019). Degrowth emerged as a response to the unsustainable path of growth-driven economies, which prioritise endless accumulation and consumption. The degrowth movement challenges the notion that economic growth is synonymous with human progress and wellbeing. It recognises that beyond a certain threshold, increasing material consumption does not necessarily lead to increased happiness or quality of life (Easterlin, 1974). Instead, degrowth emphasises the importance of redistributing wealth and resources, promoting social justice and prioritising non-material dimensions of wellbeing, such as community, relationships, leisure and cultural fulfilment (Jackson, 2009; Martínez-Alier et al., 2010). Degrowth, therefore, entails actively reducing production and consumption-based activities to decrease ecological footprints, while prioritising social justice and wellbeing through democratic planning. The ultimate goal is to establish a post-growth economy, also referred to as a steady-state economy, as previously defined by Herman Daly (1972). This economic system consists of a constant stock of physical wealth (capital) and a constant stock of people (population), with both stocks maintained by a flow of natural resources. Parrique, Daly and other scholars such as Hickel and O'Neill emphasise that such an economy may ultimately be smaller and slower but it would align with the Earth's biocapacity. It would achieve an equilibrium centred on the wellbeing of people, species and the planet, with decisions made collectively and wealth shared equitably to thrive without the need for continual growth. A degrowth vision also emphasises the redistribution of resources and the pursuit of social justice to address the unequal impacts of overconsumption (D'Alisa et al., 2014).

Figure 16: From a growth economy to a post-growth economy; Parrique & Reimer Bjørkskov, 2023



By challenging the notion of infinite growth within finite planetary boundaries, degrowth proposes reorienting societies towards localised, equitable and sustainable economies. It also prioritises sufficiency, resilience and quality of life over material accumulation. What is important in the degrowth debate is that degrowth scholars (i.e. Hickel, Parrique) recognise that achieving reductions in aggregate economic activity, as measured by GDP, will likely be necessary to address the challenges of a finite planet. While this prospect may raise concerns about wellbeing and social impacts, it is important to distinguish degrowth from a recession. A recession signifies a contraction of the existing growth-dependent economy, whereas degrowth calls for a fundamental shift to a different economic paradigm that does not rely on perpetual growth. Post-growth literature argues that decreasing aggregate economic activity in high-income nations is possible while improving human development and wellbeing. To achieve this transition, Hickel proposes integrated policy reforms (2020). As environmentally harmful and socially unnecessary industries are phased out, job losses can be mitigated by shortening the working week and redistributing necessary labour to cleaner and more socially beneficial sectors, supported by a job-guarantee programme. A living-wage policy can be implemented to address wage losses resulting from reduced working hours, ensuring fair compensation. Additionally, a universal basic income scheme, funded through taxation on carbon, wealth, land value, resource extraction and corporate profits, can provide financial security for individuals and support small businesses during the transition. Post-growth scenarios developed by Simone D'Alessandro and colleagues (2020) and Peter Victor and Peter Grosvenor (2019) have demonstrated the feasibility and positive outcomes of these policy proposals.

Parrique (2023) proposed the concept of degrowth as a transitional phase towards achieving a post-growth economy. He argues that degrowth entails actively reducing production and consumption-based activities to decrease ecological footprints, while prioritising social justice and wellbeing through democratic planning. Parrique, among others (Parrique et al., 2019), challenges the notion of green growth and decoupling, questioning whether achieving economic growth and environmental sustainability is possible. Various degrowth scholars have concluded that there is no robust evidence supporting the decoupling hypothesis on a scale necessary to address environmental breakdown, and that future decoupling is unlikely to occur (Hickel, 2020; Parrique et al., 2019; Latouche, 2018; Kallis et al., 2015). In a report titled, 'Decoupling debunked – Evidence and arguments against green growth as a sole strategy for sustainability' by the European Environmental Bureau (EEB) (2019), the authors highlight several key reasons why green growth – the idea of achieving economic growth without increasing environmental pressures – is not feasible. First, there is no empirical evidence supporting the existence of a decoupling of economic growth from environmental pressures on the scale required to address environmental breakdown. Decoupling is only relative, temporary or localised in various areas such as materials, energy, water, greenhouse gases, land, water pollutants, and biodiversity loss. The limited instances of absolute decoupling occur during short periods and with minimal rates of mitigation. Rising energy expenditures play a role as the extraction of remaining resources becomes more resource- and energy-intensive, leading to increased environmental degradation per unit of resource extracted. Rebound effects further undermine decoupling efforts, as efficiency improvements are often offset by increased consumption in other areas or structural changes promoting higher resource usage. The phenomenon of problem shifting also poses a challenge to green growth, as technological solutions addressing one environmental problem may inadvertently create new ones or worsen existing ones. For example, the production of electric vehicles places pressure on limited resources like lithium, copper and cobalt, while biofuel production raises concerns about land use (Parrique et al. 2019, p.4-5). The limited potential of recycling is also highlighted in the EEB report, as recycling rates are currently low while recycling processes still require substantial energy and virgin raw materials. Overall, technological change is insufficient and inappropriate for achieving the necessary decoupling at a fast enough pace. And, finally, the underestimated impact of services is another factor undermining green growth. The service economy,

often seen as a substitute for material consumption, relies on the material economy. Services contribute their own significant environmental footprint, which often adds to rather than replaces that of goods[2].

These findings collectively challenge the feasibility of green growth to achieve environmental sustainability and highlight the need for new approaches that incorporate sufficiency strategies and emphasise downsizing economic production and consumption in the wealthiest countries. Parrique (2019) highlights a common accusation against degrowth, which is that it is often labelled as technophobic, anti-science and against innovation (p.338). At the heart of some prevalent core growth theories (Harrod, 1939 and Domar 1946) lies the understanding that economic growth is fundamentally fuelled by innovation, and that the innovation process is intricately tied to the level of investment being made. Therefore, critics depict degrowth as a desire to regress to primitive conditions and portray it as being opposed to the production of knowledge. Their argument suggests that degrowth either promotes or leads to a stagnation of invention and innovation, characterised as an endorsement of immobilism and a pathway to a closed-minded and stagnant society. However, the opposite could be true. The role of technology and innovation in the degrowth debate is often misconstrued (Parrique, 2019; Kostakis et al., 2015). Parrique argues that technology is not the cause but a consequence of certain institutions and social practices, with monetary gains being a key driver (p.338). Parrique highlights that the anti-degrowth argument has some drawbacks concerning the purpose, unintended consequences and speed of technological change, and presents three counter-arguments (p.113):

"Technological progress is (1) not targeting the factors of production that matter for ecological sustainability and not leading to the type of innovations that reduce environmental pressures; (2) it is not disruptive enough as it fails to displace other undesirable technologies; and (3) it is not in itself fast enough to enable a decoupling that is absolute, global, permanent, large and fast enough."

His argument emphasises that technological innovation often supported by design practices fails to address environmental issues. Therefore, relying solely on technological innovation to solve environmental problems is risky and impractical. Degrowth does not reject technology per se but emphasises the need for democratic decision-making, management and control over its development. It acknowledges that certain technological and scientific discoveries may be undesirable, and advocates for democratically controlled ethical barriers to prevent their pursuit (Bauwens et al., 2018). Contrary to what degrowth critics say, degrowth is not opposed to innovation, but challenges the notion that technological progress alone can solve all problems. Parrique (2019) makes a critical distinction between innovation (applying imagination and creativity to problem-solving) and progress (development towards an improved condition) (p.338). He argues that innovation should be evaluated based on criteria beyond monetary gains and economic progress. Instead, there is a need to embrace inventive social innovation practices that address issues beyond the pursuit of economic growth, and the relentless commodification of goods and services. Presently, the market is solely responsible for determining the direction and speed of innovation, but there is a call for a different social protocol that prioritises ethical problem-solving. Not all inventions are desirable, and while degrowth welcomes the end of certain forms of innovation that cause more harm than good, it encourages convivial entrepreneurship, where innovators dedicate their efforts to offering equitable and sustainable solutions to pressing issues.

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[2] This last point poses a critical challenge for service design practice, as it highlights a significant blind spot in the prevailing narrative of servitisation as a sustainable strategy. While the service economy has been positioned as a means to reduce material dependency and environmental impact, it is important to recognize that services themselves contribute to a substantial environmental footprint. In many cases, rather than replacing the material economy, services add to the overall environmental pressures generated by goods. This also underscores the need for a more planet-centric approach in service design that considers the underlying material dependencies of services, taking into account the environmental implications throughout the value chain.

The question should not be whether degrowth is technophobic or against innovation, but rather which technologies and innovations are chosen, for whom they serve and at what environmental cost. Contemporary design practice must confront identical questions to prioritise ethical problem-solving aligned with planetary needs. As degrowthers have repeatedly demonstrated, degrowth recognises that if a new technology or innovation can improve quality of life without hindering social-ecological justice, it can have a role to play in a post-growth economic world. Hubert Buch-Hansen and Ilana Nesterova (2023) present an extensive and non-reductionist interpretation of degrowth. They perceive degrowth as a multidimensional process encompassing profound changes across four interconnected dimensions of societal being: the material relationship with nature, interpersonal interactions, social structures and individuals' inner selves. Within each dimension, these transformative shifts involve the reduction and eventual elimination of certain existing elements while simultaneously expanding others. Across each dimension, or plane, these transformations entail a shift towards diminishing certain elements while increasing others.

Figure 17: Degrowth: less and more, Four planes of transformation; Buch-Hansen & Nesterova, 2023

	Less	**More**
Transactions with nature	Matter and energy throughput, extractivism and instrumental treatment of nature, waste, pollution, greenhouse gas emissions, production and consumption of unnecessary goods, transportation/food miles, built environments, artificial obsolescence	Cleaner energy forms, regard for planetary boundaries, valuing and preserving biodiversity and life, place-sensitivity, place-based activities/localisation, nature-based economic activities
Social interactions between persons	Competitiveness, greed, individualism, intolerance, racism, sexism, climate change denial, homophobia, xenophobia, hate, fear, alienation, instrumental treatment of humans	Empathy, compassion, peacefulness, solidarity, sufficiency, kindness, generosity and tolerance of diversity, spontaneous right action, fellow-feeling, respect and concern for others, care, mutual learning, democracy
Social structures	Growth imperative, competition, inequality, patriarchy, rigid hierarchies, bureaucracy, structures of oppression, exploitation, domination, poverty, suffering	Collaboration, equal distribution of economic and other resources, flat hierarchies
Inner being	Egoism and ego-realisation, egocentrism, equating the ego with the self, short-term orientation, entitlement, possessiveness and materialism ("to have"), hedonism	Love, creativity, oneness, gentleness towards being and beings, awareness, curiosity, transcending the narrow ego/self, seeing oneself as part of the broader existence, self-realisation, fulfilment, harmony, joy, reflection/mindfulness

The analysis by Buch-Hansen and Nesterova aligns with insights gathered during my interview for the book chapter 'Commoning for a regenerative world: realizing new directions for Service Design,' (see PhD Thesis Publications) where I investigated the close relationship between our current economy and contemporary service design practice within the context of neoliberalism. In my interview with Winne van Woerden, a degrowth activist, I explored how innovation and design can contribute to the degrowth movement while also challenging the notion that degrowth is inherently technophobic or opposed to innovation (see above). Van Woerden proposes that designers can support the principles of degrowth

by enhancing social structures and interactions, including empathy, compassion, diversity and collaboration (see above, Social Structures and Social Interactions between persons). She suggests that designers could adopt the fundamental principles of a degrowth society, including enhancing care, fostering autonomy, promoting system sufficiency, and nurturing collective imagination. Many of these aspects are already integrated into existing commons, where shared resources are collectively managed by a community, operating outside the conventional frameworks of market and state regulation. The commons represent a unique space where collaborative governance and shared responsibility transcend traditional market and state boundaries. By incorporating commoning dynamics into their design practice, designers could create much-needed new narratives of care. But such an approach would involve designing with ethical values that emphasise care for all, human and non-human, allowing for the re-imagination of societal systems and the exploration of the intricate relationships between humans and nature. Van Woerden also emphasises extending care to non-human stakeholders and challenging the significance of economic growth in design activities, advocating for a shift towards commoning and regenerative practices. These ideas will be further explored in the forthcoming section.

Conclusion: Reimagining contemporary design beyond mechanistic, colonial and neoliberal economic structures

Chapter section 3.2 offers a definition and framework for regenerative economics, emphasising the need for alternative economic practices and distinguishing between regenerative, sustainable and circular business models. The section explores the failure to account for the interconnectedness of social, economic and environmental systems, thereby highlighting the urgent need for a new economic paradigm to support living system perspectives that challenge the idea of resource exploitation. It presents regenerative economics as a promising economic alternative that promotes wellbeing for people and the planet, focusing on regenerative practices such as circular economy principles, renewable energy sources and social equity. However, adopting regenerative economic principles demands a fundamental shift in how we perceive and measure economic progress. This shift involves prioritising long-term wellbeing over short-term gains, bringing to light the limitations of our current traditional growth-oriented economic system. Degrowth and post-growth are discussed as alternative pathways to a more sustainable and just future, challenging the feasibility of green growth approaches.

Implication for design practice

Given the pressing environmental and social challenges we face, this section urges a deep transformation in contemporary design practice, disentangling itself from limiting neoliberal structures and binary frameworks that create a division between humans and nature. Traditionally, neoliberal principles have influenced design practice prioritising economic growth and profit maximisation within the capitalist system. This approach has resulted in inequalities, environmental degradation and social unrest and, increasingly, designers recognise the limitations of this narrow focus and the need for a shift towards more regenerative and systemic models. The turning point of the techno-economic paradigm further reinforces the need for economic shifts in contemporary design practice. While the capitalist system relies on continuous capital accumulation and technological innovation for growth, it faces challenges and crises when reinvestment becomes difficult, besides extracting from nature in unsustainable ways. This section highlights that designers should recognise the flaws of current economic practices in order to reimagine solutions for economic alternatives that guarantee planetary benefits. Regeneration is discussed in this context, emphasising the interconnectedness of economic, social and ecological systems.

For contemporary design, embracing the concept of regeneration signifies a shift in perspective towards prioritising the wellbeing of both society and the planet. This involves transcending reductionist perspectives and recognising the intricate interdependencies within social and ecological systems. Regeneration could provide guiding principles for contemporary design practice as it challenges the assumption that economic growth is the sole driver of prosperity. It can help to place social and ecological wellbeing above the idea of growth and recognise the inseparability of economic, financial, human, societal and environmental health. To incorporate regenerative principles into contemporary design, designers can draw inspiration from nature and reimagine product lifecycles, material, and production processes to ensure efficient resource use and waste reduction. They can assist organisations in taking responsibility for their operational impacts and redesigning their processes to minimise the consumption of resources and give back to their surrounding environment or local communities. Regenerative design practices can help to reimagine a sense of purpose, promote cooperation and connections within economic systems, and focus on creating economic activities that contribute to the regeneration of natural resources and ecosystems.

Post-growth and degrowth perspectives require designers to embrace a broader vision of their role, considering social and ecological consequences on human and non-human actors. Adopting a mindset of degrowth might help design practice to question the underlying pursuit of endless economic growth in project work, and prioritise human wellbeing and ecological flourishing in the design process. By aligning with regenerative practices and incorporating alternative economic models, contemporary design practice might be able to play a more vital role in creating more autonomous, caring and regenerative societies that prioritise planetary health. As such, the second working hypothesis and research question in the pursuit of the overall aim is the following:

Working hypothesis 2 and Research Question RQ2

Research aim	**Planetary health challenge 2**	**Working hypothesis 2**	**Research question RQ2**
Explore planetary health challenges in contemporary design practice and develop a relational framework for sustainable system transitions.	Imagination	Designers' imagination is in part limited by the human-centric, neoliberal economic paradigm, constraining much-needed explorations of human/nature interconnections.	How might we enable a shift from a human and growth-centric paradigm towards a relational and regenerative design practice for planetary health?

Towards the very end of the section on alternative economic models (see 3.2.4), the commons have emerged as a catalytic force for transformation. The commons embrace principles of shared resources and collective stewardship, offering a framework that promotes cooperation, equity and resilience. By challenging the prevailing narrative of perpetual growth, they prioritise community wellbeing and the regenerative capacity of the natural world. In the following section, I explore the transformative potential of the commons in reshaping our economic systems, a fundamental proposition of this research. Becoming integral to my investigation, this section offers definitions, theoretical insights and practical examples, to highlight the opportunities of the commons for design and transformative change.

3.3 The governance challenge: The commons and the power of commoning

The economist and Nobel Prize laureate Elinor Ostrom was committed to a view of the social world as a complex adaptive system – a rule-governed, layered self-organising system that displays emergent properties and which develops over time in a multi-layered evolutionary process (Ostrom, 1990). Ostrom described polycentric systems as a type of complex adaptive system that displays most of the features of organised complexity. The concept of polycentricity became key to the critical commons scholarship, which proposes the existence of a complex form of governance with multiple and semi-autonomous decision-making entities within and between systems. As a social system, polycentric decision-making entities rely on cooperative relationships and established conflict-resolution mechanisms (Ostrom, 1990). Ostrom made crucial contributions to the conceptualisation of how polycentric systems work and to understanding what could nurture the conditions for shared governance, decision-making, cooperative relationships and self-organisation within and between systems (Wilson et al., 2020; Atkins et al. 2019).

In the following sections, I will deepen the understanding of the commons, integral to polycentricity, as one way of how design practice could better comprehend the conditions required to cultivate systemic governance within systems, interrelations and cooperation between its actors. The sections critically assess the background, definition and historical debates surrounding the commons to frame the ensuing discourse. The objective is to explore the salient insights and potential benefits that can result from adopting a commons perspective when exploring a relational framework for transitioning systems towards planetary health. This discussion places a strong emphasis on the importance of immaterial commoning processes. It focuses on the key characteristics of both the material and immaterial commons and their practical applications in real life. Once the potential role of the commons, and commoning in contemporary design practice, is acknowledged, the discussion pivots towards understanding the commons as a transformative and relational framework for fostering social and environmental care and reshaping economic foundations to incorporate non-human rights, contributions and interests. As emphasised by Ostrom (1990), the commons approach provides a blueprint for collective action, co-governance and sustainable resource management, while fostering a sense of community and shared responsibility. Studies from David Bollier and Silke Helfrich (2012) and Charlotte Hess and Elinor Ostrom (2007) demonstrate that the commons have significant potential for enhancing social and environmental outcomes, particularly in fields such as design, where collaborative and interdisciplinary practices are already prevalent. Thus, this section posits that adopting a commons perspective holds great promise to further inform the research questions and for designers seeking to cultivate a more relational design practice to contribute to a more sustainable, just and equitable world.

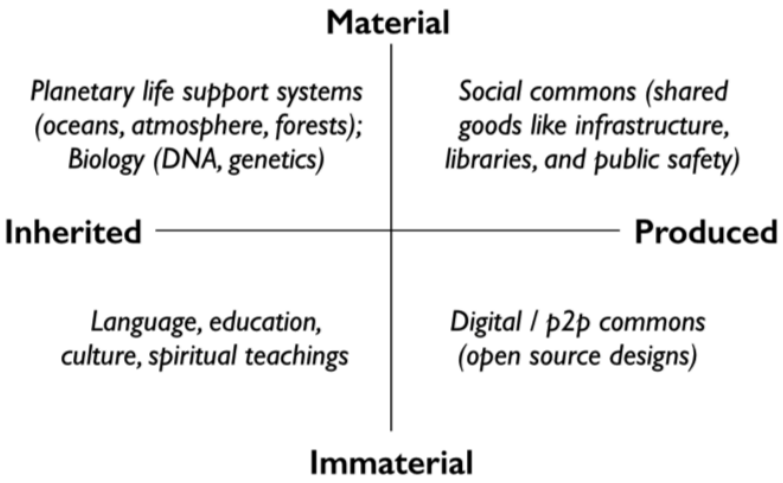
3.3.1 Definitions

The commons refer to resources that are collectively owned or managed by a community of users who share a stake in their use and preservation (Ostrom, 1990). These resources can be natural, cultural or digital in nature and include things like land, water, knowledge, and software (Bollier, 2014). The commons is based on principles of sharing, collaboration, and mutual support, and it is seen as an alternative to market-based or state-based forms of ownership and management (Bollier, 2014). According to Bauwens et al. (2019), the commons can be defined as a shared resource that is co-owned or co-governed by its users or stakeholder communities, following its rules and norms. It is a combination of a thing, activity and governance. The potential of the commons lies in its ability to foster more equitable and sustainable forms of governance and production while also promoting social and ecological resilience in the face of multiple crises, such as climate change, inequality and pandemics (Poteete, Janssen & Ostrom, 2010).

The commons already exist in different aspects of our lives but the term itself is not always known. They can manifest in various forms. For instance, Creative Commons is a licence allowing for sharing, using and innovating knowledge (Bollier, 2014). Wikipedia, an online encyclopaedia created and maintained by volunteers, is another example of an immaterial commons (Bauwens & Kostakis, 2014). In Törbel, a small village in Switzerland, villagers have implemented a system to collectively manage the local pasture (Ostrom, 1990). This is an example of a natural resource-based commons, where the community governs a shared resource and has done so over centuries. The village has a communal land system, where the village's meadows, pastures and forests are collectively owned and managed by the local community (Bollier & Helfrich, 2015; De Moor, 2015). The communal land is divided into parcels, which are allocated to individual households for their private use. However, the community determines the rules and norms of use (De Moor, 2015). This communal land system has helped to preserve the local ecology, promote biodiversity and maintain the cultural heritage of the village (Helfrich and Bollier, 2015). It has also served as a model for other communities seeking to promote sustainable and equitable resource management

Based on these distinct manifestations of the commons, various critical authors have taken them in more political directions to position the commons as a new relational paradigm and a movement aiming to transform society (De Angelis, 2017; Bollier & Helfrich, 2019). Through this perspective, attention shifts from the 'natural' commons and focuses on the emergent possibilities of the 'social' or 'immaterial' commons instead. These include biopolitical commons (Conroy, 2019) or planetary life support systems (Bauwens, 2017), knowledge and cultural commons (Hyde, 2011), digital commons (Bauwens et al., 2018) and social commons (Bollier, 2021).

Figure 18: The four types of Commons; Bauwens & Niaros, 2017



Starting from the position that the commons should not be confused with resources held in common, it is argued that they should be considered as a social system in which resources are pooled by a community of stakeholders who also govern and ensure the sustainability of these resources (De Angelis, 2017). This thesis uses the commons as a collective concept based on material and immaterial resources and as a verb: commoning. Commoning refers to the process of creating, maintaining and managing common resources by a community of users who act as co-owners or co-stewards (Bauwens et al., 2018). Commoning is the act of collectively engaging in activities or tasks or 'doing in common' (De Angelis, 2017). It can directly respond to the needs, desires and aspirations of its community. Therefore, through the social and relational process of commoning based on a set of Core Design Principles (CDPs) defined by Ostrom (1990), communities can create the conditions of

resilience and self-organisation of all-encompassing systems (Bollier and Helfrich, 2019). As such, the commons and commoning can offer a valuable relational framework for designing infrastructures, systems and experiences. Processes of commoning include practices of sharing, exchanging, and collaborating on resources and knowledge (Hess & Ostrom, 2007), as well as the development of social norms, rules and governance mechanisms for their management (Bollier, 2014). Commoning is an active process of producing and reproducing the commons. It refers to the ongoing and dynamic process of negotiating differences and disagreements among the commoners (Bollier & Helfrich, 2019). A commons-based approach facilitates the co-creation of infrastructures, systems and experiences that prioritise equity, inclusivity and sustainability. It also fosters a deeper sense of community engagement and empowerment, enabling the emergence of resilient and adaptive solutions (Bauwens & Kostakis, 2014; De Filippi & Hassan, 2015).

3.3.2 Theory of the commons

The concept of the commons has historically been associated with land use and management. The term 'the commons' originated in mediaeval Britain, referring to the shared use of land for farming and grazing by local villagers. The local manor owned the common land under the feudal system but villagers had customary usage rights (Baker, 2014). During the Industrial Revolution between 1760-1840, the enclosure of the commons became a widespread practice in the UK. The enclosure involved privatising common lands, which were then used for private profit. This was driven by government policies and the desire to increase agricultural productivity (Thompson, 1963). The enclosure of common lands during the Industrial Revolution resulted in the loss of access to resources for many commoners but also gave rise to the debate around the tragedy of the commons. This classical theory of the commons, which posits that open-access resources are prone to depletion and conflicts due to the rational pursuit of self-interest by individual users, has since been connected to neoclassical theories of goods in economic, legal and political science. In 1968, Garrett Hardin wrote 'The tragedy of the commons', which has captured people's imaginations for generations. In his essay, Hardin uses the metaphor of an open-access pasture, arguing that its collective use will lead to the collapse of the commons (Hardin, 1968). He described how the rational behaviour of the shepherds would be to add more cattle to maximise their gain from the pasture, inevitably leading to overgrazing and, ultimately, the ruin of the pasture. Although individuals would benefit in the short run, the long-term cost will be collective, and hence, he coined the phenomenon a tragedy (Hardin, 1968). According to Hardin:

"Each man is locked into a system that compels him to increase his herd without limit in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all." (Hardin, 1968, p.1244)

Following Hardin's analysis, he proposes two options for solving the problem, either through central regulation or privatisation (Hardin, 1968), both of which have largely influenced the field of economics. A major critique of Hardin was brought forward by Elinor Ostrom (1990), who argued that what Hardin was talking about was not the commons but common-pool resources (Ostrom, 1990). Furthermore, she suggested that through communication and rational thinking, shepherds would agree on organising the grazing of the pasture and design rules for managing their resources (Ostrom, 1990). Ostrom's comprehensive empirical research successfully established that collaborative management of common-pool resources is possible for economic and environmental sustainability and that this has been happening over centuries. A critique of Hardin's argument of the tragedy of the commons was presented by Ostrom (1990), who argued that it is misleading as it describes an unregulated open-access scenario that does not accurately reflect the characteristics of the commons. Unlike

Hardin, she defined the commons as a resource that is successfully shared by a group of people who manage access and use of the resource for the long term. Based on her empirical findings, Ostrom derived eight core design principles (CDPs) on what makes common-pool resources successful through a common management practice:

Figure 19: Ostrom's core design principles (CPDs) for the efficacy of groups with related functions; Ostrom, 1990

	Core design principles (CDPs)	Function
1	Strong Group Identity and Sense of Purpose	Defines Group
2	Fair distribution of costs and benefits	Ensures effectiveness by balancing individual and collective interests
3	Fair and inclusive decision making	
4	Monitoring agreed upon behaviors	
5	Graduated sanctions for misbehaviors	
6	Fast and fair conflict resolution	
7	Authority to self-govern	Supports performance and engagement
8	Appropriate relations with other groups	Scales to Whole Systems

In recent years, the concept of the commons has expanded beyond its traditional focus on environmental resources, thanks to the pioneering work of Elinor Ostrom and subsequent researchers such as Peter Linebaugh, Massimo De Angelis, David Bollier and the late Silke Helfrich. According to the book *Free, Fair, and Alive* (Bollier and Helfrich, 2019), several attempts have been made to conceptualise the commons with greater clarity. However, no one has yet developed a clear framework that addresses the realities of self-organisation, the inner transformations that commoning catalyses, and how these transformations might affect the political economy over time. Bollier and Helfrich's triad of commoning (2019, Part 2), which includes Social Life, Peer Governance and Provisioning – or, in other words, the social, the institutional and the economic – is based on the premise that creating and maintaining relationships is central to commoning (Bollier and Helfrich, 2019). This relational approach necessitates new ways of thinking about value. It allows for an escape from standard economic and policy frameworks and overly economistic, resource-based understandings of the commons, which fail to account for its social dynamics. Bollier and Helfrich's framework builds on the extensive scholarly literature on the commons, including the pioneering work of Ostrom on collective resource management. Ostrom's eight design principles for sustainable commons institutions, outlined in her book *Governing the Commons* (1990), primarily address governance issues and, according to Bollier and Helfrich (2019), do not delve into the internal dynamics of commons or the complexities of 'commoning'. The triad of commoning expands on Ostrom's design principles by introducing a set of patterns that draws on people's experiences, know-how and intuition. This approach offers an adaptable perspective and a commons vocabulary that avoids a prescriptive taxonomy. The result is a comprehensive conceptualisation of the commons that offers insights into their internal workings (Kostakis and Bauwens, 2020; Bollier and Helfrich, 2019).

Figure 20: The Triad of Commoning: Social Life (Social), Peer Governance (Institutional), Provisioning (Economic); Bollier and Helfrich, 2019

Despite vivid differences among commons focused on natural resources, digital systems and social mutuality, they all share structural and social similarities. According to Bollier and Helfrich, patterns, or recurring elements and relationships, help to identify the common core of diverse world-making commons without ignoring their differences. The patterns approach acknowledges that each commons develops and evolves in a different context, shaped by different people, societies and environments. Therefore, it is logical that every commons will enact patterns according to its singular context (Bollier and Helfrich, 2019, Ostrom, 1990). The ultimate goal of any commons is to produce a fair share for all, regardless of the specific challenge faced, whether water allocation in the Swiss Alps of Törbel or governing a commons within a modern capitalist society versus an indigenous culture.

3.3.3 Three examples of real-life commons today

Once we look closely, we see that the commons are already all around us. Self-organised actions taken by individuals and communities to address their needs without relying on the state or market can be seen in various contexts, including community forests, cooperatively run farms and fisheries, open-source design and manufacturing communities, and local and regional currencies. Bollier and Helfrich (2019) state that the impulse to help others and improve practices is inherent in human nature and can be harnessed to create social forms that allow for many different shapes and sizes. The discourse surrounding commons and commoning can help us understand their potential to bring forth more humane, ethical and ecologically responsible societies (Hess & Ostrom, 2007). The idea of a post-capitalist order based on the principles of commoning is not a utopian fantasy, but a tangible reality happening all around us. Commoning can be observed in countless villages and cities, in the Global South and the industrial North, in open-source software communities and global cyber-networks. However, the challenge is to recognise and name the many acts of commoning that exist, and make them culturally legible so they can be protected and expanded (Gibson-Graham, 2006).
In the following section, I examine a few real-life examples of commons, zooming in on immaterial commons in particular:

1. Peer-to-peer digital infrastructure commons: WikiHouse UK

Wikihouse is a non-profit organisation based in the UK that has developed an open-source construction kit, enabling people to design, share and build their own houses. This digital commons is a collaborative platform providing blueprints for affordable and sustainable housing to communities and businesses globally, empowering them to construct homes tailored to their needs. The Wikihouse Foundation aims to democratise architecture and construction by providing accessible and sustainable solutions that facilitate community building and address societal housing needs. The initiative aligns with the principles of the digital commons and the growing trend towards open-source collaboration and knowledge sharing in the digital era (Murray et al., 2017). The Wikihouse platform was launched in 2011 and since then, it has been used to build a range of structures, including homes, community buildings and disaster relief shelters. The platform enables people to collaborate and share knowledge, which helps to reduce the environmental impact of construction. As Vasilis Kostakis and Michel Bauwens (2014) noted, digital commons like Wikihouse can create new opportunities for value creation outside of traditional market-based systems, allowing for greater participation and collaboration among users. This type of commons-based peer production can facilitate the development of more sustainable and socially responsible approaches to housing and construction.

2. Community-based healthcare commons: Buurtzorg, Netherlands

Buurtzorg, a community nursing organisation established in the Netherlands in 2006, is an example of a contemporary and immaterial type of commons in the health context. The organisation's unique approach prioritises humanity and deepening relationships between patients and care providers rather than bureaucracy, as well as financing and care coordination. Buurtzorg's structure is simple and flat, with independent and self-managing teams that avoid line-managerial direction (Schaeper & Robert, 2020). The model is characterised by high levels of patient and staff satisfaction, professional autonomy, client empowerment and holistic, patient-centred care. Buurtzorg's success lies in its shared mission of enabling residents to manage their lives and providing care teams with the freedom and agency to support this. This healthcare commons demonstrates the potential for local autonomy and self-organisation in healthcare when adopting a complex form of polycentric governance combined with semi-autonomous decision-making capabilities. Although not designed with Ostrom's principles in mind, Buurtzorg's care practices align with them (Schaeper & Robert, 2020).

3. More-than-human natural resource commons: Parque de la Papa, Peru

Parque de la Papa, or Potato Park, is a unique example of a natural resource commons located in the Peruvian Andes. It is a conserved area of approximately 9,600 hectares, in which six indigenous communities share the management of more than 1,000 varieties of native potatoes and other traditional crops. The communities have created a system of governance that combines indigenous knowledge and customary laws with modern scientific expertise and conservation practices (Ciavattone, 2023). Potato Park is managed under a collective property regime, in which the communities control access, use and distribution of the resources while preserving the natural and cultural diversity of the area. It represents a successful example of natural resource management and conservation, where communities have been able to protect their cultural heritage, foster a balance between humans and multispecies and maintain their livelihoods – all while promoting sustainable use of natural resources and preserving biodiversity. The park is also an example of how indigenous communities can create and maintain successful commons and the importance of recognising the rights of nature and local communities, including their traditional knowledge and natural resources (Bollier, 2021).

3.3.4 The opportunity of the commons

"In facing up to the many profound crises of our time, we face a conundrum that has no easy resolution: how are we to imagine and build a radically different system while living within the constraints of an incumbent system that aggressively resists transformational change?" (Bollier, 2015, p. 1)

The current dominant ontological framework in the Global North has its roots in the Renaissance and the capitalist societies that emerged from it. This construct, developed by philosophers such as René Descartes, Thomas Hobbes and John Locke, elevates individual freedom, property and the state to a grand narrative (Haraway, 2016). It portrays individuals as the primary agents in a world full of inert objects that have fixed, essential qualities and reinforces the idea of humans as having boundless freedom in a pre-political state of nature. This narrative promotes the idea that a good life is an individual achievement, with society and nature serving as mere backdrops (Haraway, 2016), as discussed in section 3.1. The individual owes nothing to anyone and lacks a sense of responsibility to future generations. This results in a fallacious understanding of reality at the root of the visible pathologies of capitalism. A new narrative that embraces more regenerative practices for planetary health is urgently needed in order to cultivate a different, deeper sense of reality, starting with examining the language, metaphors and stories that shape our perceptions and political culture (Haraway, 2016). This self-awareness, combined with actual experiences and practices in the commons and commoning, can point to a new onto-political order that recognises the interdependence of everything and the fact that individual wellbeing depends on collective wellbeing (Escobar, 2018). Such a polity must be attuned to the relational dimension of life, as highlighted by Arturo Escobar (Escobar, 2018).

Ostrom's principles of cooperation and sustainable governance and her emphasis on trust and strong relationships are in stark contrast to the dominant ontological narrative in the Global North. While the current narrative elevates individual freedom and property rights, Ostrom's research reveals the value and potential of collective action (Ostrom, 1990). This includes effectively managing finite resources, material and immaterial, and balancing individual and collective interests without relying on top-down regulation. Ostrom's principles offer a basis for reimagining human relationships and provide valuable insights for design practice, enabling better collaborations among diverse groups and informing systemic design for social transformation. Honing the processes of commoning highlights the importance of relational design, emphasising the need for considering relationships and interconnectedness within the design process and its outcomes. It recognises that design is not just about creating objects, services or experiences but about shaping the interactions and connections between people, environments and systems and being aware of the economic context in which this is taking place. Commoning practices can help to redefine the relationship between people, resources and the built environment. They can also enable collective action and community building in sustaining and democratising access to resources and knowledge, in contrast to the individualistic and market-driven logic of the dominant paradigm (Bollier and Helfrich, 2019). The following section delves into the opportunities that the economic theory of the commons entails, which encompass both resource allocation and the social process of reproduction. Understanding the commons as a framework can unveil novel opportunities for designing systemic change. In contrast to prevailing models and practices, a commons lens can facilitate the development of an alternative and more equitable economy (Ostrom, 1990; Bollier and Helfrich, 2019; Raworth, 2019). By viewing the commons as an enduring and dynamic form of organisation, I contend that it offers valuable insights into designing for participation. This includes understanding how communities of users, comprising both humans and non-human entities, can effectively collaborate while employing efficient and sustainable resource management strategies.

3.3.4.1 A system for social transformation

Together with evolutionary biologist David Sloan Wilson, Ostrom further developed her initial findings on the CDPs that underpin successful cooperation within and between groups, connecting them with the evolutionary dynamics of cooperation more generally (Wilson et al., 2014; 2020). By linking Ostrom's thesis with 'Multilevel Selection Theory' (Wilson, 2015) and major evolutionary transitions (Smith & Szathmary, 1997), Sloan Wilson proposed that Ostrom's principles are consistent with the basic evolutionary dynamics of cooperation in all species, as well as the specific factors that caused humans to evolve into a highly cooperative species (Wilson et al., 2013; Henrich et al., 2004). As a result, it can be argued that Ostrom's principles revealed something much more radical than originally anticipated: her decade-long research confirmed that people's motivation and ability to cooperate, participate and sustainably govern their resources based on trust and strong relationships are far greater than usually assumed.

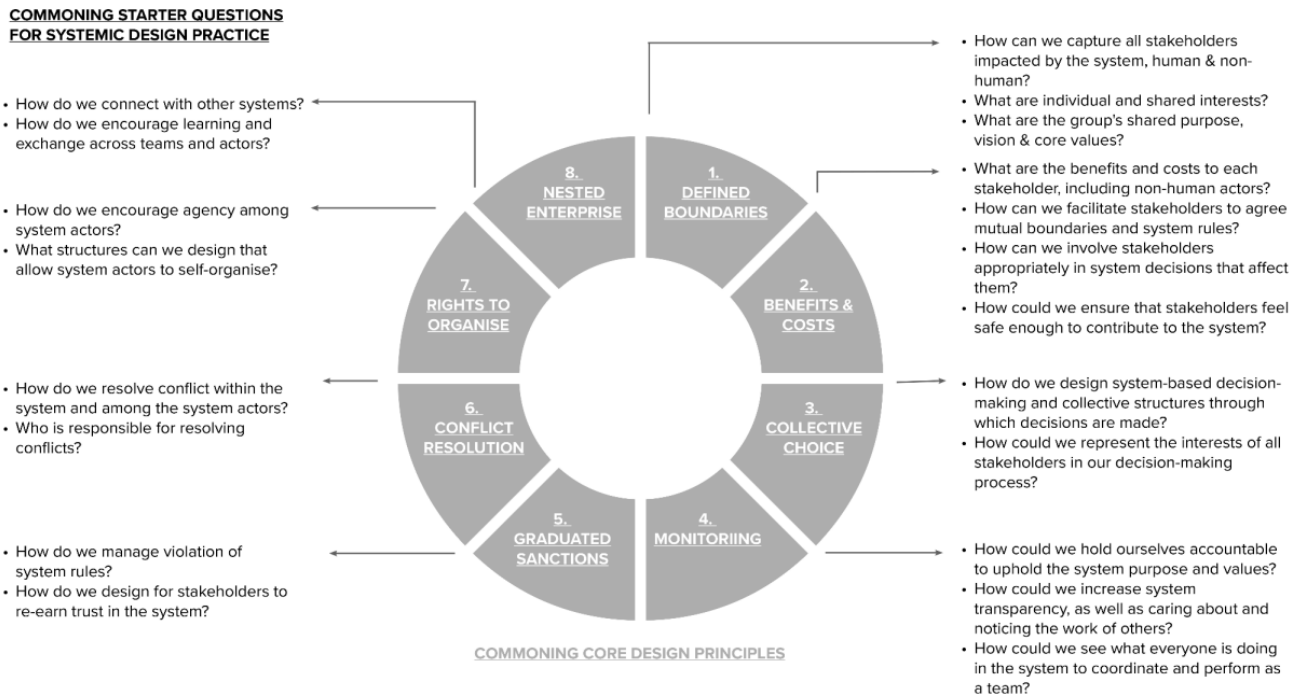
In the paper I published with Glenn Robert informing this research, entitled 'Radically self-organized care: what can designers learn from the evolutionary dynamics of cooperation', we explore the design properties of highly collaborative organisational structures in the healthcare sector (see Phd Thesis Publications) (Schaeper and Robert, 2020). Our aim was to understand how service and system designers can support social transformation in healthcare organisations and address the tension between formal bureaucratic controls and distributed authority. The paper highlights dehumanisation in healthcare, where the focus on efficiency and reductionist perspectives have led to a loss of the whole person and the human aspects of care. Strategies for social transformation through (re)humanising care were discussed. The application of evolutionary science in designing cooperative and self-organised healthcare systems was explored through multi-level selection theory (Williams, 1966; Wilson, 1975; Wilson et al., 2008) and the commons. By analysing the Buurtzorg case (see 3.3.3) through the lens of evolutionary transitions and Ostrom's core design principles, we found that Buurtzorg's organisational set-up aligned with many of Ostrom's commoning principles. By doing so, Buurtzorg has achieved positive healthcare outcomes, such as high patient satisfaction, lower healthcare costs and improved employee engagement. We therefore found that Ostrom's work provides a strong foundation for reimagining relationships between people and offers insights into creating effective and cooperative relations (Schaeper and Robert, 2020, p.8). Ostrom's approach allows for managing accessible and finite resources while avoiding top-down regulation to balance individual and collective interests (Atkins et al., 2019; Wilson et al., 2020; 2014; De Angelis, 2017; Bollier and Helfrich, 2019). As such, the commons can be viewed as an alternative approach to reevaluating and redesigning governance structures that are not functioning effectively (Atkins et al. 2019; Bollier and Helfrich 2019; De Angelis 2017). Political economist Massimo De Angelis (2017) builds on the idea that commons-based structures embody practices of emancipation, social justice and ecological sustainability, making them a vehicle for social transformation and a potential challenge to the dominant capitalist socio-economic order (De Angelis, 2017).

In the peer-reviewed paper 'Social commoning as a way to transition towards alternative systems by design' (Schaeper, Kothari, Hamilton, 2022), we address the underrepresentation of commons and commoning in design studies and their potential for social transformation. During a collaborative design experiment, we explore the applicability of a commoning approach to systemic design for social transformation. This was achieved by retrospectively applying Ostrom's core design principles to a case study involving the management of a common pool resource through polycentric systems. The discussion in the paper highlights the potential benefits of integrating Ostrom's commoning principles as heuristics for systemic design practice in social transformation. It was noted that design approaches, such as Service Design, Participatory Design and Human-Centred Design, have primarily focused on human participation and neglected understanding cooperation based on knowledge from

evolutionary, social and economic sciences. This limited perspective has hindered regenerative outcomes and failed to address non-human needs and sustainability issues.

A deeper understanding of relationality and interdependence among all life forms is emphasised for design practices to contribute to a more collective and regenerative future. The activity of commoning is seen as a means to make visible the social practices that enable people to discover, innovate and negotiate new ways of doing things. The paper highlights that existing commons and commoning practices are not yet closely linked to contemporary design activity, often emerging from an evolved organisational paradigm rather than involving expert design. However, using a commons approach in social transformation could foster cooperation within systems without external regulation, leading to the emergence of successful commons. As Ostrom's core design principles provide an economic perspective that supports systemic and participatory design for more regenerative and transformative change, a set of starter questions has been crafted to prompt more intentional design activities for each commons-based core design principle (p.15).

Figure 21: Commoning Design starter questions; Schaeper et al., 2022 (see also Appendix)



Designing based on commoning has the potential to shift the focus from a problem-and-solution-led approach to an infrastructure-based practice that embraces systemic conditions over fixed outcomes. According to Schaeper, Kothari, and Hamilton (2022), this shift necessitates viewing human cooperation through the lens of a complex adaptive system, constantly evolving and requiring nuanced consideration in social transformation design efforts. Ostrom's work (1990) further underscores the importance of understanding these dynamics when designing for community engagement and sustainability. The discussions on commoning in recent design literature reveal a pivotal shift towards integrating commoning into participatory design processes to foster social and environmental transformations. This shift reflects a broader understanding of the commons not merely as shared resources but as foundational elements for re-envisioning the role of design in society. For instance, Botero et al. (2020) discuss the integration of commoning in design, emphasising that beyond managing shared natural resources, commoning involves the sustainable management of urban spaces and digital platforms. They challenge traditional design paradigms by advocating for

frameworks that not only manage but actively protect and nurture communal resources through participatory practices, aligning with sustainable and equitable futures. The research by Poderi et al. (2022) enhances this dialogue by focusing on relationality within participatory design, positing that understanding and engaging with relational dynamics can significantly influence the sustainability and effectiveness of commoning practices. They argue for a design ethos that is deeply embedded in relational ontologies, which can lead to more profound communal and ecological engagements. Teli et al. (2022) examine the role of designers as intermediaries who facilitate transformation by navigating between community interests and institutional frameworks. This perspective highlights the necessity of creating environments conducive to commoning, requiring designers to bridge community-driven initiatives and institutional constraints. Their work underscores the need for designers to possess a nuanced understanding of these dynamics to successfully contribute to the commons. Anna Seravalli and colleagues' work on co-design in co-production processes with civil servants (Seravalli et al. 2017) applies commoning in public service design. This approach focuses on jointly articulating and appropriating infrastructuring and commoning with civil servants to navigate participation and collaboration challenges in public sector projects. Seravalli et al's research highlights the potential of co-design practices to foster innovative public service solutions that are deeply embedded in the principles of commoning, thereby enhancing public sector adaptability and responsiveness. These discussions collectively underscore a significant shift in design practices supporting social transformation, moving from solution-finding to facilitating processes and relationships that sustain solutions. As a result, new approaches facilitated by commoning challenge traditional management paradigms, opening avenues for designers to contribute more significantly to social transformation. This marks a critical evolution in the field of design, recognising the commons not only as a resource but as a powerful agent for systemic change and community-oriented practices.

3.3.4.2 Commons as an example of regenerative economics

The commons and commoning are invoked within the degrowth discourse, offering a lens to foster collective stewardship and challenging the dominant growth-centric economic paradigm (Bauwens et al., 2018; Bollier and Helfrich, 2012). By examining the potential of commoning and the commons, we can understand systemic interconnections and explore how commoning principles contribute to designing a degrowth society. At its core, the commons emphasise shared responsibility for managing and governing resources. Rather than being driven by the logic of growth and private ownership, the commons prioritise values such as care, autonomy and system sufficiency (Bauwens et al., 2018; Gibson-Graham, 2008). Care within the commons framework encompasses the cultivation of social relationships, the reinforcement of community resilience and the equitable allocation of resources and advantages (Gibson-Graham, 2008). By prioritising care, the commons effectively challenge the prevailing economic paradigm and advocate for a more sustainable and compassionate approach to human and planetary health. The commons value autonomy, promoting collective decision-making, participatory governance and the recognition of diverse knowledge and perspectives (Bauwens et al., 2018). They challenge the top-down control and concentration of power often associated with growth-based economies and instead promote democratic and inclusive forms of governance. System sufficiency is a key principle of the commons, calling for a shift away from reliance on globalised supply chains and long-distance transportation towards local provisioning systems within ecological limits (Bauwens et al., 2018). The commons recognise the importance of building resilient and self-sufficient communities that meet their basic needs while minimising environmental impacts. This involves reimagining production and consumption patterns, promoting alternative models such as cooperative enterprises and community-supported agriculture and valuing the skills and knowledge of local communities (Bollier, 2014; Bauwens et al., 2018).

Consequently, the commons emphasise the importance of caring for both people and the environment, fostering social relationships and ensuring equitable access to resources (Bollier and Helfrich, 2012). By advocating for collective governance, they value community collaboration and shared responsibility rather than the pursuit of individual profit (Hess & Ostrom, 2007). The emergence of 'caring commons', as seen in initiatives like Buurtzorg or the Dutch citizen initiatives (Bloemen and van Woerden, 2021), highlights the application of these values in real-life contexts, where communities come together to address their collective needs and foster wellbeing. Caring commons exemplify practical applications of regenerative economics. In these initiatives, care is grounded in conviviality and approachability, adopting a more informal and personalised approach to fostering mutual support (Bloemen and van Woerden, 2021). By creating care networks within neighbourhoods, people can access the necessary support from individuals who know their circumstances intimately. This transformative perspective on health represented in this example recognises that wellbeing extends beyond physical health and encompasses vital social dimensions. The Dutch citizens' initiatives acknowledge that health is not a static, quantifiable condition but a dynamic, fluid and multifaceted aspect of human experience. As a commons, they, operate with a set of key dynamics, enabling the provision of care in a transformative manner, and describe a set of common care practices that are distinctive from formal care services, including:

- Approaching autonomy and self-reliance collectively
- Promoting solidarity in interpersonal relationships/purpose
- Providing care where it is needed
- Striving towards collaboration built on a culture of trust and respect
- Nurturing accessibility and practising reciprocity
- Letting those concerned decide
- Staying locally grounded while building distributed networks for knowledge exchange
- Appreciating different approaches to change making

These dynamics mirror a recurring pattern observed in other commons, where communities collaboratively undertake resource stewardship. Ostrom's work highlights the significance of the commons as a mode of social organisation that goes beyond being a material resource and that enables communities to preserve and share resources autonomously. Caring commons exemplify this idea.

Scholars have argued that the commons challenge a growth-centric economic paradigm. They provide opportunities for disentangling from market dependency and foster a more sustainable and compassionate approach to human development (De Angelis & Harvie, 2014; Fournier, 2013). Some criticism of Ostrom's work revolves around the fact that it primarily focuses on competition within the commons and overlooks the struggle against external social forces, like capital (De Angelis & Harvie, 2014). Nonetheless, commoning can still challenge capitalist structures, reconcile divisions imposed by capitalism and promote access to resources, knowledge and social relations (De Angelis & Harvie, 2014; Federici, 20010). Massimo De Angelis (2007) and Silvia Federici (20010) argue that the commons can allow for the creation of social organisations that can break our reliance on the market and help to reverse the separation of producers from the means of production enforced by capital accumulation, thereby reestablishing collective access to the means of production. By prioritising care, caring commons demonstrate how redesigning civic and organisational structures alongside principles of the commons can result in viable alternatives to the growth-centric economic paradigm.

Both Kelly (2012) and Raworth (2017) recognise the significance of the commons in their proposed alternative economic frameworks, too. Raworth (2017) argues that caring commons are examples of Doughnut Economics in practice, representing a shift towards inclusive forms of resource management

and community wellbeing. Kelly's work (2012) explores how the commons can contribute to redesigning ownership structures away from extractive models and towards more generative ones. She argued that by transforming ownership structures, such as through cooperative or community ownership, commons could increasingly be nurtured and valued as generative assets that benefit society. Such a shift would challenge the dominant extractive ownership paradigm focused on maximising profit and resource extraction.

The argument I am making is that adopting a commoning lens can prompt us to scrutinise the economic foundations of design activity and advocate for substantial changes in ownership and governance models. Federici (2020) supports this idea, stating that commoning aims to overcome divisions imposed by capitalism by fostering shared access to resources, knowledge, and strong social relations. Commoning principles promoting autonomy, care and sufficiency align with the concept of a degrowth society within planetary boundaries. The commons have the potential to challenge the growth-oriented economic paradigm, offering an alternative to capitalism and reducing market dependency (Fournier, 2013). Embracing the commons is therefore crucial for achieving alternative economic paradigms, especially amid crises challenging social reproduction and the fundamental necessities of life (De Angelis and Harvie, 2014).

3.3.4.3 From human to non-human

The question of how to move from human to non-human design is a topic of significant interest (i.e. Metcalfe, 2015) as research indicates the need for further exploration in this area (i.e. Donoso, 2017 and Schaeper & Robert, forthcoming 2024). The commons lens presents a promising framework for fostering multispecies stakeholder cooperation (Wilson et al. 2020), given its comprehensive conceptualisation of health and care (Escobar, 2015). By adopting a commons perspective, we can approach issues holistically and pose essential questions about decision-making processes that directly impact non-human entities (i.e. Schaeper et al., 2022). Realising the dynamics of commoning also encourages a critical examination of our relationship with the natural world and the underlying structures of our economies (Schaeper & Robert, forthcoming 2024).

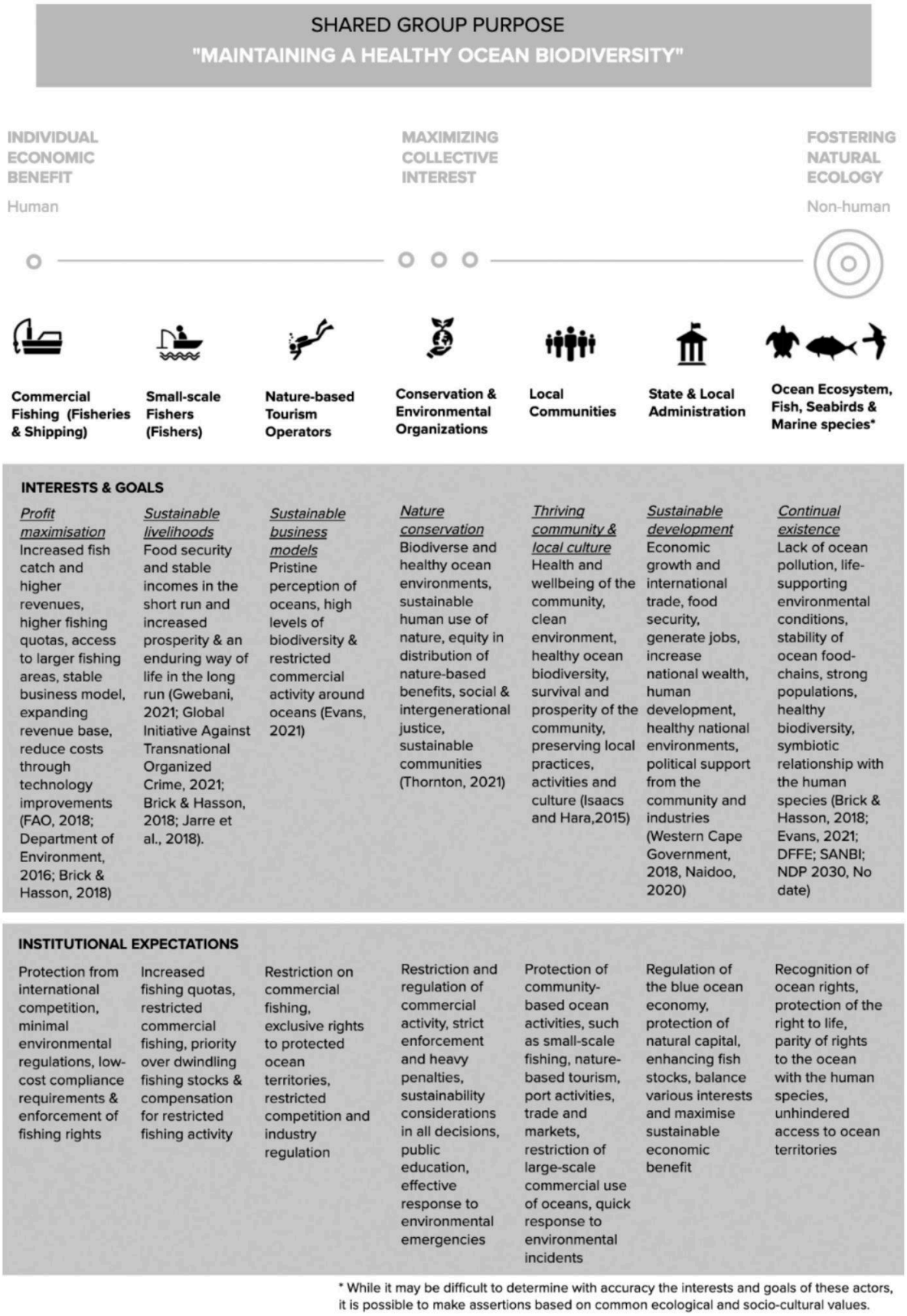
The concept of more-than-human commons rejects dualistic divisions that attempt to separate the material and immaterial aspects, the commons as objects from the commoners as subjects and humans from nonhumans. Instead, the commons are always understood as a more-than-human achievement, neither wholly produced by nature nor culture (Akomolafe, 2016). This emphasises that commoning is a material-discursive practice shaped by human engagement with their environments, reflecting a complex interplay of practices and values. In their work, *Patterns of Commoning,* David Bollier and Silke Helfrich argue that the commons defy narrow conceptual distinctions as they represent an alternative way of being, thinking and shaping the world (Bollier and Helfrich, 2012). Based on this, the commons are not simply things but a transformative worldview. The idea of more-than-human commons defies the separation between humans and nonhumans, acknowledging the coexistence and interdependence of diverse entities. By embracing this perspective, commoning could provide a space for inclusive decision-making processes that consider the needs and perspectives of non-human actors. It offers a holistic approach that questions existing power structures and encourages collective responsibility in stewarding resources (Haraway, 2016; Fournier, 2013).

In my co-authored paper 'Social commoning as a way to transition towards alternative systems by design' (see PhD Thesis Publications), we analysed a marine protected area (MPA) in South Africa, which has been known for its range of issues and ongoing conflicts surrounding its management (Schaeper et al., 2022). The Tsitsikamma National Park MPA is the oldest in South Africa and is

managed by the South African National Parks. Established in 1964 during the Apartheid regime, the creation of the MPA disregarded the rights of local communities to the coastal areas, resulting in the removal or restriction of community access and leading to ongoing public disputes. In December 2016, it transitioned from a 'no-take' MPA to a partially open protected area to address historical exclusion and provide managed access and benefits to adjacent communities. However, the rezoning process was problematic due to its rapid five-day implementation and the absence of stakeholder consultation, resulting in various issues and persistent conflicts (Lombard et al., 2020). As literature highlighted the potential for enhancing the long-term effectiveness of MPAs by implementing inclusive and participatory management practices, we investigated the Tsitsikamma National Park MPA using Ostrom's core design principles.

What stood out in the analysis when retrospectively tracing Ostrom's principles in the MPA and re-conceptualising MPA practices based on commoning, was that following commoning principles forced us to capture and consider the needs of the entirety of the ocean stakeholder population, including human and non-human actors. In designing intentional processes of mutual understanding and cooperation, the principles acted as signposts to consider all system actors to be heard and acknowledged in the negotiation process – from local citizens, commercial fisheries, small-scale fishers, conservation organisations, local communities and administrative bodies to fish, seabirds and other marine species. Although this was only a conceptual design exercise, mapping interests, goals and institutional expectations allowed us to explore what a shared purpose might look like for all system actors involved. We concluded that Ostrom's design principles are surprisingly effective at addressing critical gaps in the current MPA governance design and prompted us to design a more holistic picture of the MPA system.

Figure 22: Visual representation of the collaborative exercise where we mapped MPA system actors, interests & goals; Schaeper et al., 2022



By creating mutual understanding and cooperation, the practice of commoning offered valuable insights into identifying leverage points for systemic change among multiple stakeholders. One lay in the comprehensive mapping of complex interlinkages across biophysical, social and economic domains, which allowed us to formulate a shared group purpose. Working through the commoning starter questions helped to identify strategies to enhance the active involvement of stakeholders in decision-making processes that impact them and their environment (Schaeper et al., 2022).

Table 7: Summary of retrospective and reconceptualised application of Ostrom's design principles in the Tsitsikamma MPA, adapted from Schaeper et al., 2022

	FROM (current state) RETROSPECTIVE ANALYSIS	**TO** (potential state) RECONCEPTUALISATION
Ostrom's Commoning Core Design Principle	**Current governance Tsitsikamma MPA**	**Reconceptualised governance based on Ostrom's CDPs & now expanding to non-human**
1. Clearly defined boundaries	**Unclear boundaries & purpose** There is significant uncertainty amongst adjacent communities about why certain objectives are prioritised. MPA objectives and boundaries have long been a source of confusion, resulting in local people perceiving the managing authority as failing to account for their own needs	**Common identity & clear purpose** Understanding all actor relationships and interests, human & non-human, seemed crucial for a shared identity formation such as 'Maintaining a healthy ocean biodiversity'. Permitted behaviours, boundaries and recognisable objectives were further derived from this vision.
2. Proportional equivalence between benefits and costs	**Uneven distributions** The loss of coastal access for adjacent communities has resulted in significant livelihood losses, food security impacts, and raised concerns about the legitimacy of zoning efforts	**A sense of fairness** By aiming to ensure equity in the distribution of rights and responsibilities among stakeholders, we identified reforms to existing fishing quotas and the establishment of a platform for open disclosure and discussion of individual interests, grievances, and perspectives to achieve a compromise that promotes sustained livelihoods and balanced benefits and costs in the MPA.
3. Collective-choice arrangements	**Lack of involvement** The lack of stakeholder participation and consultation in zoning processes within an MPA has hindered its effectiveness, as collective choice mechanisms were not established and stakeholder comments were not adequately addressed during decision-making	**Inclusive decision-making** We considered consensus-based and inclusive decision-making processes that were guided by long-term goals and key criteria stemming from the shared purpose. This allowed us to discuss how to establish emergency procedures and empower actors to address time-critical events such as local pollution incidents.
4. Monitoring	**Top down** Monitoring regulations have been set top down by the state ministry of environmental affairs with no involvement of the communities impacted	**Monitoring agreed behaviours** We discussed how to integrate peer monitoring into routine interactions where MPA actors, including environmental organisations, local communities, and fishers, should monitor fishing stocks, ocean pollution, and adherence to quotas to establish a system where all actors track the state of the common and compliance with agreed-upon behaviours.

5. Graduated sanctions	**Top down** South African National Parks, as the official management authority, enforces potential sanctions, including suspensions, cancellations of permits, heavy fines, and imprisonment, as defined by the state Ministry of environmental affairs.	**Fulfilling responsibilities and sanctioning** Using facilitated discussions, we discussed a system of graduated sanctions and rewards, balancing the impacts on human and non-human actors, and collectively determining measures for damage redressal and proactive improvements instead of relying solely on monetary fines.
6. Conflict resolution mechanisms	**Lack of mechanisms** The lack of conflict resolution mechanisms and failure to incorporate local fishers' knowledge in the MPA zoning process undermined the opportunity to clarify conservation benefits and contributed to feelings of mistrust	**Fast and fair conflict resolutions** We discussed how to design efficient mechanisms and procedures for fair and timely resolution, potentially involving the participation of other commons, technical experts, external arbitrators, or judicial institutions.
7. Minimal recognition of rights to organise	**No agency** The exclusion of many community members affected by the MPA has resulted in a loss of agency over their livelihoods, leading to a sense of identity and cultural loss expressed by many individuals.	**Agency & self-organisation** We reviewed how an MPA commons can have the authority to assess and modify stakeholder rights and rules to protect the ocean and fish stocks through collective decision-making and self-governance and which interdependencies currently hinder this
8. Nested enterprises	**Siloed** We found no evidence of polycentric systems or an attempt to understand the MPA as an interdependent system connected to many other systems	**Network of commons** We discussed how the governance structure of individual ocean commons could allow them to govern themselves and tackle bigger, cross-related challenges. The state may function as a coordinating entity, being part of multiple commons, and adopt the polycentric governance structure of the commons as the national governance mechanism for oceans

At its core, commoning represents a departure from conventional notions of individualism and isolation. It acknowledges the intricate interdependencies between humans and their surrounding ecosystems. Through this process, individuals transcend their isolated selves and embrace a collective identity rooted in a deep appreciation for the interconnectedness of all beings. By engaging in commons-based decision-making, actors can develop a sense of ownership and responsibility, leading to more inclusive and sustainable outcomes (Agrawal, 2019). One significant contribution of the commoning approach is its potential to raise public awareness about the need to extend care beyond human beings and recognise non-human entities as valued members of our communities (Bollier and Helfrich, 2012).

This broader understanding of care challenges us to view it as an encompassing framework that addresses our interconnectedness and shared responsibility towards the natural world (Haraway, 2016). Caring commons, as advocated by Kallis et al. (2018), promote collective action to preserve the environment and nurture conditions for the flourishing of all life forms. Embracing commoning, therefore, fosters a deeper sense of care and appreciation for the interconnected web of life.
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3.3.4.4 Pluriversal commoning

Although the concept of the commons has gained significant attention in academic discourse, particularly within the context of resource management, social justice and sustainability, much of its literature has been dominated by a Western worldview that is centred on European land ownership and the history of enclosure (see Ostrom, Wilson, Bollier and Helfrich). This Eurocentric lens has led to a homogenising construct that risks overlooking the diverse and multifaceted nature of the commons as they exist in various cultures and civilisations. Historically, the enclosure movement in Europe and the subsequent commodification of land and resources have shaped the Western understanding of the commons. This narrative often privileges private property rights and individualistic notions of ownership, disregarding alternative ways of resource management and collective governance that exist in non-Western cultures (Escobar, 2018). The concept of pluriversal commons offers a powerful counter-narrative to Eurocentrism by acknowledging and celebrating the multiplicity of knowledge systems, practices and examples of commoning across cultures. In 'Commons in the Pluriverse', Escobar (2018) explores the concept of commons existing within worlds, emphasising the resilient nature of commons throughout history. He cites the example of Colombian communities in the Caribbean Coast region who, despite facing challenges like the introduction of barbed wire for cattle ranching, have consistently strived to reconstitute their commons. These commoning communities reject the dominant paradigm of the One-World World (OWW), which prioritises individualism, private property, markets and profit, while excluding nature and the sacred from human life. Instead, they seek to create their own worlds and economies that emerge from within, valuing the intrinsic connection between humans, nonhumans and the environment. Escobar highlights the importance of reclaiming sensual wholeness and liberating life from the confines of the economy. In his essay, he continues to illustrate the concept of relational worlds in connection with the commons, arguing that commoning occurs within these relational worlds. He gives the example of the Yurumanguí River region of Colombia's southern Pacific rainforest, where Afrodescendant communities navigate the river in their dugout canoes, intimately familiar with the interconnectedness of their territory. The Yurumanguí River embodies a relational ontology where everything is defined by its relations, and beings constantly interweave in an ever-evolving tapestry of life. This relational world is not a static, inert space but a dynamic, vibrant ecosystem comprising various life forms and spiritual dimensions. By providing in-depth examples like the story of the Yurumanguí River region, Escobar emphasises the significance of territoriality and ancestrality in the defence of commons.

Communities worldwide, both rural and increasingly urban, articulate the importance of protecting their worlds, even at the risk of their lives. Ancestrality, grounded in living memory and oral history, fuels their struggles and envisions a future that allows their distinct modes of existence to persevere. As a result, reclaiming commons and fostering pluriversal studies can challenge the dominant paradigm inherent in the commons, nurturing alternative ontologies that prioritise relationality, sustainability and the flourishing of diverse worlds (Escobar, 2018).

In this context, pluriversality recognises that there are multiple ways of knowing and relating to the world, each with its own epistemological foundations and understandings of the commons (Santos, 2002). It emphasises the necessity to move beyond a universalising Eurocentric approach that marginalises non-Western voices. An emerging body of literature on the pluriverse and its intersection with world-making and design highlights the significance of adopting a plural perspective in commoning. This thesis acknowledges the importance of diversifying perspectives to broaden our understanding, emphasising the need to value the collective governance of common resources practised by indigenous communities, traditional societies, and other cultures outside the Western paradigm.

Conclusion: The transformative potential of the commons in contemporary design practice

In the face of our current profound crises, there is a pressing need to envision and construct a radically different system regarding paradigm and economic practice. However, this presents a challenge: How can we bring about change within a system that resists deep transformation while clinging to the intrinsic mindset of perpetual growth, risking the reproduction of the same problems we are trying to resolve? This dilemma, posed by Bollier (2015), encapsulates the struggle of contemporary design practice when confronted with the need for planetary health and regeneration. The prevailing narrative in the Global North, rooted in individualism, capitalism and the prioritisation of the market and the state, places great emphasis on individual freedom and disregards the interconnectedness of all aspects of life. This individualistic perspective limits our understanding and engagement with the world. It influences scientific analysis, leadership models and institutional frameworks. To shift this narrative, it is crucial to cultivate a new language, including metaphors and stories that foster a deeper sense of relationality and a system's perspective. Embracing the commons and commoning can help in this context. The commons refer to resources that are collectively owned or managed by a community of users who share a stake in their use and preservation. Commoning is the process of creating, maintaining and managing these common resources, whether material or immaterial, by a community of users acting as co-owners or co-stewards. Commoning emphasises principles of sharing, collaboration and democratic decision-making. While the commons may take various forms, including community gardens, co-housing projects, open-source software development, or community-based initiatives, they fundamentally challenge the boundaries of the individualistic paradigm and acknowledge the interdependence of all aspects of life

Understanding the commons as socio-ecological systems, as Ostrom did (Ostrom, 2009), can enhance our understanding of complex systems. The theory of complex adaptive systems (CAS) has gained prominence as both a thinking pattern and a framework, integrating complexity and adaptivity into a growing body of knowledge. Ostrom (2009) considered the social world as a complex adaptive system defined by polycentricity – the existence of multiple, semi-autonomous decision-making entities that rely on highly cooperative relationships. By decoding polycentric systems through the lens of the commons, Ostrom contributed to understanding how group cooperation within and between systems works and what core design principles must be considered to manage accessible resources while balancing individual with collective interests. Her Socio-Ecological Systems (SES) framework (2009) provides a lens to analyse interactions between human and non-human components within complex systems, emphasising the importance of community involvement, social norms and decision-making processes. Through the social process of 'commoning', communities can create the conditions for resilience, sustainability, self-organisation and shared decision-making, thereby creating the underlying conditions required for the sustainable management of resources (material and non-material). The commons can, therefore, provide a practical framework for designing more relational, reflexive and intentional modes of cooperation among diverse actors with fundamentally different needs.

Implication for design practice

Ostrom's principles offer valuable insights into collective action and striking a balance between individual and collective interests. Commoning demonstrates the practical benefits of adopting cooperative design principles, enabling improved resource use without top-down regulation. Despite its demonstrated applications across various fields, commoning remains underused as a framework in design practice today. Scholars consistently propose that the economic theory of the commons can serve as a foundation for designing systemic change and more equitable economies. This involves

challenging the dominant capitalist socio-economic order and fostering social transformation. Viewing the commons as a dynamic organisational form reveals opportunities for participatory resource management and fostering a design practice centred on equity, inclusivity, and sustainability. Research suggests that adopting a commons approach can provide a blueprint for collective action, co-governance and sustainable resource management, promoting community responsibility.

By embracing Ostrom's principles of cooperation and sustainable governance, designers can reshape relationships between people, resources and the built environment, democratising access to resources and knowledge. Designing based on commoning recognises human cooperation as a complex adaptive system and prioritises systemic conditions over fixed outcomes. This shift requires a focus on relational design, considering interactions and connections between people, environments and systems within the economic context. Viewing the commons as socio-ecological systems may allow designers to understand and shape commoning structures across communities, institutions and value practices. This challenges traditional ownership and management forms, prioritising the wellbeing of both human and non-human stakeholders. Caring commons, such as the Dutch citizens' initiatives, exemplify the transformative potential of prioritising care in redesigning civic and organisational structures. They showcase how a commons-based organisational model can prioritise the wellbeing of individuals and communities, promoting collective decision-making while also recognising diverse knowledge and perspectives. This raises the question of whether these organisational models can arise from intentional design processes, and whether commoning practices can inspire profound changes in ownership and governance models while challenging capitalist structures and creating social organisations that reduce reliance on the market.

This last section of the literature review creates a strong theory-based working hypothesis of how designers can contribute to a degrowth society by incorporating commoning practices and principles of care, autonomy, and sufficiency. As commoning provides an avenue to explore non-human elements, it may foster multispecies cooperation and critically examine our relationship with the natural world and economic structures. While the practical application may require incremental adaptation, focusing on enhancing a sense of purpose and relationships between system actors, research suggests a commons-based approach can challenge the growth-centric economic paradigm, promoting alternative models of resource governance. Learning from the commons offers possibilities for design interventions aligned with collective governance, social justice, and environmental stewardship. Hence, the third working hypothesis and research question for the overarching aim are as follows:

Working hypothesis 3 and Research Question RQ3

Research aim	**Planetary health challenge 3**	**Working hypothesis 3**	**Research question RQ3**
Explore planetary health challenges in contemporary design practice and develop a relational framework for sustainable system transitions.	Governance	Contemporary design lacks the understanding of how to incorporate commoning principles to support sustainable and collaborative governance.	How might commoning inform contemporary design practice to facilitate creating collaboration infrastructures?

3.4 Summary of literature review

The literature review consists of two parts that offer a comprehensive overview of contemporary design practice, its challenges and opportunities. Part one explores the evolving nature of design practice, highlighting the shift from traditional problem-solving approaches to embracing pluralities and diverse perspectives. It emphasises the integration of disciplines, transdisciplinarity and recognising systems. The limitations of current design theory, practice and pedagogy in addressing the multifaceted challenges of our modern era are revealed. **As a result, this part of the literature review concludes by defining the research aim: to explore a more equitable, sustainable and relational framework for contemporary design practice that facilitates system transitions towards planetary health.**

Part two expands the scope by incorporating disciplines beyond design, such as general and social systems theory, posthumanism theory and economic theory encompassing regenerative economics, post-growth and the commons. This broader perspective highlights the research, knowledge and inspiration that design practice can draw from and current inadequacies in addressing ecological degradation and social inequalities. It emphasises the need to disentangle design from its mechanistic, colonial and neoliberal foundations.The significance of regeneration and alternative economic models in transitioning towards a more sustainable and just future becomes evident. By embracing a systems lens and regenerative principles, contemporary design practice can better support the development of thriving and resilient living systems. Importantly, this section suggests that contemporary design practice can incorporate these insights through the transformative power of the commons. The commons, characterised by cooperation, equity and resilience, challenge the prevailing narrative of perpetual growth and can reshape economic systems. By prioritising community wellbeing and the regenerative capacity of the natural world, the commons provide a valuable opportunity for design to facilitate regenerative change. By aligning design practice with commoning principles, designers might be able to reassess their role and approach to fostering a more sustainable, equitable, and regenerative future. **The second part of the literature review refines the three categories of planetary health challenges proposed by Whitmee et al. (2015) within the context of contemporary design practice. This refinement is achieved through a comprehensive exploration of theories pertaining to information, imagination and governance challenges. This exploration significantly contributes to the development and clarification of three distinct working hypotheses and corresponding research questions.**

3.4.1 Theoretical framework, working hypotheses & research questions

The theoretical discussion highlights an overlap between the theoretical developments in contemporary design and other perspectives, such as systems theory, post-growth theory and the theory of the commons. It suggests that design practice can benefit from a deeper integration of these theories to drive system change and bridge the theory-practice gap. The literature analysis underscores the relevance of planetary health challenge categories to design practice, highlighting profound knowledge gaps in contemporary design, limitations in envisioning and designing for alternative economic systems, as well as a lack of understanding in fostering sustainable governance through cooperation. The literature further emphasises the potential of integrating a post-growth inspired commoning approach to address my research aim. Consequently, RQ1 and RQ2 have been reframed to underscore the emerging focus on the commons, a modification derived from the literature review with the goal of investigating how commoning can effectively address the identified gaps. Based on this, the research aim, working hypotheses and questions have been defined to guide subsequent fieldwork:

Table 8: Theoretical framework based on a synthesis of literature: From research interest to identifying working hypotheses & research questions, author's own

Research context	**Research aim**	**Planetary health challenges**	**Working hypotheses of how the challenges apply to contemporary design practice**	**Emerging research questions**
Urgency for planetary health: Escalating climate change, biodiversity loss, resource depletion, and social inequalities. Growing threats: Pollution, natural disasters, food insecurity, and infectious diseases. Impact on wellbeing: Declining resilience of human and natural systems, displacement of communities, and deteriorating environmental conditions.	**Explore challenges in contemporary design practice related to planetary health and develop a relational framework for transitioning systems towards it.**	#1 Information	There are inherent information and knowledge gaps around how systems operate, constitute and reproduce themselves in contemporary design practice today.	**RQ1** **How might commoning address knowledge gaps in contemporary design to facilitate designing for living systems?**
		#2 Imagination	Designers' imagination is in part limited by the human-centric, neoliberal economic paradigm, constraining much-needed explorations of human/nature interconnections.	**RQ2** **How might commoning enable a shift from a human and growth-centric paradigm towards a relational and regenerative design practice for planetary health?**
		#3 Governance	Contemporary design lacks the understanding of how to incorporate commoning principles to support sustainable and collaborative governance.	**RQ3** **How might commoning inform contemporary design practice to facilitate creating collaboration infrastructures?**

CHAPTER 4

Research methodology

Designing the research

Introduction

In this chapter, the research methodology is presented with a focus on theoretical considerations and methodological choices pertinent to the thesis. It examines various components, including the chosen epistemological stance, research philosophy and approaches, research strategies, methods and techniques. The research methodology was developed through the lens of three interconnected perspectives, each offering a closer examination of the research design:

First, Mark Saunders' and colleagues' research onion (2019) served as a guiding framework, providing a structure for informed decision-making while developing the research methodology. This conceptual and philosophical level focused on the **'why'** of the study (Research philosophy & approach), ensuring a clear understanding of the underlying motivations and objectives (see 4.1.1).

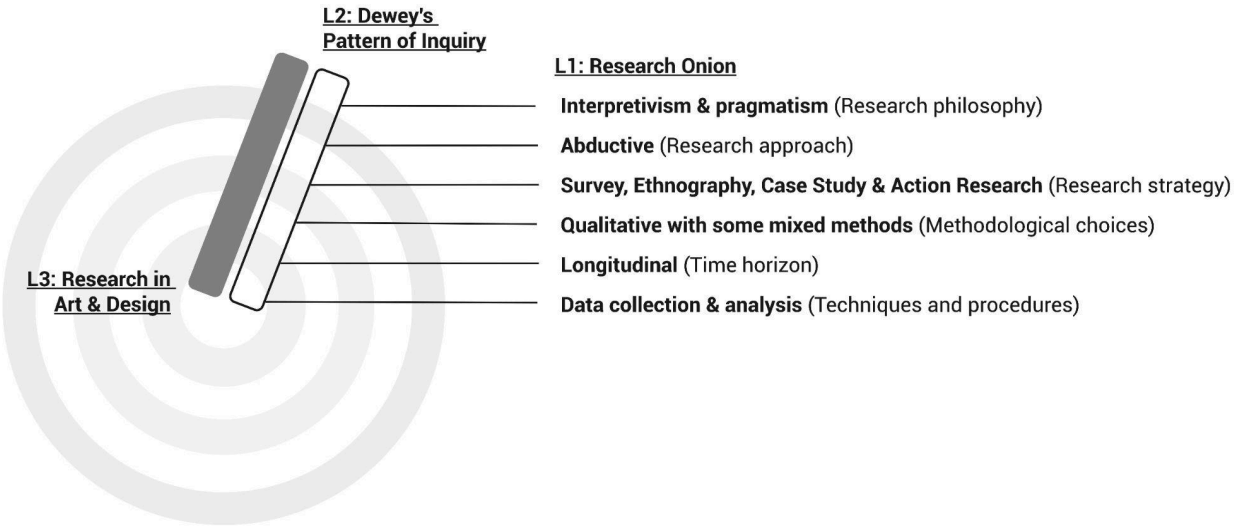
Second, building upon this foundation, John Dewey's pattern of inquiry (1938) offered an overarching research framework rooted in interpretivism and pragmatism for the practice-based component of my research (see 4.1.1). This lens enabled a deeper exploration of the research methodology, emphasising the importance of inquiry and the practical application of knowledge, exploring the **'what'** of the study (Research strategy & design). Dewey's patterns are uniquely designed to address real-world issues and problem-solving, making them well-suited for tackling identified problems and meeting specific needs within a context. The chosen context was a single organisational ethnographic case study of a global sportswear manufacturer looking to define its future service design and business transformation approach. The chosen context was a single organisational ethnographic case study of a global sportswear manufacturer looking to define its future service design and business transformation approach. This case study choice presented a distinctive opportunity to explore the application of commons theories and practices within the context of a global commercial capitalist economy. Here, principles of commoning were examined as a strategic approach to tackling sustainability and equity concerns within profit-driven entities undergoing transitions towards more regenerative modes of operation. By focusing on a single organisational ethnographic study of a global sportswear manufacturer, the research uniquely situated the exploration of commoning principles within the intricate dynamics of a capitalist framework, shedding light on its potential to drive change within such contexts. The case study method played a pivotal role in shaping the practice-based component of the research, offering valuable insights into the practical application of knowledge within Dewey's pattern of inquiry. It facilitated a holistic approach to understanding and addressing the research questions, integrating theory and practice meaningfully.

Finally, zooming in further, Christopher Frayling's distinction between research in art and design (1993) guided the selection of creative research methods. This lens delved into the **'how'** of the study (Research methods & techniques), highlighting the different approaches to conducting research in the context of art and design (see 4.2). By incorporating research *into*, *through* and *for* design methodologies, the chosen methods were tailored to capture the essence of the research objectives and facilitate a rich and innovative exploration of the research questions.

By integrating these three lenses, the research methodology was carefully crafted to align with the conceptual and philosophical underpinnings while incorporating practical and creative approaches to investigate the research questions in a comprehensive and meaningful manner.

Figure 23: Three lenses of interconnected perspectives (Lens 1-Lens 3), each offering a closer examination of the research design; author's own

LENS 1	**Research Onion (WHY)** Saunders, 2019	Research philosophy & approach
LENS 2	**Pattern of Inquiry (WHAT)** Dewey, 1938	Research strategy & design
LENS 3	**Research in Art and Design (HOW)** Frayling, 1993	Research methods & techniques



The epistemic framework for the study is established by building on social research (Crotty, 1998) and research design (Creswell, 2009), while methods and approaches for collecting and processing data are drawn from research methods in the field of design and ethnography (Candy & Edmonds, 2018; Cross, 2007; Koskinen et al., 2011). This study adopts a combination of an interpretivist and pragmatist paradigm (Dewey,1910) for conducting the research. The methods used to collect and analyse data appropriate for both the interpretivist and pragmatic paradigms include experimental research, case studies, observations and interviews. Their strengths and limitations are discussed in detail in this chapter.

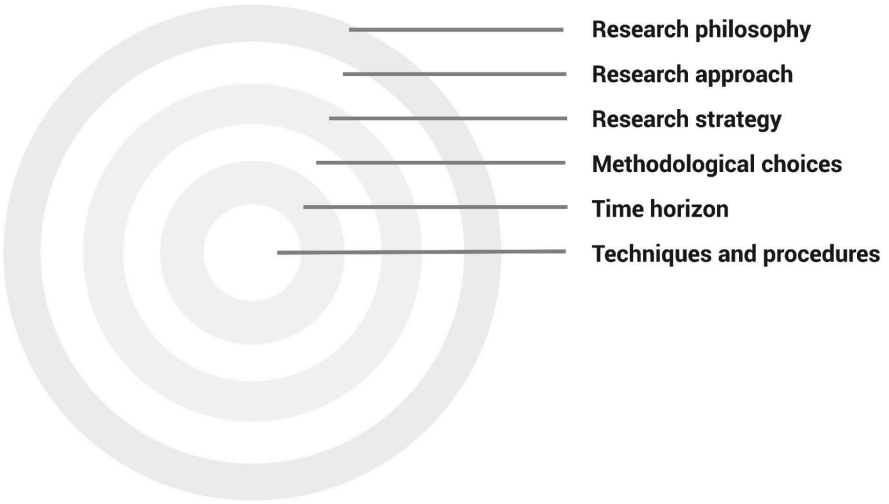
4.1 Research philosophy and approach

This study adopts an interpretivist and pragmatist epistemological perspective and uses abductive reasoning and qualitative methods. The chosen epistemological stance, research philosophy and approach, as represented by the outer layers of the research onion, collectively shape the research's approach to knowledge creation.

4.1.1 Epistemological Stance

As a branch of philosophy, epistemology concerns itself with the nature, scope and limits of knowledge. It examines how we come to know things, the nature of truth and the methods we use to acquire knowledge. In the context of this research, epistemology is concerned with understanding and acknowledging the assumptions that underpin the generation as well as the interpretation of knowledge. Saunders et al.'s (2019) research onion model provides a useful framework for understanding different epistemological stances and their implications for research design and methodology. Saunders' model consists of six layers, with the outer layers representing the research philosophy, approach to theoretical development and methodological choices, and the inner layers representing data collection and analysis techniques.The outermost layer of the research onion is the research philosophy, which includes four broad epistemological stances: positivism, realism, interpretivism and pragmatism (Saunders et al., 2019). Positivism is based on the idea that knowledge can be obtained through empirical observation and scientific methods (Creswell, 2014). Realism assumes an objective reality that can be observed and studied, but our knowledge of this reality is always partial and subject to revision (Sayer, 1992). Interpretivism emphasises the subjective and context-dependent nature of knowledge and the importance of understanding the meanings and interpretations of individuals and groups (Creswell, 2014). Pragmatism is concerned with practical knowledge application and seeks solutions to practical problems (Dewey, 1910). Different epistemological stances can lead to different research designs, methods and data analysis techniques (Creswell, 2014). A positivist approach may prioritise using quantitative methods and experimental designs to test hypotheses and establish causal relationships. In contrast, an interpretive approach may use qualitative methods such as interviews, focus groups and ethnography to understand the meanings and interpretations of participants. Michael Crotty (1998) also notes that epistemological stances are closely linked to ontological assumptions about the nature of reality and how it can be studied.

Figure 24: Saunders' Research Onion, adapted from Saunders et al., 2019, p. 108



This thesis combines epistemological stances: By borrowing from interpretivism and pragmatism, the research considers both the subjective experiences of individuals and the practical outcomes and solutions to real-world problems. Interpretivism allows for a deeper understanding of the subjective perspectives of individuals, while pragmatism emphasises practical outcomes.

That way, the research provides a comprehensive understanding of social phenomena while offering a useful and applicable approach to its findings based on a case study context. The thesis takes an interpretivist stance to understand and interpret contemporary design practice gaps in the context of commoning activities of research partners, participants and myself as a researcher. A pragmatist stance will be adopted through the lens of Dewey and his pattern of inquiry to inform the overall research design and to emphasise the practical use of knowledge creation by creating a framework that shows potential for real-world application in today's organisations. The combination of interpretivism and pragmatism is found to positively affect the validity of research findings, as well as the implications for theory and practice:

- **Validity:** The combination of interpretivism and pragmatism can increase the validity of research findings by providing a more comprehensive understanding of social phenomena, while helping to triangulate data to ensure that findings are supported by multiple sources and methods (Creswell, 2014; Onwuegbuzie, & Leech, 2005).

- **Theory:** The combination of interpretivism and pragmatism can have implications for theory by challenging the traditional tendency that qualitative and quantitative research methods are separate and incompatible approaches to knowledge production. The combination of interpretivism and pragmatism can demonstrate how different epistemological approaches can be integrated to create a more robust and pluralistic research design that considers both subjective experiences and practical outcomes (Creswell and Creswell, 2017).

- **Practice:** The combination of interpretivism and pragmatism can have implications for practice by emphasising the need for research to be relevant and applicable to real-world problems. This can be particularly relevant when exploring organisational transitions, which are complex and multifaceted processes involving individual and collective changes in attitudes, beliefs and behaviours. By demonstrating the practical usefulness of research findings and a commons-based approach, the research seeks to contribute to the development of effective interventions to integrate a commoning lens into contemporary design practice.

An interpretivist stance

In contrast to the positivist approach commonly used in natural and physical science research, the interpretive approach seeks to uncover culturally derived and historically situated interpretations of the social world (Crotty, 1998). Interpretivism concerns the meanings people construct based on their unique backgrounds and circumstances (Saunders et al., 2019). In the context of my research on organisational structures for collaboration to achieve planetary health in teams and organisations, I will explore the perspectives of different organisational stakeholders using an interpretivist stance. By examining the varying views of different organisational roles, the research can capture the richness of different experiential realities that all participants may not share (Saunders et al., 2019). The interpretive approach will be advantageous in the micro-level analysis of the research, which will explore individual motivations and backgrounds related to sustainability and planetary health initiatives.

The phenomenological approach is a significant aspect of interpretivism, or a variation of interpretivism, which I use in my inquiry as part of the interpretivist stance. The approach of collecting and interpreting participants' lived experiences is known as phenomenology, which emphasises revisiting our immediate experience of phenomena and exploring the meanings that emerge from it (Saunders et al., 2019; Crotty, 1998). It highlights the relationship between external objects and internal subjects, as all knowledge and experience are interconnected with phenomena (Moustakas, 1994; Saunders et al., 2019). Interpretivism and phenomenology emphasise the importance of understanding human

experiences and meanings in social contexts. Phenomenology seeks to understand the structure of lived experiences through subjective interpretations. At the same time, interpretivism focuses on understanding the meanings that individuals assign to social phenomena through interpretive methods such as interviews and participant observation (Denzin & Lincoln, 2017). Both approaches reject positivism and objectivism, which assume that knowledge can be obtained through objective observation and measurement of the physical world, and instead embrace the subjective, experiential and context-dependent nature of human reality (Creswell, 2014). An interpretivist and phenomenological approach to my inquiry involves questioning assumptions and gaining a deeper understanding of previous meanings. In this thesis, the phenomenon of commoning in design will be examined through four levels of reflection:

1. **Literature review, including paper publications:** Deepening my understanding of existing knowledge, identifying gaps in contemporary design practice and exploring theoretical and economic frameworks related to embracing planetary health through commoning practices. This resulted in the formation of my working hypotheses and research questions. While my thesis is not an accumulative thesis by publication, publishing four papers played an important role in my theoretical research, allowing for a more thorough exploration of the literature, a conceptual application of the commons and an identification of opportunities for empirical fieldwork to enhance the overall credibility of my work.

2. **Expert design practitioner scoping research:** Conducting a survey and facilitating two co-creative online workshops to gather practice-based insights related to the three categories of planetary challenges in contemporary design: Information, Imagination and Governance. These insights were used to inform practice-based research experiments at case study sites.

3. **Case study research:** Examining a real-life context and conducting practice-based research experiments to gather empirical evidence of applying a commons lens to contemporary design practice. The case study site was the headquarters of a global sportswear manufacturer with an internal service design team. It aimed to explore how commoning could address sustainability and equity within profit-driven organisations and the potential of transitioning towards regenerative economics.

4. **Discussion and iterative development:** Analysing the case study and continuously refining the research framework to enhance reflection and address the research aim.

This phenomenological process aims to provide a comprehensive description of practitioner experiences, contributing to a deeper understanding of the meaning and potential applications of the commons in contemporary design practice.

A pragmatist stance

From a pragmatist perspective, knowledge is shaped by the practical needs of individuals and society and, as such, it is useful for research to aim to produce practical solutions to real-world problems (Dewey,1910). I would argue that pragmatism is a useful paradigm for the contemporary context of transition and organisational change, where organisations have to move to a more pluralist paradigm to embrace multispecies and planetary health. A pragmatist paradigm can inform the process of organisational change, emphasising the importance of practical solutions and the active participation of individuals in the process.

According to Dewey (1938), inquiry is not a matter of doubt but an inherent aspect of our daily lives. We are constantly confronted with complex and ambiguous situations that we strive to comprehend in various ways, and "Inquiry is the controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole" (Dewey, 1938, pp. 104-105). Dewey believes the notion of 'truth' is shaped and evaluated based on its relevance and applicability to a situation. As Dewey sees it, inquiry aims to transition from an uncertain situation, which may involve seemingly disparate or incongruous elements, to a new situation where these elements are integrated into a unified whole. As an inquiry involves transitioning between states of observation, ideation and solution any investigated subject must inevitably undergo modification throughout this progression. Inquiry emphasises the dynamic and pluralist nature of the inquiry. It is an active process that involves questioning, experimenting and reflecting on experiences to generate new knowledge and understanding. Inquiry is pluralist in that it involves multiple perspectives and sources of information, and it is open to revising and refining its methods and theories based on new evidence and experiences. Dewey presents a Pattern of Inquiry that links the progression from ideation to observation and solution, organising transformation in this manner:

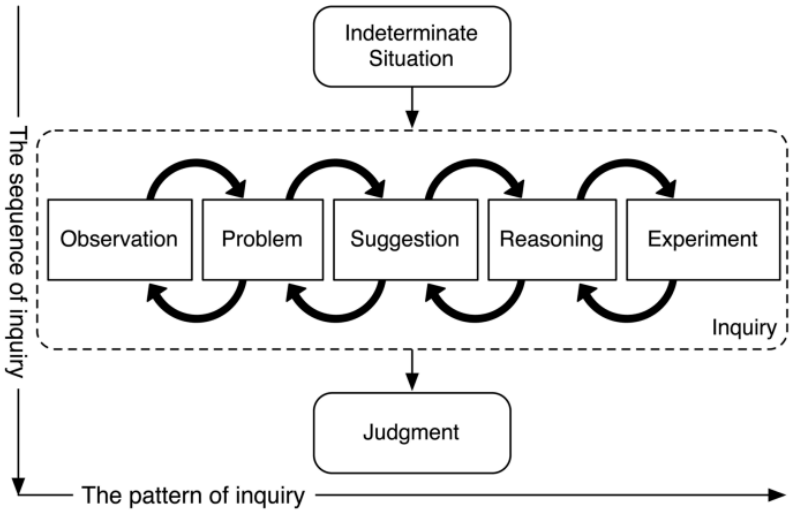
1. **Indeterminate Situation**
   This stage involves recognising and articulating an uncertain, ambiguous and unsettled situation. It is a situation that requires inquiry, but its parts do not hang together (Dewey, 1938, p. 107).

2. **Inquiry**
   a. **Institution of a problem (observation/problem):** This stage involves identifying and defining the problem that needs to be addressed through inquiry. It is the initial step to inquiry, and the problem must grow out of an actual situation (Dewey, 1938, p. 107).
   b. **Determination of a Problem-Solution (suggestion):** This stage involves setting the problem's constituents and limitations through observation and presenting a possible idea. Observations of facts and suggested meanings or ideas arise and develop in correspondence with each other, and the idea marks a possibility (Dewey, 1938, p. 109).
   c. **Reasoning:** This stage involves developing the meaning content of ideas in relation to one another through the exploration of symbols and their meanings in a system, together with the consequences thereof. The development of intermediary meanings suggests a more relevant meaning than the original idea (concept) (Dewey, 1938, p. 113).
   d. **Experiment:** This stage involves testing the idea's relevance through interaction with the actual situation. Ideas are operational in that they instigate and direct further operations of observation. This organisation can be achieved only if/as they interact with one another. A new hypothesis or idea is formed, and so forth, until a unified order is achieved. This part of the inquiry pattern is often called the experiment (Dewey, 1938, p. 114).

3. **Judgement**
   This stage involves the settled outcome of the inquiry, where the indeterminate situation is transformed into a closed, unified situation (Dewey, 1938, p. 121).

Dewey's inquiry process can be seen as having two dimensions. The first dimension is a temporal sequence of stages, while the second dimension is a set of functional phases that interact dynamically with one another. I selected Dewey's pattern of inquiry due to its strong alignment with practice-based research and its compatibility with the case study methodology.

Figure 25: Dewey's two-dimensional theory of inquiry. The first dimension is the linear sequence of temporal stages captured by Dewey's 'definition' of inquiry. The second dimension is the non-linear set of functional phases that Dewey calls the "pattern of inquiry"; Brown, 2012.



When using Dewey's pragmatic approach to inquiry, hypotheses can serve as helpful tools, reflecting the philosophy's dynamic and experimental nature. Rather than engaging in abstract debates about truth, Dewey's pragmatism poses the question: *"What difference would it make to us if the statement were true?"* (Casula, Rangarajan, Shields, 2021), directing attention to practical consequences. Within this framework, Dewey speaks about "working hypotheses," indicating their provisional and adaptable nature in ongoing inquiry and pointing towards embedding hypotheses as a useful means to inquiry. A working hypothesis can be a synthesised statement summarising insights from existing literature, providing a provisional framework for further inquiry. Framing such hypotheses can be helpful within the pattern of the inquiry process, particularly in addressing the initial stage of an indeterminate situation. At this stage, where uncertainty and ambiguity prevail, they can serve as initial guiding frameworks for exploration. Working hypotheses also evolve and adapt in response to emerging observations, suggested meanings and interactions with the actual situation as the inquiry progresses into subsequent stages — such as the institution of a problem, determination of a problem-solution, reasoning and experimentation. Through this iterative process, they inform the development and refinement of ideas, facilitating the testing of their relevance and operationalisation within the inquiry context. Ultimately, in the judgement stage, the transformation of the indeterminate situation into a closed, unified situation reflects the culmination of the inquiry process, shaped and guided by the dynamic nature of working hypotheses. Within pragmatist inquiry, working hypotheses can act as bridges between theoretical frameworks and empirical data, guiding exploration while allowing for unexpected discoveries (Casula, Rangarajan, Shields, 2021). In this thesis, I use the term 'working hypotheses' to imply both provisionality and actionability, signifying that hypotheses are subject to change, being provisional in nature, and open to the possibility of contradictory evidence. Dewey and Mead laid the groundwork for the concept of working hypotheses as used in this thesis. Mead (1899) employed the term "working hypothesis" in discussing the iterative nature of scientific inquiry, emphasising the dynamic nature of hypotheses and their subjectivity to revision and refinement in light of further investigation. Dewey expanded on the term in *"Logic: The Theory of Inquiry"* (1938), framing working hypotheses as tools for advancing investigation that are particularly suited for exploratory research and provide a means to navigate from indeterminacy towards determinacy within the inquiry process.

Integrating Dewey's Pattern of Inquiry with Practice-Based Research

Dewey's pattern of inquiry is valuable for practice-based design research as it is not linear but cyclical (Dewey, 1938), emphasising the importance of collaboration and dialogue between researchers and practitioners. As Dewey's pattern of inquiry is a flexible approach to research that emphasises the need to integrate theory and practice (Rylander, 2012), as well as the importance of contextual and experiential knowledge (Garrison, 2011), I have chosen the pattern of inquiry as an overall framework for my research design. This involves analysing the case study context of a global sportswear organisation to explore the role of contemporary design practice in shaping and transforming organisations towards planetary health. It also includes identifying opportunities for leveraging design interventions to address social and environmental challenges through a commons-based lens (Fuad-Luke, 2009; Manzini & Rizzo, 2011, Schaeper & Robert, 2021).

Incorporating Dewey's pattern of inquiry into case study practice-based research was useful in several ways. Dewey's pattern of inquiry, characterised by its dynamic, pluralist, contextual and empirical nature, aligns seamlessly with the principles of practice-based research. The iterative and reflexive nature of both approaches encourages ongoing cycles of observation, reflection and experimentation in the pursuit of knowledge. Additionally, they emphasise the importance of considering contextual factors and understanding the complex, situated nature of the practice within its unique context. Lastly, both Dewey's inquiry pattern and practice-based research value the integration of empirical observation and theoretical reflection, fostering a holistic approach to inquiry and knowledge generation

Table 9: Dewey's two-dimensional theory of inquiry and its relation to practice–based research, author's own

Dewey's pattern of inquiry characteristics	**Alignment with practice-based research**
Dynamic and pluralist Inquiry is dynamic and pluralist in nature, meaning that it involves ongoing and iterative cycles of observation, reflection and experimentation (Dewey, 1938).	This aligns with the iterative and reflexive nature of practice-based research, which emphasises the importance of engaging with practice and using practical experiences as a source of knowledge (Cunliffe, 2016; Schatzki, 2001).
Contextual and situational Inquiry is highly dependent on contextual factors, including the social, historical and cultural contexts in which it occurs (Dewey, 1938).	This aligns with the contextual nature of practice-based research, which emphasises the importance of understanding the complex and situated nature of the practice (Gherardi, 2012; Kemmis & Grootenboer, 2008).
Empirical and theoretical Inquiry highlights the importance of both empirical observation and theoretical reflection in the process of inquiry (Dewey, 1938).	This aligns with the methodological diversity of practice-based research, which involves using multiple methods and theoretical perspectives to generate and interpret data (Gherardi & Perrotta, 2019; Linstead & Thanem, 2018).

In my research, I adopt Dewey's method to let insights naturally evolve and develop throughout the case study research. In the table on the next page, I outline how these patterns played out in my practice-based research design (see also 4.2).

Table 10: Application of Dewey's pattern of inquiry as practice-based research method in this thesis

Pattern	Epistemology	Research Element	Rationale of Selection	Relationship to Practice-Based Design Research
Indeterminable Situation	Interpretivism	Observation and description of the problem; **Contextual inquiry; Literature review; Expert scoping research survey; Expert scoping research co-creation workshops**	Understanding the cultural and social contexts of the research participants; Identifying gaps in the current understanding hypotheses and areas of research	Allowed for a comprehensive understanding of the current research landscape and identifying areas of investigation through working hypotheses that are relevant to the inquiry including a refined research question
Institution of a problem	Interpretivism	Identification of the problem from multiple perspectives; **Case Study methodology;** Ethnographic interviews; Observations	To understand the different interpretations of the problem and their implications, and to explore the experiences and perspectives of the research participants	Recognised the complexity of planetary health challenges and the importance of subjective experiences and meanings emerging from the global sportswear manufacturer case study, in shaping the challenges and potential applications of commoning
Determination of a problem/ solution	Pragmatism	Exploration of possible solutions and their consequences; **Participatory action research**	To examine the feasibility and potential impact of different solutions on the problem and its context	Acknowledged the importance of exploring multiple solutions that align with the case study research participants' needs as part of practice-based design research
Reasoning	Pragmatism	Validation and development of working hypotheses; **Artefact prototyping**	To generate insights and testable propositions from the data collected and collaborating with stakeholders to build prototypes	Allowed for the emergence of new understandings and conceptualisations of commoning approaches including representations of artefacts and template designs
Experiment	Pragmatism	Testing of interventions or prototypes in practice and feedback gathering for iteration; **Artefact design**	To evaluate the effectiveness and feasibility of potential solutions	Emphasised the importance of experimentation and iteration in design research, enabling to refine and improve the commoning artefacts based on feedback from research participants
Judgement	Pragmatism	Evaluating and reflecting on the outcomes of the experiments and learning about what future research is needed in the field; **Findings & discussion**	To make informed decisions about the effectiveness and implications of the ideas, concepts and solutions tested	Recognised the importance of reflection and evaluation in design research, ensuring that it meets the context of the inquiry as well as needs and overall research ambitions.

4.1.2 Abductive approach and time horizon

The initial structure of my research is formed through a literature review, past empirical knowledge and scoping research activities, including a practitioner survey and two conference-based co-creation workshops. Hence, the approach is not a linear deductive or inductive one. A deductive inquiry process seeks a cause-and-effect explanation, whereas an inductive inquiry process seeks clarification of multiple critical factors affecting the phenomenon (Bryman, 2016). Instead of moving strictly from theory to data (as in a deductive approach) or data to theory (as in an inductive approach), my research takes an abductive approach, which moves back and forth, integrating deductive and inductive reasoning (Saunders et al., 2019; Melnikovas, 2019; Tavory & Timmermans, 2014). That way, the literature review leads to the development of working hypotheses that include a conceptual framework of commoning practices to be introduced to contemporary design. Ethnographic case study fieldwork activities at a global sportswear manufacturer, including interviews, observations and co-creation workshops, are then structured based on the hypotheses, with room for new theory integration or emerging themes and issues. After analysing the data from the fieldwork, the prototype artefacts are developed and refined.

Abductive reasoning is also considered the necessary logic of design (Cross, 2011) and is associated with a complex working process that allows for intuition and flexibility. Cross argues that abductive reasoning is suitable for exploring and understanding a poorly understood phenomenon. In this research, the initial knowledge comes from the literature review. Choosing an abductive approach allowed for exploring planetary health in the context of contemporary design practice and the factors that impact it. Unlike a comprehensive plan with a predetermined end goal, this abductive process allowed for natural exploration during the research course and provided the basis for my research approach (Easterby-Smith et al., 2019). The fieldwork component is covered in chapter six, where data is primarily collected through qualitative methods in a longitudinal study (1.5 years), consistent with the chosen epistemological stance and research philosophy. Before conducting the research, it was essential to select an appropriate research design that aligns with my research question, epistemological stance and ontological assumptions (see 4.2).

Informed by my research aim to explore challenges in contemporary design practice related to planetary health and develop a relational framework for transitioning systems towards it, the choice of research methodology was carefully considered. Qualitative research is seen to be a suitable method for understanding and interpreting complex phenomena concerned with exploring and understanding the meaning that individuals or groups attribute to a social or human problem (Merriam & Tisdell, 2016). This research, therefore, relies primarily on qualitative methodology due to its contribution in three key areas: 1) Identifying knowledge/ information, imagination and governance gaps in contemporary design practice; 2) Obtaining situated data and insights from a case study site; and 3) Generating design artefact prototypes to be further tested in the case study context (Muratovski, 2016). Because qualitative research is open-ended, the methodology continuously evolves as the research questions and understanding of the phenomenon develop (Creswell, 2009). This research also used mixed methods to collect and analyse data from different sources, including scoping surveys and co-creation workshop observations. Adding mixed methods provided an opportunity to triangulate data from different sources and to validate the findings (Creswell & Plano Clark, 2018), resulting in a more comprehensive understanding of the literature based working hypotheses around the challenges of embedding planetary health into contemporary design practice and the potential to integrate a commoning approach by design. Using multiple methods allows for a comprehensive understanding of the phenomena under investigation and strengthens the findings' validity and reliability (Maxwell, 2013; Tashakkori & Teddlie, 2010).

The overall research methodology, therefore, involves a combination of qualitative and mixed methods to collect data that is rich and nuanced. Choosing qualitative methods in combination with some mixed methods as part of an abductive research approach aligned with my research question, epistemological stance and the need to explore and understand the phenomenon of embedding an improved planetary health perspective into contemporary design practice (Sanders & Stappers, 2014; Zimmerman et al., 2010). Section 4.2 of this thesis will provide a more detailed explanation of the research design, including research methods used in different stages of the research.

4.2 Research design and methods

While a well-crafted research aim, questions and literature review are essential, researchers must choose a design that effectively addresses the research questions (Marshall & Rossman, 2016). The research design should enable researchers to achieve data saturation and complete the study within a reasonable timeframe (Fusch & Ness, 2015). Within the qualitative research paradigm, the methodology employed should align with the research problem at hand, as highlighted by Norman Denzin (2009) and Catherine Marshall and Gretchen Rossman (2016). In addition, the primary objective of a study is to contribute to theory advancement, which can be accomplished by either filling gaps in existing knowledge or confirming already established evidence, as discussed by Sitwala Imenda (2014).

This next section describes the chosen research design, methods and empirical approaches, which include a literature review and paper publication as a means of disseminating literature findings and working hypotheses with the wider academic community. It also involves scoping research, including an expert practitioner survey and two participatory co-design workshops, ethnographic case study research, a survey, ethnographic observations, interviews and co-creation workshops, followed by a series of practice-based design interventions through artefact prototyping. While generated data and example materials are described in depth in the next chapter (5), this section provides an overview of the specific research methods, including approaches to data collection and limitations.

Compared with theory-based research, practice-based research involves an original investigation incorporating practice and its outcomes to generate new knowledge. This contribution to knowledge is often demonstrated through creative outputs such as designs and artefacts (Candy & Edmonds, 2018) and often involves case study research. My research revolves around the central focus of practice following Dewey's pattern of inquiry as an overall practice-based research strategy and design (Lens 2). This included the literature review, scoping research, followed by an organisational ethnographic case study to gather empirical evidence to address prevalent practice gaps and, finally, a discussion of the results and the existing body of knowledge. It also included prototyping design artefacts to be used and tested by practising designers in the field.

Design practice plays a central role in the inquiry through practice-based research into, through and for design (Frayling, 1993). Frayling created a helpful categorisation of research in design, which I used as a framework for how to choose and apply my research methods and techniques: *research into art and design, research through art and design, and research for art and design*. Research into art and design encompasses historical, aesthetic and theoretical research and interdisciplinary perspectives from fields such as psychology, anthropology, education and history that shed light on the design process and creative work. Research through art and design goes beyond design itself and employs design as a method to address challenges, gain access to knowledge and understand things outside the realm of design. This approach includes materials research, product development and action research. Research for design involves the culmination of research thinking in the form of end artefacts. It involves gathering reference materials and producing a product that embodies the research process.

Table 11: Three categories of design research and their applicability in this thesis, adapted from Frayling, 1993

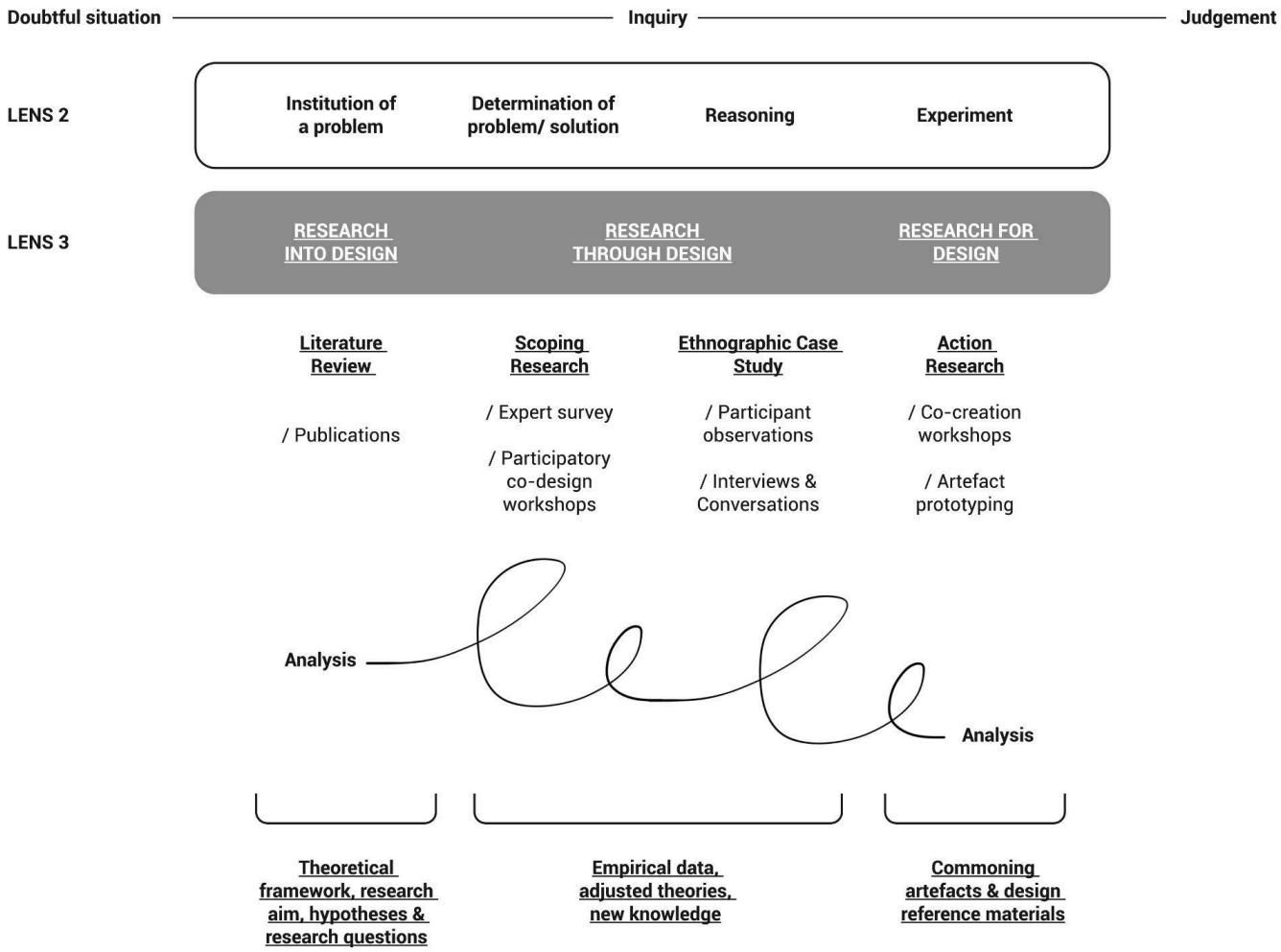
Research into art and design	**Research through art and design**	**Research for art and design**
● Historical research ● Aesthetic or perceptual research ● Research into a variety of theoretical perspectives including social, economic, political, ethical, cultural, iconographic, technical, material or structural	● Material research including researching and discovering materials ● Development work, including developing or testing prototypes ● Action research, including practical experiments and involving action, evaluation and critical reflection	● Embody the research thinking into physical and visual artefacts for communication out of which future research might grow
Application in this thesis		
Reflected in the literature review and through publications	Utilising action research and design interventions through ethnographic case-study research	Resulting in the creation of visual reference materials and commoning artefacts

This thesis uses all three types of design research across Dewey's pattern of inquiry: research into design, research through design and research for design (Lens 3). The literature review in previous chapters exemplifies research into design, providing an examination of the current state of contemporary design practice and incorporating additional theoretical insights from systems theory to economic theory and the commons. Research through design begins with identifying a set of working hypotheses and questions and exploring a case-study context through design-focused inquiry and action research. It involves testing and experimenting with design interventions, which can result in the creation of prototypes (Frayling, 1993) and encompass designerly ways of doing research that can contribute to generating knowledge (Stappers & Giaccardi, 2014 and 2017). Lastly, research for design is fulfilled as the research concludes by creating design artefacts as reference materials in the form of commoning resources. These resources aim to foster further research and facilitate the testing of commoning approaches by practising designers.

Table 12: Rationale for research design

Type of design research	Method			Date	Rationale	Outputs
Research into art and design (Frayling, 1993)	**Literature review and publications**			2018-2022	• Gain a comprehensive understanding of existing knowledge • Enable synthesis of diverse theoretical perspectives. • Publications help to disseminate knowledge, contribute to the academic community and establish credibility	**Theoretical framework, research aim, working hypotheses and research questions**
Research through art and design (Frayling, 1993)	**Scoping research**		Expert practitioner survey	2022	• Identification of key issues and areas of interest that can guide the design of the empirical research phase, ensuring its relevance and alignment with real-world needs	**Empirical data, adjusted theories, new knowledge**
			Participatory co-design workshops	2022	• By engaging stakeholders in the early stages through co-design workshops, their perspectives and insights can shape the research direction	
	Ethnographic case-study research	Global sportswear organisation	Observations	2022-2023	• Provides firsthand, detailed insights into the context and behaviours of participants, offering rich and authentic data	
			Interviews	2022-2023	• Allow for in-depth exploration of participants' perspectives for nuanced data	
Research for art and design (Frayling, 1993)	**Action research**		Participatory action research	2022-2023	• Facilitates co-creation of knowledge and development of practical interventions and actionable outcomes	**Commoning artefacts & design reference materials**
			Artefact prototyping	2023		

Figure 26: A summary diagram of the overall research design



4.2.1 Literature review and publications

The literature review plays a crucial role in theory-based research, providing a foundation for understanding the existing knowledge, identifying research gaps and shaping the direction of the study. It formed a significant component in my research as part of the 'research into design' approach defined by Frayling (1993), leading to the formulation of my research aim, working hypotheses and questions. Through a comprehensive examination of existing literature, I gained insights into the current state of knowledge and identified key concepts, theories and models relevant to my research topic. By synthesising and critically analysing the literature, I identified research gaps and theoretical shortcomings that warranted further investigation. This process allowed me to develop a solid theoretical framework for my research, providing a conceptual basis to guide subsequent empirical methods. Importantly, this process also allowed me to dive into various theories and explore their applicability in contemporary design practice. This reflective exercise resulted in the publication of four scholarly works: two paper publications, one journal article and one book chapter (see PhD Thesis Publications). These publications contribute to the academic discourse and serve as stepping stones for further empirical investigations.

While the literature review is a valuable research method, it has limitations. One limitation is the potential for bias in the selection and interpretation of literature. In the literature review process, bias in the selection and interpretation of literature was mitigated by employing a comprehensive search strategy encompassing diverse sources, such as academic databases, peer-reviewed journals and reputable conference proceedings. This approach ensured a wide range of perspectives and reduced the risk of bias from a limited literature pool. Supervisors and confirmation examiners were also actively involved, providing diverse perspectives and challenging biases. Their expertise and guidance facilitated a more balanced interpretation of the selected literature, minimising the influence of individual biases and promoting a more well-rounded analysis.

4.2.2 Scoping research

Scoping research can be used to identify gaps and insights in the existing literature by mapping out the available evidence on a particular topic or research question (Munn et al., 2018). The method is often used to examine the breadth and depth of available literature in a particular area of interest, to identify key concepts, theories and themes and to highlight areas where further research is needed (Arksey & O'Malley, 2005; Levac et al., 2010). As the approach is beneficial for complex topics that have not been extensively explored, it can help to identify additional gaps in the existing knowledge base. A benefit of using scoping research is that it can help validate and complement the findings of a traditional literature review by incorporating insights from practitioners and experts in the field. This approach allows for a more comprehensive and nuanced understanding of the research topic and can help to identify key areas where further research is needed.

To further enhance the literature findings, the research design included an expert practitioner survey (see 4.2.2.1) and two participatory co-design workshops (see 4.2.2.2) as scoping research, forming part of the 'research through design' approach defined by Frayling (1993). According to Hilary Arksey and Lisa O'Malley (2005), scoping reviews allow for flexibility in the data sources that can be used, including empirical evidence and expert opinion, in addition to traditional literature sources. The scoping research used in this thesis aimed to identify and map key concepts, as well as evidence and gaps in the research literature on the three planetary health challenges as previously defined (Whitmee et al., 2015). Involving practitioners and experts early on in the research process helped to ensure that the subsequent research design was relevant and applicable to real-world contexts. The scoping research used in this research combined an expert practitioner survey with participatory co-design workshops.

By incorporating the perspectives and experiences of practitioners and experts in the field, this approach deepened the working hypotheses before testing them through case studies and helped to design the details of the subsequent case study research. This was important to ensure that the practice-based case study experiments were relevant and applicable and could potentially impact the field.

4.2.2.1 Expert practitioner survey

Given the increasing uncertainty caused by rapid technological and social change around the globe, collaborations and collective knowledge seeking to improve planetary health are likely to gain even more importance, according to literature (Bauwens and Kostakis, 2014). An online expert practitioner survey was designed as part of the scoping review to gather insights from professionals working in the field who can offer firsthand accounts of their experiences and perspectives on the practice gaps and opportunities, as revealed through my literature review. Running a short scoping survey also provided a valuable opportunity to gather data from those who are already actively engaged in the practical aspects of improving collaboration, collective knowledge and imagination to validate or identify additional gaps and areas for further investigation (Bryman, 2016).

Aim and structure
The survey aims were twofold: first, to learn from respondents' lived experience of applying a design-led approach to achieve sustainable futures and planetary health and, second, to test, validate and refine working hypotheses and planetary health challenges and practice gaps that were revealed by the literature review. By gathering input from expert practitioners, the survey set out to provide a more comprehensive understanding of the topic at hand and help to inform the subsequent research design.

The survey was structured into four sections using Google Forms, which guided participants through a total of 50 multiple-choice and open-ended questions in order to explore their experiences of using design to create sustainable futures and planetary health, as well as generate insights around what challenges they encounter. These sections covered: (1) the participant's context, (2) their experience, (3) designing for systems change, and (4) designing organisations that drive regenerative futures. The survey aimed to gather at least 10 responses from individuals with expertise, specific knowledge or experience in transformation, social and planetary design.

The questions (see Appendix) were formulated by integrating insights derived from my prior literature review, as well as knowledge gained from emerging pluriversal design practices, in conjunction with initial observations regarding common principles and their manifestations within real organisations. These questions were designed to uncover insights into the practical challenges experienced by pioneering professionals, the strategies and methodologies they have found effective in promoting sustainability and planetary health and their views on emerging trends and opportunities in the field. Open-ended questions allowed respondents to provide nuanced, experience-based insights, while multiple-choice questions helped quantify and categorise these experiences and perspectives. Overall, the survey took participants about 45 minutes to complete.

Recruitment
The survey was designed to gather insights from experts and professionals in transformation design, social design and planetary design — still a very small but emerging community of designers and change makers. The recruitment process involved sending the survey to potential sources likely to yield survey responses from this group, followed by desk research to identify design practitioners and academics working at the intersection of design, regeneration and transitional change for planetary health. The recruitment sources included professional associations and organisations, such as the

Service Design Network, the Commons Network and the Systemic Design Association. Academic institutions, conferences and symposiums investigating novel practices, such as UAL, RMIT, ServDes and RSD Symposium, were also considered potential recruitment sources. Online communities and forums that focused on pioneering sustainable service design and life-centred/planetary design, such as the Regenerative Leadership or Design+Climate community, were also considered as a source for recruitment. Social media platforms such as LinkedIn were also leveraged to identify designers and sustainability professionals who were likely to discuss related topics and share their expertise. Finally, sustainability-focused design practitioners who were actively engaged in changing the landscape of contemporary design towards planet-centricity were identified through my network and contacted to participate in the survey. By targeting these various sources for recruitment, the survey aimed to reach a diverse group of respondents with expertise in sustainable design and planetary health, all of whom have developed an awareness of the environmental, social and economic crises and perceived a series of shortcomings in current design practice. The total pool of potential participants for the survey was 65 people. During the recruitment phase of the survey, which began in December 2021 and lasted until March 2022, potential participants were provided with an overview of the research and invited to participate in the survey. After indicating their willingness to participate, they were sent a more detailed information sheet (see Appendix) and a link to access the online survey. The initial timeframe for completing the survey was set at three weeks. However, this was extended for an additional four weeks to accommodate the participants' schedules and ensure a sufficient sample size of at least 10 respondents. Final participants in the study included Designers, Senior Designers, Co-founders, and Directors, who were engaged in planetary design, social and transformation-focused work.

Table 13: Overview of survey respondents

No of respondents	**Organisational background**	**Roles**	**Industry (multiple answers possible)**	**Location**
10	• 70% Private sector (e.g. most businesses and individuals, including agencies) • 40% Not-for-profit sector • 10% Self-employed	• 40% Upper Management • 40% Middle Management • 10% Junior Management • 10% Consultant & freelance • 10% Researcher	• 50% Business, consulting or management • 50% Creative arts/design agency • 40% Charity or voluntary work • 30% Teacher training or education • 20% Environment / agriculture • 20% Housing, construction or architecture • 20% Marketing or advertising • 20% Media or digital • 20% Social care • 10% Computing/ IT • 10% Healthcare • 10% Hospitality • 10% Public services or administration • 10% Recruitment / HR • 10% Science / pharmaceuticals • 10% Bio-based or bio-inspired innovation	80% Europe 20% Australia

Use of data and confidentiality
The survey was conducted using Google Forms to capture data, including written responses (see Appendix). Respondents were guaranteed anonymity by ensuring that the option to collect computer IP addresses was switched off and by not having to disclose their names. However, participants were allowed to disclose their full names in the survey, in which case all responses would be captured in a non-anonymised form. Only the researcher had access to the survey software account and the data stored within it. It was communicated to the respondents that the data might subsequently be shared with Academic Supervisors and monitored by the College Research Committee and the University of the Arts London Ethics Sub-Committee. The survey data was downloaded and stored on an encrypted hard drive to be kept on file for five years after publication, in case of possible use for future research. Participation was entirely voluntary, and respondents could exit the survey at any point, but they could not withdraw any responses made at the point of exit. The survey responses were captured to be included and published in the research outcome.

Limitations
The online survey was initially designed and communicated to participants as a Delphi method, a reliable approach for developing new concepts and setting the direction of future-orientated research (Hsu & Sandford, 2007). The Delphi method was chosen to seek the opinion of a group of design experts to better understand the contribution and gaps of contemporary design practice to achieve more sustainable futures and planetary health and seek consensus on how one might address these issues through practice. However, challenges around participant availability and commitment showed that the Delphi method was too time-consuming. It likely required participant commitment over several months and increased the risk of participants losing interest over time. The participant pool was difficult to recruit in the first place, making it challenging to engage recruited participants over multiple rounds. In the end, it was more appropriate to conduct a single survey, which worked well, given that the research question did not strictly require multiple rounds of feedback or consensus building and that it was a time-sensitive activity requiring a quick turnaround to continue in the overall research plan. As the single survey was a more straightforward and efficient method of data collection, requiring only one round of survey administration, I adjusted my research plan accordingly. Potential limitations include that the small sample size of 10 respondents may not offer sufficient diversity of perspectives or lead to findings that are not generalisable. To mitigate these limitations, the survey questions were carefully crafted to elicit in-depth responses and insights from each participant. The findings were triangulated with other data sources, such as case studies and interviews, to provide a more comprehensive understanding of the research topic (see Appendix for data samples).

4.2.2.2 Participatory co-design workshops

Participatory co-design workshops are a valuable method for gathering data from practitioners and experts in the field (Sanders & Stappers, 2014). They involve bringing together diverse stakeholders, including researchers, practitioners and other relevant professionals, to collaborate on the research question or problem. By engaging in a collaborative process, participants can share their insights and experiences, identify key challenges and opportunities and validate the literature hypotheses (Zimmerman et al., 2010). The following section describes the methodology used for two participatory co-design workshops conducted during the scoping research. The workshops aimed to test emerging thinking and insights from the literature review with expert practitioners in systemic design practice. The focus was on exploring the application of a commons-based approach to design practice, identifying current practice gaps, and generating ideas for enhancing cooperative behaviours within the design process.

Participants
The workshops included a total of 29 participants, split into two sessions during the RSD11 symposium[3] in autumn 2022. The participants represented various professional backgrounds, including service design (4), design strategy (2), systemic design (3), policy and organisational science (2), design research (10), social design and innovation (3), digital design and UX (3), and architecture (2), joining online from across the US and Europe. They could sign up for free via Eventbrite once the workshops were advertised on the RSD11 symposium portal.

Aim and structure
The workshop materials (see Appendix) were designed and prepared by myself, and facilitated by myself and Professor Robert Glenn from King's College London, an expert in commons research with a focus on healthcare and co-design. The sessions were conducted online using Miro as a collaborative online tool and Zoom as a video call platform. The workshops lasted for 120 minutes. The workshop structure consisted of the following components:

1. Welcome and warm-up (20 min)
- A short welcome and introduction to the workshop's scope and context.
- Clear articulation of the workshop aim: to explore the working hypotheses emerging from the literature review, particularly the potential for enhancing design practices through Ostrom's commoning core design principles.
- Workshop ground rules were established: exploration, open-mindedness, speaking up and building on others' contributions.
- An icebreaker exercise was conducted to understand participants' current co-creation practices and tools, using the Design Council's Double Diamond design process as a reference.

2. Provocation and introduction to the commons (15 min)
- A short provocation session (see Appendix for sample materials), presenting the hypothesis that the lack of sustained cooperation is a design failure and that design has failed to combine knowledge from evolutionary, indigenous and economic science. It was proposed that as designers, we rely too much on co-design 'doing the job' as a way to gauge people's needs or to arrive at group consensus.
- A 15-minute introduction to the commons, including its definition, examples of commons in practice, and Ostrom's principles.
- Presentation of the three working hypotheses emerging from the RSD11 conference paper, which explored using commoning to enhance shared endeavours within multispecies systems, to sustain cooperation in co-design, and to design systemic conditions for cooperation.
- Summary of starter questions derived from the conference paper helped to guide the exploration of design practice gaps related to information, imagination and governance.

3. Exploring the commons and commoning for design practice (85 min)
- Participants were divided into small groups of 2-3 individuals and given 20 minutes to ideate on the commoning starter questions (see Appendix).
- The goal was to brainstorm ideas for tools, activities, methods and approaches to enhance cooperative behaviours in the design process.
- Participants placed their ideas on a shared Miro board
- A group discussion followed to get feedback and reflect on the barriers to embedding commons-based approaches in design practice and to identify areas where contemporary design is lacking.

[3] See https://rsdsymposium.org/category/rsd11-program/

Table 14: Overview of participatory co-design workshops

RSD11 Workshop #	Participating group	Professional background (# of respondents)	# of people	Date / Location	Duration	Total person hours contributed
Commoning by Design (1)	RSD11 symposium participants (from Europe & US)	• Design research (10) • Service design (4) • Systemic design (3) • Social design and innovation (3) • Digital design and UX (3) • Design strategy (2) • Policy and organisational science (2) • Architecture (2)	12	Oct 2022 / RSD11 Symposium, remote	120 min	24 hours
Commoning by Design (2)	RSD11 symposium participants (from Europe & US)		17	Oct 2022 / RSD11 Symposium, remote	120 min	34 hours

Use of data and confidentiality

The workshop was conducted using collaborative software (Miro) and Zoom. Participants' professional backgrounds were recorded for administrative purposes, but their names were anonymised. At the beginning of the session, participants were informed that the workshop was closed and limited to a specific number of participants to facilitate productive group work and discussion. Participants were assured that the workshop would be informal, collegial and confidential. They were informed about the workshop's purpose as part of my ongoing PhD research and that their feedback and insights would be used to reflect and pilot a commons perspective within contemporary design practice. The workshop discussions were audio recorded to ensure accurate capture of comments and participants were made aware that recordings were deleted after workshop notes were collected. Participants' contributions were anonymised, and they were given the option to request the removal of their contributions.

Limitations

The workshops were conducted as part of the RSD Symposium[4], allowing for a limited duration of 120 minutes. In retrospect, a full-day workshop would have provided more time for an in-depth exploration of the design principles and starter questions. Additionally, technical issues with Zoom and the lack of a suitable virtual events platform led to the premature ending of the first workshop. Another limitation of the research method was the inability to gather detailed information about the participants' professional backgrounds and experiences before the workshops due to their inclusion as part of the RSD11 symposium. To mitigate these limitations, the workshop outputs were analysed as initial scoping insights based on a first workshop prototype design. The findings informed the design of subsequent practice-based research activities with the case study sites. Despite the limitations imposed by the symposium format and technical issues, the workshops generated initial scoping insights essential to further research activities.

[4] RSD (https://rsdsymposium.org/) is a yearly symposium held in guidance and with the assistance of the Systemic Design Association (SDA) to promote and foster the emerging practices for and theory development of systemic design for service systems, social systems, policy development and complex contexts.

4.2.3 Ethnographic case study research

As mentioned previously, the practice-based design research combines case study and ethnographic research methods, complemented by elements of action research as part of the 'research through design' approach defined by Frayling (1993). Ethnographic case studies focus on cultural, group or community formation and employ ethnographic methods with a longer duration (Schwandt & Gates, 2018). Being situated and closely related to case studies, ethnography provides a comprehensive understanding of sociocultural phenomena (Ó Rian, 2009). The thesis uses qualitative methods including case study method and ethnography through interviews and observations for data gathering. These methods enable exploring social interactions, behaviour, beliefs, perceptions and design systems (Madden, 2010; Muratovski, 2016).

Combining ethnography and case study approaches, the research methodology, referred to as 'ethnographic case study research', aims to provide a comprehensive and nuanced exploration of the research aim, working hypotheses and research questions. This approach allows for the in-depth examination of a specific case study within its social and cultural contexts, drawing upon the strengths of both ethnography and case study research to provide rich and valuable insights. A single large-scale organisation, a global sportswear manufacturer, has been chosen as the subject of this case study. This selection allowed for an in-depth exploration of the research questions across various teams and organisational levels over an extended period (1.5 years), also facilitating the time and capacity required for effective action research. The aims were to gain in-depth insights into the cultural dynamics, interactions, behaviours and practices relating to the categories of planetary health challenges and how these could be addressed through contemporary design in an organisational context.

For a more comprehensive understanding of the benefits of an ethnographic case study, I briefly summarise case studies and ethnography as separate methodologies, as they each contribute unique insights to my research process.

4.2.3.1 Case study and organisational ethnography

Case study research is characterised by a qualitative and constructivist paradigm that recognises reality as socially constructed and emphasises exploring individuals' tacit, experience-based knowledge. While the definition of a case can vary, it can encompass individuals, organisations, events, decisions, actions or locations, and its nature may become clearer as the empirical research progresses (Schwandt & Gates, 2018). In design research, the case study method is a preferred qualitative strategy for investigating complex phenomena or settings, utilising diverse data sources (Muratovski, 2016). Originating from ethnographic design, qualitative case study design has evolved into a mixed methods approach, incorporating elements of both qualitative and quantitative methods (Yin, 2014). Researchers often turn to case studies to understand how, what, or how questions (Amerson, 2011; Andrade, 2009; Yin, 2014) as the research often incorporates archival research through document sharing, observations of work processes, projects and meetings, and semi-structured interviews as primary data sources. These data collection methods enable a comprehensive understanding of the background, social interactions, management of the projects and organisational structures under study (Muratovski, 2016). Case studies can be exploratory, explanatory or descriptive and may involve single or multiple organisations and locations for comparative analysis (Yin, 2014). In this thesis, a case study of a global sportswear organisation and the implementation of service design and business transformation practice allowed for an in-depth examination of the working hypotheses in organisational contexts, providing direct in-person experiences at various organisational levels (Creswell, 2009). The choice of the global sportswear company as a case study context aimed to test commoning approaches' potential in supporting organisations' transitional phases toward regenerative economics.

Ethnography is an in-depth study of a culture or social group, aiming to describe and interpret their behaviours and interactions (Holloway et al., 2010), involving systematic observation, participation and interviews to understand social interactions, beliefs and perceptions (Madden, 2010; Muratovski, 2016). Initially developed in anthropology, ethnography has become a significant research method in contemporary design, particularly design ethnography, which examines the social and cultural complexities within the design process. Ethnographic research helps uncover users' activities, relationships and needs while evaluating the performance of design systems. It often includes sharing time and space with the studied participants, emphasising a situated and nuanced exploration that seeks a detailed description of culture (Ó Rian, 2009). Researchers using ethnography strive to develop a comprehensive understanding of an entire culture-sharing group, identifying patterns of behaviour, rituals and social behaviours and exploring ideas and beliefs expressed through language and material activities (Creswell & Poth, 2018; Yin, 2016). Ethnography is also considered a qualitative research method that explores cultural interactions and meanings within a specific group (Barbour, 2010). It seeks to understand individuals' feelings, beliefs and relationships within their cultural context and how they respond to changing phenomena (Fields & Kafai, 2009). Researchers typically navigate between multiple worlds, engaging with the participants' cultures while needing to acknowledge their own perspectives. Research bias can be a concern since the researcher is the primary data collection instrument (Marshall & Rossman, 2016). Therefore, researchers need to be aware of their own values and ideologies derived from their cultural background for the interpretation of cultural phenomena, which should reflect the participants' perspectives (Bernard, 2012).

Organisational ethnography is a specific subtype of ethnographic study I have chosen due to its focus on organisations and its comprehensive and in-depth approach to studying organisational processes (Ybema et al., 2009). While the term 'organisations' is broadly defined and not limited to formal structures (Watson, 2012), it is important to note that organisational ethnography encompasses a broader scope compared with workplace ethnographies, which primarily focus on studying work and the relationships between workers and managers (Edwards & Bélanger, 2008). Organisational ethnography pays attention to every occurrence, regardless of its rarity or commonality, to identify the mechanisms through which organisational behaviour unfolds across different levels in the organisation. It remains sensitive to the seemingly mundane aspects of organisational realities, recognising that even the most banal features can hold cultural significance (Neyland, 2008).

Table 15: Juxtaposing organisational ethnography and case study research used in this thesis, adapted from Côté-Boileau et al. 2020

Methodological aspects	Case study	Organisational ethnography
Definition	The study of contemporary phenomena in natural contexts, when the boundaries between phenomenon and context are not evident, and in which multiple sources of evidence are used (Ridder, 2012; Stake, 1995; Yin, 2003, 2009).	The study of human lives in organisations, with a particular focus on the social culture underlying the processes of organising (Rosen, 1991; Van Maanen, 2002; Ybema et al., 2009).
Purpose	To socially investigate how and/or why a contemporary phenomenon unfolds in natural contexts, while the researcher has little control over behaviours/events surrounding the empirical setting of the study (Yin, 2014).	To understand the experience of organisational actors with respect to a given organisational or social phenomenon from multiple points of view and with a particular focus on reflexivity (Berthod et al., 2018; Hammersley & Atkinson, 2007).
Approaches	● *Exploratory purpose:* aims to explore in greater depth a little-known phenomenon. ● *Multiple case study design:* aims to identify the recurrences and divergences underlying the construction of a given phenomenon using similar or different cases.	● *Focused ethnography:* an ethnographic-adapted method, which pragmatically applies ethnography over a short period of time, and conceptually focuses on a single organisational or social phenomenon (Atherton et al., 2018; Cruz & Higginbottom, 2013).
Data collection	● Triangulation of multiple data sources ● Mainly qualitative methods	● Triangulation of multiple data sources ● Mainly qualitative methods ● Mainly observations and field notes
Data analysis	● Inductive and deductive approaches ● *Explanation building* "analyses the case study data by building an explanation about the case" (Yin, 2014, p. 147).	● Mainly inductive approaches ● Reflexivity is fundamental

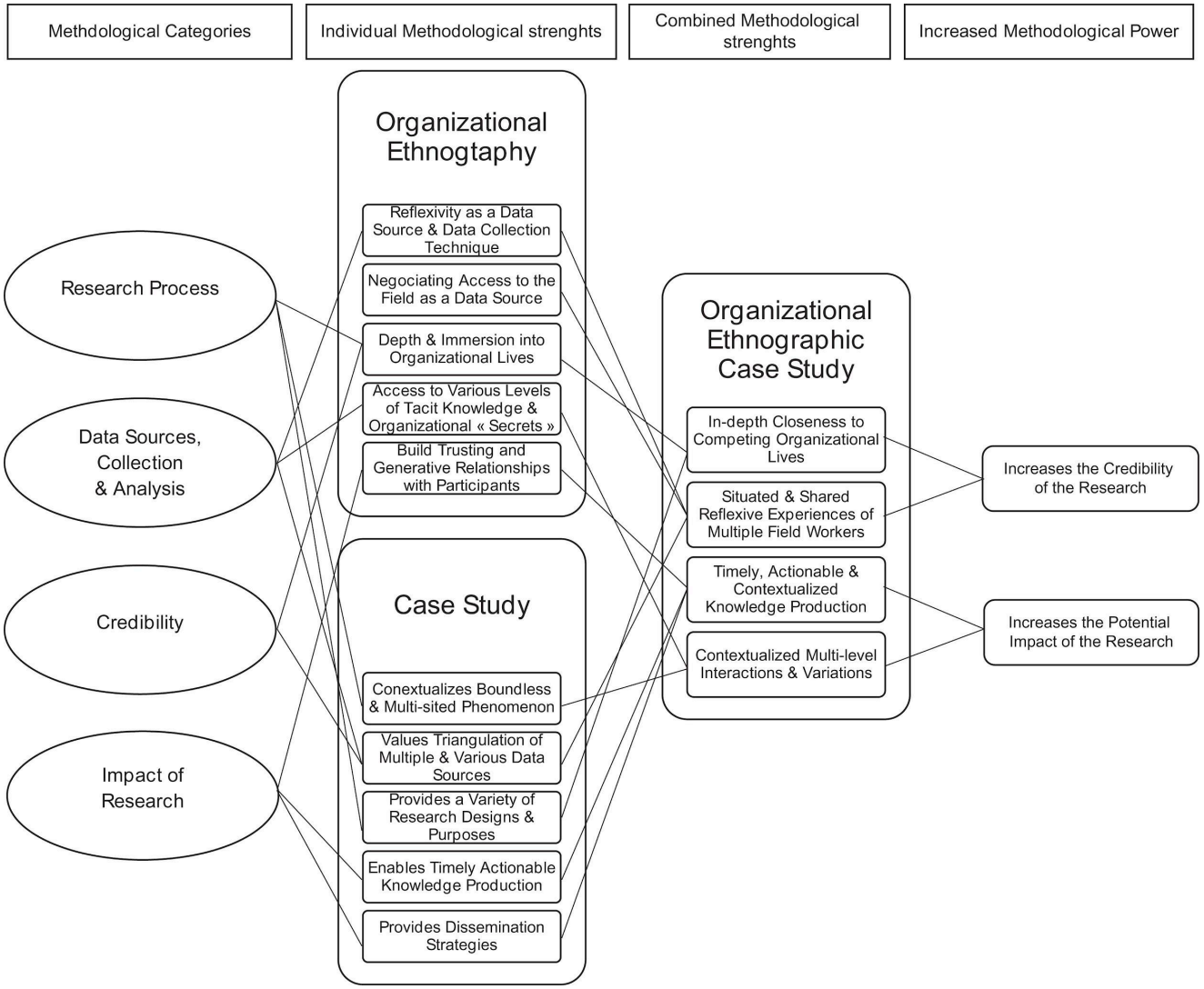
By employing organisational ethnography as a research methodology and combining this with a case study approach, this study focused on gaining in-depth insights into the cultural dynamics, interactions, behaviours and practices within the case study organisation. The investigation specifically explored aspects related to the categories of planetary health challenges and how these could be addressed through commoning approaches as part of applying contemporary design in an organisational context.

4.2.3.2 Organisational ethnographic case study

The combination of these methodologies presented an opportunity to delve into the covert and tacit dimensions of the social world (Cruz & Higginbottom, 2013). Scholars previously found that by merging organisational ethnography and case study research, researchers can explore the unexpressed yet significant knowledge that influences organisational life (Buchanan & Bryman, 2009; Hammersley, 2018). Previous studies by Greenhalgh et al. (2004) have also demonstrated that organisational ethnographic case studies are uniquely equipped to analyse how organisational processes interact within and between organisational sites, leading to organisational effects. Combining these methods allowed for a wide range of units of analysis, including exploring actors, behaviours, meanings, logic, processes, practices, routines, interactions, artefacts, contexts and organisational boundaries. The active role of the researcher and the emphasis on reflexivity in organisational ethnographic case studies

are seen to further contribute to the credibility of the combined approaches (Berthod et al., 2018). The richness of the researcher's experience in the field holds more importance than the duration of time spent on site (Berthod et al., 2018). Additionally, the active involvement of research participants as additional 'fieldworkers' in the organisational ethnographic case study offered the opportunity to integrate diverse reflexive experiences, as previously noted by scholars (Bruni, 2006; Greenhalgh et al., 2008; McCourt et al., 2012; Molloy et al., 2017) and enriched the research findings.

Figure 27: Methodological matrix of organisational ethnographic case studies for in-depth qualitative health care research, Côté-Boileau et al., 2020



Due to the immersive nature of organisational ethnographic case studies, which provides a distinct advantage in capturing the tacit knowledge that shapes how organisations work (Cruz & Higginbottom, 2013), I have chosen this method as a way to address my research aim, working hypotheses and research questions. As a combined methodology, it provided a means to test and refine my working hypotheses and investigate the 'how might we' research questions pertaining to the organisation in greater depth (McCourt et al., 2014).

Given the pluralistic and institutionalised nature of many organisations, it was crucial to examine the experiences of organisational actors in relation to their institutional context in which processes, information flow, and meaning and action unfold (McCourt et al., 2014). Combining organisational ethnography and case study designs emerged as a methodology for understanding the interactions and operations of different parts within the case study organisation (Molloy et al., 2017). Working across levels and immersing myself into organisational lives allowed me to achieve greater depth during the commoning prototyping, refine contextualisation and increase the credibility and impact of my findings.

4.2.3.3 Case study context, selection, sampling and research collaborations

The case study organisation involves the global headquarters of a large sportswear manufacturer, with key locations in Europe and worldwide, seeking to define its future service design and business transformation practice. As part of their strategic approach, they focus on three key pillars: service design, change management and business architecture. The last pillar focuses on designing and structuring the organisation's business processes, capabilities, information and strategies to achieve its objectives. The case study organisation was specifically interested in developing and implementing an emerging service design practice that aligns with sustainability and regeneration. While the organisation has dedicated sustainability teams that operate as separate entities within the organisation, the concept of sustainability in service design and business transformation is still predominantly viewed from an environmental perspective. The selection of a case study for this research was based on several factors, including the organisational context of business transformation and sustainable practices and the availability of participants. The next section provides an overview of how the case study was selected, the context and participants, and the formal agreements needed to legitimise the research collaboration.

Selection and sampling
Identifying the case study site involved desk research and leveraging the researcher's social and professional networks. The selection of the case study site was driven by various rationales. First, the case study approach aimed to investigate the theoretical exploration of commoning approaches for planetary health within contemporary design practice. The idea was to select a case study organisation that was not yet practising regenerative ways of working but had an emerging awareness and was interested in exploring a different paradigm that potentially challenged the economic model underlying their design practice. The specific case study site was chosen because it was in a transitional state, actively working to define future transformative practices that could incorporate sustainability. This allowed the research to explore uncharted territory by applying commons theories within capitalist contexts, diverging from existing studies focused on cooperative or community-based organisations (see Hillgren, Seravalli & Emilson, 2011). The aims were to understand how commoning practices can support organisations in transitioning towards regenerative change, fostering collaboration for economic paradigm shifts. Additionally, within the organisation, there was an ongoing effort to establish an internal in-house service design team. The primary focus of this research was to analyse how commoning practices could be integrated into this organisational context. Conducting this exploration from the perspective of an established organisation already in the process of redefining their design business transformation processes was a good entry point. The goal was to gain a comprehensive understanding of the potential impact of commoning on the transition of existing organisations towards more regenerative practices, including the potential benefits and associated challenges.

Second, practical considerations played a role in the selection process, including the geographic proximity of the case study sites, the researcher's professional network and the organisation's willingness to participate in the study. In addition to the overall rationales, the selection of the case study site was also driven by specific criteria that aligned with the research objectives and theoretical

frameworks. These included the presence of an internal service design practice, a strong intention to integrate sustainability approaches into future design practices (although still in the early stages), willingness to allocate time for the researcher to gain insights into daily operations and ways of working, availability for shadowing project work, access to a sufficient number of interviewees (approximately 5-10), openness to learning and testing working hypotheses, and a willingness to dedicate time for co-creation workshops. Participant selection followed a purposeful sampling approach, aiming to identify individuals who possess a diverse range of knowledge and expertise in the domains of service design, business transformation and sustainability.

Together, these selection criteria sought to identify participants who could provide insightful responses to the research questions, drawing from their extensive understanding of contemporary service design practices or their practical experience in embedding sustainability and business practices that aim to enhance planetary health. The chosen sampling approach aligned with established methodologies around purposeful sampling, as outlined by Imelda Coyne (1997) and Martin Marshall (1996), ensuring that the chosen participants would yield the most fruitful outcomes for the study. The selection process also focused on organisations at the early stages of transitioning from the dominant business paradigm to the emerging one, as described in the Berkana Model of Change theory (Wheatley & Frieze, 2006). By studying an organisation in-depth, which is still operating within the dominant paradigm, the case study research aimed to understand how a commoning approach and relational framework could facilitate the initial steps of transitioning towards planetary health. This selection rationale is aligned with the principles of transition design theory, as proposed by Irwin et al. (Irwin, 2015), which advocates for intentional transitions towards more sustainable, equitable and desirable long-term futures at the societal, organisational, institutional and community levels.

Research collaborations and NDAs

To ensure the ethical and confidential handling of sensitive information during the research process, a formal collaboration and Non-Disclosure Agreement (NDA) was established with the participating case study organisation. This agreement protected the confidentiality of the organisation's internal operations and data, the privacy of the individuals involved, research integrity, the researcher's independence and the ability to publish the findings for the PhD. As a result of these clauses, a key condition was to anonymise the name of the case study organisation throughout the research. Consequently, a decision was made to refer to the case study as a 'sportswear manufacturer'. Individual participants are referred to by their roles and responsibilities rather than names to avoid potential identification. Due to the confidential nature of the NDA and strict confidentiality clauses, names and sensitive data cannot be shared in the Appendix of this thesis, nor the NDA itself.

Despite the anonymisation, the research findings still provided valuable insights as the research was less about the specific organisation and their value proposition, and more about their organisational processes, structures and the embedded designerly ways of working, many of which are transferable across organisations of similar sizes. However, it is worth noting that creating the bespoke NDA with the legal department of the case study organisation took approximately eight months, causing a substantial delay in commencing the empirical research. The formal collaborations and NDA were crucial in establishing the necessary level of trust, access and confidentiality for conducting an in-depth ethnographic study within the organisational settings, safeguarding the organisations' internal operations, data and individuals' privacy.

4.2.3.4 Interviews

Ethnographic semi-structured interviews are a valuable research method employed within organisational ethnographic case study research. These interviews combine the flexibility of

open-ended questions with the structure necessary to capture specific insights relevant to the research objectives. Ethnographic interviews delve deep into the participants' lived experiences, beliefs, values and practices, providing rich qualitative data that offers a holistic understanding of the organisational context (Savage, 2000; Smith, 1995). By engaging with participants in open and exploratory conversations, researchers can uncover nuanced insights, contextual factors and social dynamics that shape organisational processes and behaviours (Spradley, 2016; Kvale, 1994). Ethnographic semi-structured interviews are a powerful tool for capturing the complex interplay between individuals, groups and the larger organisational context, allowing for a comprehensive and in-depth examination of the phenomena under study.

Aim and structure

An interview method was employed as a qualitative data collection technique in this research, complementing the field observations and co-creation workshops. In-depth interviews served as a strategy for the researcher to discuss concepts, seek clarification on observations and further explore emerging insights with the participants (Onwuegbuzie et al., 2010; Ortlipp, 2008; Rubin & Rubin, 2012). The interview guide (see Appendix) took shape through a comprehensive review of existing literature and initial observations. From this process, several fundamental themes emerged, which formed the basis for structuring the interview questions.Themes encompassed:

1. **Introduction and interviewee role & responsibility:** This section introduced the interview and explored the roles and responsibilities of the participants.

2. **Personal views on sustainability and planetary health:** Exploring the individual perspectives of interviewees regarding sustainability and planetary health.

3. **Organisational sustainability practices and their impact:** Examining how sustainability practices were perceived within the organisation and the service design team, and their influence on the design and business transformation processes.

4. **Challenges and opportunities:** Uncovering the significant challenges and opportunities relating to planetary health in the realm of design and business transformation.

Semi-structured interviews were conducted, with pre-designed questions grouped into the themes above. An open-ended nature of question allowed flexibility, enabling adjustments based on the interviewee's role in the organisation. Individual responses were sought from the interviewees, following the guidelines outlined by Shazia Jamshed (2014). The questions posed in the interview guide were tailored based on insights from the observations. For example, one observation revealed a contrast between the well-established sustainability practices in global sustainability teams and the lack of knowledge regarding how key policies translated into the work of the service and business transformation team. This led to the inclusion of specific questions, like: *How are sustainability standards and key performance indicators currently integrated into the work?* These interviews occurred throughout the fieldwork, depending on participant availability.

Recruitment

Recruitment of interview participants primarily took place through discussion and alignment with the case study site. Staff members from service design and business transformation assisted in identifying suitable candidates for interviews, which included in-house service designers, managers, sustainability experts and business transformation leaders spanning various levels of seniority, from junior to vice president. These participants were chosen based on their expertise in implementing service design and sustainability topics in a business context and their understanding of the challenges of implementing

sustainable solutions. Selected participants should be able to provide insights into how the three planetary health challenge categories (information, imagination and governance) and working hypotheses relate to their context. Numerous interview opportunities were available at the case study site, some of which were in-depth and established long-standing relationships as part of the research collaboration (seven in-depth interviews). These interviews involved the use of formal consent forms, and subsequent transcripts were created. Additionally, informal ethnographic conversations were conducted in remote calls with the help of internal team members who had easier access to participants in other departments due to their internally facing roles. Being contacted by an internal colleague increased the willingness of those participants to participate. These informal conversations were documented by the researcher through field note observations, as recording and transcript creation were not feasible (eight informal conversations). Their insights provided valuable perspectives on the challenges and opportunities related to the three planetary health challenge categories of information, imagination and governance. My analytical approach involved using my understanding of the interview participant roles to interpret the data in the context of planetary health challenges. I used numerical identifiers in the thesis for the roles of interviewees within the case study which ensured confidentiality in accordance with the Non-Disclosure Agreement. Considering the roles and team dynamics helped to make use of Geels and Kemp's multi-level perspective (MLP) for interpreting the data. By analysing roles and team belonging, I could discern interconnections and gaps across different organisational levels. To ensure a robust analysis, I employed data triangulation, gathering information from various sources within the organisation over an extended period. This method not only enriched the understanding of the context but also highlighted the dynamics within the case study, aiding in a comprehensive evaluation of planetary health challenges.

Table 16: Overview of interviews

# Occasion	Type	Interviewee background	Date / Location	Total length / avg. duration
7	In-depth interview	1. VP Business transformation 2. Director Business Architecture 3. Director Service Design 4. Service design & sustainability lead 5. Service design lead 6. Service designer	May 2022 - Feb 2023 / remote	7,5h / 75 min
8	Informal conversation	7. Senior Manager Footprint Operations 8. Senior Manager Retail Sustainability 9. Director Sustainability Global Operations 10. Director Sustainability Strategy & Programs, 11. Director Retail Operations 12. Senior Manager Brand Strategic Direction 13. Senior Digital Project Manager 14. Senior Manager Logistics & Packaging	Jan 2022 / remote	6h / 45 min

Data use and confidentiality

To ensure confidentiality, all participants received an interview information sheet prior to the interviews, which included a consent form (see Appendix). Consent was obtained using Adobe e-sign and, in some cases, through in-person signatures. Audio recordings were made during the interview sessions and remained accessible only to the researcher to address confidentiality concerns. These recordings were subsequently transcribed into anonymous texts for analysis and deleted thereafter (see Appendix). The datasets generated from the interviews consisted of audio recordings, transcripts, field notes from the researcher and additional documents provided by the interviewees.

Limitations
Semi-structured interviews, while valuable for discussing concepts and clarifying observations, have their limitations (Onwuegbuzie et al., 2010; Ortlipp, 2008; Rubin & Rubin, 2012). In a traditional ethnography, where the researcher spends considerable time immersed in the culture, the interview approach requires caution to prevent the researcher from projecting their own ideas onto the participants. It is essential to allow participants to express their perceptions of the phenomenon (Wolcott, 2009). As a human researcher, complete removal of bias is impossible, and despite efforts to mitigate bias, some subjectivity may have been present in the interviews. An interview guide was utilised to address this, and member checking was employed during the interviews to ensure accurate capture of the interviewee's intended meaning. Additionally, data saturation guided the data collection process to mitigate the influence of a single personal lens during the data collection.

4.2.3.5 Observations

The ethnographic method of observation played a significant role in the qualitative data collection process for this research and as part of the ethnographic case study. Observation involves the researcher immersing themselves in the culture or context under study and documenting their observations and interactions with the participants (Holloway et al., 2010; Landau & Drori, 2008; Marshall & Rossman, 2016). By becoming the data collection instrument, the researcher gains a firsthand understanding of the culture and can interpret their observations for external audiences (Marshall & Rossman, 2016; Onwuegbuzie et al., 2010). As such, participant observation is a qualitative research method that involves the researcher immersing themselves in the context or culture being studied and actively participating in the activities of the participants (Spradley, 2016).

Aim and structure
As a researcher, I adopted the role of a participant observer (Zieman, 2012). However, due to the COVID-19 pandemic and restrictions still in place, physical shadowing of the sites was limited. Instead of physically immersing myself in participant environments, I could engage in online activities, including many remote workshops and meetings, using platforms like Microsoft Teams and Miro. The observations were intended to provide insights into challenges concerning information sharing, imagination and governance in contemporary design practice and business transformation across organisational levels. By participating and engaging in these virtual activities, I had the opportunity to witness daily practices, routine interactions, processes, behaviours and the organisational ways of working across teams. Joining running projects and participating in regular team meetings, such as weekly check-ins, planning sessions, reviews and deep dives, allowed me to gain insights into the ongoing processes and interactions within the groups. At times, the observation extended to the people's daily lives, encompassing their exchanges with each other, both formal and informal conversations and their habits. This approach offered an opportunity to collect honest and detailed information about the participants and their ways of working, providing a deeper understanding of their behaviours and practices. This allowed me to identify areas where enhancements could be made using a commons-based lens, emphasising collaborative and sustainable practices.

In this thesis, different types of participant observation (Brancati, 2018) were employed to capture a comprehensive view of the participants' experiences. One approach utilised was passive participant observation, where the researcher observes and records the behaviours of the subjects in their natural environment without actively conversing or interacting with them. Joining existing meetings and shadowing work processes allowed for the unobtrusive observation of participants' behaviours and routines, providing valuable insights into their everyday practices. Another approach used was active participant observation, which involves researchers engaging in conversations and actively participating

in the daily life of the groups being studied. In the case study site, regular opportunities were provided for me to observe current processes and ways of working, typically around 4-5 times a week. This allowed for deep immersion in the projects and facilitated the development of trust with research participants. Through interviews and interactive workshops, I could converse with participants, gaining a deeper understanding of their activities, customs, rituals and routines. This active involvement facilitated a more interactive and participatory research process, enabling me to delve into the perspectives and experiences of the participants more directly. Combining these different types of participant observation with interviews, I triangulated and validated the findings, comparing the observed behaviours with the participants' thoughts and perspectives. This methodological approach allowed for a rich and nuanced understanding of the research context, bridging the gap between what people say and what they do.

Table 17: Overview of observations

# Occasion	Type of observation	Topic	Participating groups	# of people	Date / Location	Avg. duration
1	Passive	Loyalty membership sustainability	Loyalty programs, internal service designers, researcher	3	April 2022 / remote	30 min
1	Active	Sustainability in service design	Internal service designers, service design consultants, researcher	10	April 2022 / remote	60 min
1	Active	Sustainability approach workshop	Internal service designers, service design consultants, researcher	12	Aug 2022 / remote	90 min
1	Passive	EU taxonomy	ESG consultant, service designers, researcher	3	Sept 2022 / remote	40 min
1	Passive	Company sustainability strategy	VP sustainability, service designers, researcher	3	Oct 2022 / remote	60 min
1	Active	Service design sustainability strategy	VP business transformation, Director service design, Senior service designer, Service designer, researcher	5	Nov 2022 / remote	30 min
1	Active	Service design team purpose	Internal service designers, researcher	11	Dec 2022 / remote	60 min
10	Passive	Weekly All-hands meetings	Digital sales team, service designers, researcher	100+	April 2022-Dec 2022 / remote	5h / 30 min
10	Passive	Weekly service design practice reviews	Internal service designers, service design consultants, researcher	12	April 2022 - Dec 2022 / remote	10h / 60 min
45	Active	Weekly sustainability meetings	Internal service designers, researcher	3	June 2022-May 2023 / remote	24h / 30 min

Data use and confidentiality
Given the ongoing COVID-19 measures and remote working setups of the participants, most of the observations took place remotely using Microsoft Teams and Miro. I relied on field notes, capturing key details and significant observations during online meetings, workshops and collaborative activities. I also took screenshots of collaborative Miro boards to preserve visual representations of the participants' collective work and ideas. These documentation methods served as valuable resources for analysis and interpretation in the later stages of the research. To ensure anonymity, I only recorded the roles of individuals present in the virtual settings, respecting their privacy. Internal documents shared with me were analysed, and observational notes were taken. However, to honour the NDAs in place, these documents were not stored on my computer or any external storage device. As a result of the NDA clauses, also, these documents cannot be openly shared or visualised in this thesis.

Limitations
Direct observation has limitations (Marshall & Rossman, 2016; Salem, 2008). The researcher serves as the research instrument and is inherently influenced by their personal perspectives and biases (Wolcott, 2009). To address this limitation and enhance objectivity, researchers employing direct observation should transparently acknowledge their position and openly discuss their perspectives (Holloway et al., 2010; Landau & Drori, 2008). The lack of physical presence and direct immersion in the context may have limited the depth and breadth of observations as they would have taken place in non-Covid times. Non-verbal cues and subtle nuances of interpersonal dynamics may have been missed, and the virtual setting could have influenced participants' behaviours and interactions to some extent. To mitigate the limitations of remote participant observation, strategies such as establishing rapport, member checking, multiple data sources, reflexivity and triangulation were employed to enhance the quality and validity of the observation.

4.2.4 Action research

Action research (see also 6.3) has emerged as a crucial approach in this research as part of design research approaches (Swann, 2002), particularly in developing and testing practical, commoning methods for contemporary design practice (Koskinen et al., 2011). By actively involving practitioners in my research process, action research encouraged hands-on, iterative exploration of observed planetary design challenges and opportunities through commoning approaches. This method enabled the identification of real-world challenges and the development of context-specific solutions through a combination of theory and practice based on 'research through design' and 'research for design' approaches as defined by Frayling (1993). The value of employing action research in this context lies in its ability to bridge the gap between academia and design practice, facilitating the generation of theoretically grounded and practically relevant knowledge.

4.2.4.1 Participatory action research

Action research (AR) can be integrated with organisational ethnographic case study research, allowing researchers to experiment with insights gained and test tangible approaches as part of practice-based research (Lewin, 1946; Koshy et al., 2023). In action research, researchers collaborate with participants to address problems or enact changes in practice, with practitioners actively contributing their reflections and insights regarding the specific area of focus (Feldman, 2022). This reciprocal engagement between researchers and participants allows for a collective effort in problem-solving and practice improvement. AR emphasises the integration of action and research outcomes and involves collaborative learning and knowledge production among stakeholders, focusing on local contexts and societal changes. I am using a participatory action research (PAR) approach as part of the empirical research. PAR, a form of AR, involves the active involvement of academic researchers and participants,

fostering action, co-research and co-production of knowledge (Zeller-Berkman, 2014). Enhancing the participation and involvement of key stakeholders, including employers, partners, customers, citizens, policymakers and end-users, has been recognised as a means to bolster innovation and implementation (Gallup, 2018; Gautam, 2017). PAR blurred the line between researcher and researched while emphasising group participation and mutual trust. By incorporating multiple perspectives through PAR, context-specific and practical knowledge can be generated, positively impacting citizenship and social justice. In recent years, terms such as co-creation, co-design and co-production have emerged to describe specific methods within the PAR framework (Vargas et al., 2022). As described by Gjoko Muratovski (2016), co-design is a vital aspect of action research in design. It involves collaborative work between designers and end-users, empowering the latter to participate in the design process actively. Co-design brings a human dimension to the built environment and allows residents to influence the design, creating a deeper client-designer relationship. This approach expands the scope of design to address various concerns and systems beyond just tangible products. It promotes inclusivity, relevance and social change. By combining action research with co-design and co-creation techniques, this research aimed to actively engage case study participants in the design of potential design interventions to address planetary health challenges. This approach aligned well with a contemporary design approach, where co-creation fosters collaboration and generates innovative solutions.

As a result, a set of participatory action research activities were conducted at the case study site to co-create and test potential commoning resources for designers. The scoping research insights (see 5.1 and 5.2) provided a first direction for structuring and designing the activities of the action research, which was helpful as I found a lack of guidance for a real-world application of commoning principles despite the extensive academic literature on the commons. Insights from the scoping research allowed me to identify the first three commoning activities to test at the case study site. Building on Meadows's concept of system leverage points (1999) and Abson et al.'s nested hierarchy of system interventions (2017), I initiated the action research by focusing on a level with less systemic resistance to change, concentrating on influencing 'parameters' and 'feedbacks' (Abson et al.) related to information and knowledge challenges.

This approach helped to bridge the theory of the commons with practical application. As a strategic choice, it aligned with insights from participant observations and interviews (6.2) that revealed critical knowledge and awareness gaps regarding sustainability and systems theory. It also resonated with insights from the scoping research (chapter 5), which highlighted the need to begin with an awareness session that allows participants to align on the urgency of change and the need to move beyond sustainability alone. I subsequently worked on two levels of system interventions: from influencing parameters through awareness to design and intent through prototyping commoning to explore my specific research questions.

Table 18: Key concepts influencing the design of the action research

System leverage points (Meadows, 1999) In increasing order of effectiveness and change resistance	**Nested hierarchy** (adapted from Abson et al., 2017)	**Levels of systemic intervention in this action research**	**Working hypotheses and research questions** (and how they relate to Meadows and Abson et al.)	**Action research activities: Co-creation workshops**
Parameters & numbers	Parameters	Awareness	**Information** Working hypothesis 1 There are inherent information and knowledge gaps around how systems operate, constitute and reproduce themselves in contemporary design practice today. RQ1 How might commoning address knowledge gaps in contemporary design to facilitate designing for living systems?	- Urgency Alignment - ESG Clarity compass
The sizes of buffers relative to their flows				
The structure of material stocks and flows				
The lengths of delays, relative to the rate of system change				
The strength of negative feedback loops	Feedbacks			
The gain around driving positive feedback loops				
The structure of information flows & access				
The rules of the system (incentives, punishments, constraints)	Structures	Prototyping Commoning	**Governance** Working hypothesis 3 Contemporary design lacks the understanding of how to incorporate commoning principles to support sustainable and collaborative governance. RQ3 How might commoning inform contemporary design practice to facilitate creating collaboration infrastructures?	- Commoning principles workshop - Shared Purpose map - SES Ecosystem mapping - Collaboratio n Canvas - Planetary Actors cards
The power to add, change, evolve, or self-organise system structure				
The goals of the system				
The mindset or paradigm out of which the system arises	Intent		**Imagination** Working hypothesis 2 Designers' imagination is in part limited by the human-centric, neoliberal economic paradigm, constraining much-needed explorations of human/nature interconnections. RQ2 How might commoning enable a shift from a human and growth-centric paradigm towards a relational and regenerative design practice for planetary health?	
The power to transcend paradigms				

In the initial sessions (6.3.1), the focus was to align on the urgency for change and understand sustainability and regeneration, while also highlighting the limitations of current design approaches. An interactive exercise assessed team knowledge and capabilities related to planetary health and encouraged discussions on future priorities, addressing the systemic intervention levels of 'parameters and feedbacks'. In the next research phase (6.3.2), commoning principles were explored to identify gaps and improvements in contemporary design for planetary health, resulting in a list of potential commoning resources, addressing the systemic intervention levels of 'structures and intent'. Finally, selected commoning resources – including a commoning Design workshop, Shared Purpose map, SES Ecosystem mapping tool, Collaboration Canvas and Planetary Actors cards – were prototyped. Some of the prototyping sessions were conducted in a more intimate setting, involving 1-2 service designers at the case study site. Regular weekly check-in meetings were held with the two service designers from the case study site to ensure the continuous iteration of the resources. The in-depth nature of these sessions allowed for a focused and tailored approach to addressing the specific needs and challenges faced by the service designers, ensuring the relevance and effectiveness of the proposed commoning resources. The following section describes the co-creation workshops in more detail.

Co-creation workshops

Co-creation workshops, derived from Design Thinking and contemporary design studies, offer a productive way for data collection in a condensed time frame compared with individual interviews. These workshops bring together a group of participants and an experienced facilitator/moderator in a convenient location or online setting. A series of co-creation workshops were created for this research to respond to emerging empirical insights. Case study participants were invited to contribute their perspectives, thoughts and opinions through various exercises, enabling the co-creation of answers and feedback. As the researcher, acting as a direct observer, I could document participant interactions through note-taking while guiding the workshop dynamics.

Aim and structure

A series of co-creation workshops (see 6.3) were conducted with the case study organisation to facilitate collaborative engagement, generate insights and to co-create and test potential commoning resources for designers. The first two workshops (see Appendix) served as urgency awareness sessions, establishing a shared understanding of sustainability and regeneration amongst participants while highlighting the limitations of current sustainability approaches (6.3.1.1). These sessions aimed to align participants and foster a collective direction for the team. Building upon the insights, the second workshop (see Appendix) involved an interactive mapping exercise, exploring existing practices related to information, imagination and governance challenges through an ESG (environmental, social and governance) lens of sustainability (6.3.1.2). This workshop assessed team capabilities and practices, and encouraged discussions on desired future states. The third workshop (see Appendix) employed a commons lens to analyse current design practices, identifying shortcomings and brainstorming on Ostrom's core design principles to enhance design processes with care, autonomy, sufficiency and based on cooperation (6.3.2.1). This workshop identified several opportunity areas for the team to address key challenges around information, imagination and governance, including the development and integration of an ecosystem mapping tool into design practice. The fourth workshop (see Appendix) focused on communicating the findings from the previous sessions and further solidifying a shared team purpose for contemporary service design practice within the organisation (6.3.2.2). The fifth workshop series (see Appendix) concentrated on developing an ecosystem mapping tool, drawing on Ostrom's SES framework to guide designers in adopting an ecosystem perspective and formulating a methodology for its practical application (6.3.2.3). The sixth workshop (see Appendix) addressed the need for better collaboration across functions and other governance by prototyping a Collaboration Canvas based on Ostrom's commoning principles (6.3.2.4). And, finally, at the seventh workshop,

Planetary Actors cards (see Appendix) were prototyped to shift from a human-centric design approach towards addressing planetary health (6.3.2.5).

Table 19: Overview of co-creation workshops

# Occasion	Activity / Workshops	Participating group	# of people	Date / Location	Total length / avg. duration
2	Urgency Alignment (see 6.3.1.1)	Business transformation team, including service design, change management and business architecture teams, Digital sales team	40	Sept 2022 & Oct 2022 / remote	2h / 60 min
1	ESG Wheel (see 6.3.1.2)	Service design team, business architecture team	6	Sept 2022 / remote	120 min
1	Commoning Design (see 6.3.2.1)	Service design team, VP of Business Transformation	13	Nov 2022 / In-person Germany	90 min
1	Shared Purpose map (see 6.3.2.2)	Service design team, VP of Business Transformation	13	Nov 2022 / In-person Germany	60 min
6	SES Ecosystem mapping (see 6.3.2.3)	Service design team, internal sustainability experts	11	Jan - Feb 2023 / remote	24h /240 min
3	Collaboration Canvas (see 6.3.2.4)	Service design team	6	Apr - June 2023 / remote	90 min
3	Planetary Actors cards (see 6.3.2.5)	Service design team	2	Sept 2023 / remote	120 min

Data use and confidentiality

No individual consent form was created during the co-creation workshops, as the workshops formed part of the NDA agreements. During the co-creation workshops, an upfront introductory section was included to explain to participants how the data would be used in my PhD study, including the intended use of workshop outputs. This transparency ensured that participants were informed about the purpose and confidentiality of their contributions. Ethical considerations were upheld and participants were provided with the opportunity to opt out of the use of their data.

Limitations

It is important to acknowledge the limitations of a co-creative workshop approach. Despite its strengths in generating rich and diverse insights, the workshop format may not capture the full depth of individual perspectives that could be obtained through individual interviews. The dynamics of group settings can shape participants' responses, potentially compromising the authenticity of individual viewpoints. Mitigation strategies such as incorporating individual reflection exercises within the workshop or conducting follow-up interviews helped to address this limitation and provide a more comprehensive understanding of participants' perspectives.

4.2.4.2 Commoning artefacts

Participatory prototyping of commoning artefacts aligned with my research goals as it allowed for a deep exploration of the commoning phenomenon while actively involving relevant stakeholders in the research process (Muratovski, 2016). By embracing participatory prototyping, this prototyping approach acknowledged the value of co-design in tackling complex challenges and generating meaningful insights for practitioners (Muratovski, 2016). The use of design resources and artefacts also held value within the 'Research for Design' approach (Frayling, 1996). Design resources, such as physical models or digital prototypes, can manifest ideas, concepts and potential solutions for designers (Muratovski, 2016) and allow researchers to explore and communicate concepts and facilitate iterative development processes (Buur & Donovan, 2012 and Gaver, 2012).

Aim and structure
By embracing the prototyping of commoning artefacts, the action research aimed to co-create practical commons-inspired activities that explore a more relational and regenerative approach to design. The goal was to develop and test a set of resources and to understand if they can help designers and organisations navigate a transition towards planetary health while dealing with some of the information, imagination and governance challenges revealed. Each action research activity culminated in the creation of a unique set of commoning artefacts, such as templates and detailed activity sheets, which outline the specifics of each commoning activity. The process of prototyping commoning artefacts involved a collaborative approach, recognising the need for templates and structured starting points. Participants consistently expressed a preference for having a template to work with, even if they intended to modify or redesign it to suit their specific needs. This insight led to the initial step in the prototyping process: creating draft outlines and templates for each commoning activity. As I progressed through the action research activities, the templates underwent an iterative refinement process. This iterative process allowed me to pinpoint areas where each template required adjustment and enhancement.

The artefact prototyping sessions were facilitated through regular check-in meetings with the service design and sustainability leads, allowing for continuous development and collaboration. The participants typically involved 1-2 core research participants from the case study site, who provided insights into the evolving practices and offered feedback on using commoning resources in their work. Feedback from participants was a crucial element in this stage to test usability and effectiveness of the templates. Each round of feedback led to improvements in the templates, with careful consideration given to the participants' comments and suggestions.

The research initially focused on the in-depth prototyping of seven specific commoning activities within the available time frame (6.3). However, the findings from the case study underscored the importance of not only developing individual commoning activities but also *designing commoning* as a concept in itself (7.1). This involved aligning additional activities with commoning principles and incorporating them into a framework for a relational design approach using the commons. As a flexible framework, commoning could then empower other designers to further explore and experiment with commoning, emphasising the notion that commoning is not a singular fixed process but a pluralistic and context-driven practice.

In response to participant feedback, a suite of commoning artefacts was crafted to bridge the gap between theory and practice (7.1.1 and 7.1.2). The first of these, the **Commoning compass**, is a tailored adaptation of Elinor Ostrom's eight design principles for an organisational design context. It provides signposts for activities that can foster collaboration, with each original principle now refined for accessibility and practical implementation to re-orient design towards a more collaborative,

planet-centric and commons-inspired practice. Accompanying the Commoning compass is the **Commoning canvas**, designed as a tool that allows practitioners to develop their unique commoning activities. It replicates the Commoning Design co-creation workshop and encourages teams to start with tested activities or complement these with their own ideas. Lastly, the **Commoning cards** were synthesised from the research, corresponding to commoning principles. They serve as prompts for activities that can address commoning questions and facilitate the conditions and infrastructures necessary for improved collaboration within groups. Each card suggests an activity and prompts for implementation. The research then gathered feedback from participants in the action research, helping to identify specific scenarios and use cases for applying commoning artefacts within design and organisational contexts (7.1.3).

Table 20: Overview of commoning artefacts

# Occasion	Commoning artefacts	Feedback participants	# of people	Date / Location	Total length / avg. duration
1	Commoning compass	Service designer, researcher	2	Nov 2023	30 min
1	Commoning canvas	Service designer, researcher	6	Nov 2023	30 min
1	Commoning cards	Service designer, researcher	2	Nov 2023	30 min

By employing artefact prototyping as a research method, I aimed to bridge the gap between theoretical investigations and practical applications, facilitating the translation of research findings into actionable outcomes. This approach intended to generate meaningful and contextually relevant approaches that address planetary health challenges and opportunities within contemporary design practice using a commons lens.

Data use and confidentiality
Consent forms specific to artefact prototyping were not developed due to the inclusion of this activity within the existing NDA agreements. Given the ongoing relationships and established trust with key participants at the case study sites, a conducive environment was created to continuously explore concepts and ideas, facilitated by regular check-ins and a high level of trust.

Limitations
One limitation of the artefact prototyping sessions was the limited scope towards the end of the empirical fieldwork phase. These sessions involved in-depth interactions with only 1-2 key participants in the case study, with whom I had established a high level of mutual understanding and trust. While these sessions facilitated thorough exploration and refinement of the prototypes within the case study organisation, it is important to acknowledge that the generalisability of the findings might be limited. To address this limitation, further testing and validating the prototypes with a broader range of actors and contexts might be necessary to ensure their applicability in diverse settings and mitigate potential biases or constraints. Another limitation of the artefact prototyping sessions is that they primarily focused on testing commoning activities within existing organisational structures to improve and enhance these structures. While the theoretical discussion demonstrated the potential of the commons to support alternative regenerative economic structures, the artefact prototypes focused on enhancing existing systems and modes of collaboration between individuals and teams rather than catalysing the development of entirely new commons. It would be valuable to further explore the applicability and effectiveness of the artefacts in the context of developing new commons, such as shared ownership of

land or transforming businesses towards steward ownership models of governance. This would provide insights into the feasibility and adaptability of commoning artefacts in fostering more transformative change outside of the dominant system and enabling the emergence of new regenerative economic structures (Wheatley & Frieze, 2006).

4.3 Evaluation of empirical research

In this last methodological section, I summarise the data collection methodology and my research positionality and critically analyse the validity, reliability and generalisability of my empirical research to situate my findings in a broader context for the reader. By deconstructing the research process, I aim to provide transparency and insight into the strengths and limitations of my study's findings. This assessment allows for thoughtful consideration of the applicability and transferability of the results beyond the specific research context.

4.3.1 Data collection and analysis

Muratovski (2016) discusses how data collection in case studies involves gathering information from diverse sources, such as archival records, documentary sources, physical artefacts, newspaper articles and audio-visual materials. Ethnographic research methods are also essential for data collection (Yin, 1994). In the context of action research, data collection is closely intertwined with the design process itself (Muratovski, 2016). It often follows a participatory approach involving stakeholders affected by the proposed solution (Crouch & Pearce, 2012). Following Muratovski's (2016) guidelines for qualitative case study and action research data collection and analysis, this research collects data from the case study and action research activities, including documents, text transcriptions, audio recordings and field notes obtained through interviews, observations, co-creation workshops and artefact prototyping. The findings and discussion section involved a systematic analysis of themes and insights from the co-creation workshop observations, allowing for a comprehensive understanding of the application of commoning by design practices. The data collection and analysis process involves several steps (Muratovski, 2016):

Step 1: Identify research data sources and range of study
Based on the research questions, data sources were identified based on the availability and manageability of materials.

Step 2: Gather data
Workshops and research activities provided rich data in the form of observations and feedback from research participants. After completing the data collection process, notes were consolidated by organising and bringing together the various collected data sources.

Step 3: Collate and organise data
Then, all collected data was organised by team and date to establish a clear structure.

Step 4: Categorise data
The data was categorised into information, imagination, and governance challenges to align with the working hypotheses and questions. Some materials belonged to multiple research hypotheses and questions. The focus was on identifying commonalities and themes within the collected data.

Step 5: Identify patterns and themes
Once the categorisation was complete, each category was examined to identify specific attributes or subcategories through a process known as open coding (Muratovski, 2016). This involved condensing the data into concise themes accurately representing the studied phenomenon. Codes were created using Atlas.ti software for interviews and participant observations. Common patterns and themes were identified by comparing interviews and observations, highlighting areas of alignment and divergence among participants. Mind mapping boards and software tools like Miro and Atlas.ti were used to interpret and represent the data. For the co-creation workshops and action research, thematic analysis, following Virginia Braun and Victoria Clarke (2006), was applied to qualitative data. The process involved the systematic identification and exploration of patterns and themes within the workshop observations. This allowed for the extraction of meaningful insights and the development of key theoretical constructs related to commoning by design.

Step 7: Analyse data
The data analysis in this thesis focused on a detailed investigation of the selected case study, addressing the following questions (based on Muratovski, 2016, p. 111):

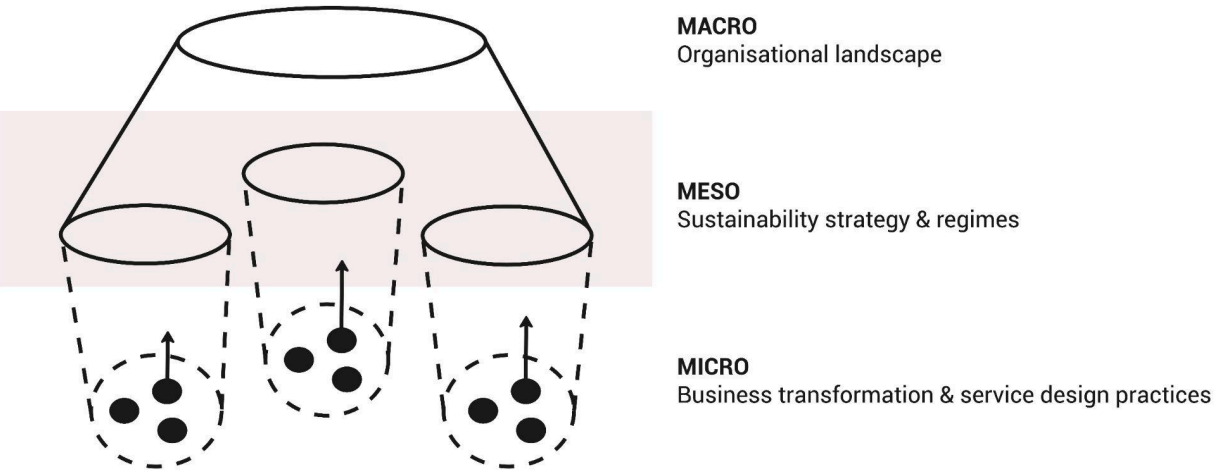
- *Does the collected evidence align with the initial working hypotheses?*
- *Have any findings challenged the initial theories based on the reviewed literature?*
- *Were there any unexpected or surprising discoveries?*
- *Have there been any unfruitful or misleading leads?*

Thematic analysis served as the foundation for refining key theories about commoning by design. These theories were developed based on the patterns and themes identified in the data. Central among these theories was the exploration of commoning practices and principles in the context of contemporary design. The thematic analysis of qualitative data was methodologically grounded in established qualitative research practices (Muratovski, 2016 and Braun and Clarke, 2006). This included employing a systematic and iterative approach to data analysis, ensuring rigour in the identification and interpretation of themes. The methodological grounding also encompassed a critical reflection on the findings and analysis process, addressing potential biases and considering alternative interpretations of the data. This reflective aspect of the analysis aimed to enhance the validity and trustworthiness of the findings.

In addition, the multi-level perspective (MLP), as proposed by Frank Geels and René Kemp (2000), offered a valuable framework for analysing the case study context and understanding sustainable transitions within the organisation (see 6.1). The MLP suggests that transitions occur through dynamic interactions across three analytical levels: macro, meso and micro. The micro level represents localised 'niche' contexts where innovative ideas and practices emerge. The service design team operates within these niches in the case study, generating transformative ideas and implementing them into business practices. This level provides a fertile ground for experimentation and developing novel approaches. The meso regime level encompasses the dominant sets of rules, norms and practices that shape the functioning of a specific domain. Within the organisation, the sustainability strategy, information communication and implementation policies formed part of this regime. Understanding the regime level was crucial, as it influenced and constrained the possibilities for sustainable transitions within the organisation. The socio-technical landscape level refers to the broader external context in which the organisation operates. It includes economic, political and societal factors that shape the boundaries and conditions for transitions. By considering the organisational landscape at a macro level, such as the overall business purpose, core proposition, revenue generation, ownership structure and operational

setup, I could gain insights into how external forces and factors influence sustainable transitions across teams. This level encompassed economic, political and societal factors that shaped the boundaries and conditions for possible transitions. Integrating the macro, meso and micro levels of analysis within the MLP, allowed me to understand the dynamics and interplay between niches, socio-technical regimes and the socio-technical landscape.

Figure 28: Multi-level case study analysis, adapted from Geels and Kemp, 2000



As a result, Geels and Kemp's multi-level perspective (MLP) enabled a comprehensive examination of ongoing organisational transitions at various levels, and, importantly, the complexities involved in enacting commoning principles. This approach also enhanced my understanding of the intricate and systemic nature of the case study organisation. Moreover, as a model, it is directly related to the research's exploration of planetary health challenges (see 5.1 and 6.2), revealing that these challenges are inherently interconnected across multiple organisational levels, reinforcing the need for a holistic approach to address them effectively.

Ultimately, the above processes contributed to synthesising findings that helped refine my theoretical working hypotheses, aiming to establish commoning and a set of commoning artefacts as a perspective for evolving contemporary design practice. That said, these processes did not account for a critical reflection on the researcher's own positionality and how this can influence data collection, analysis and interpretation. Therefore, I will touch on that briefly in the next section.

4.3.2 Positioning myself in the research

In this research, I acknowledge the inherent subjectivity and situated nature of the qualitative inquiry, recognising that the researcher's perspective influences the findings. This study does not claim to offer an objective depiction of design and sustainability practices; rather, it reflects my situated and subjective viewpoint. Drawing on my extensive practical experience in service and organisational design spanning nearly two decades in Europe and North America, my prior knowledge and professional background inform the meaning-making process in the field and the interpretation of existing theory. In addition, it is crucial to acknowledge that my identity shapes my knowledge and perspective as a white woman educated in Western institutions of the Global North.

The findings and discussions presented in this thesis are influenced by the specific temporal, spatial and relational contexts in which the research unfolded. For instance, being situated within an art university focusing on practice-based research, the opportunities and constraints associated with this position are reflected in the thesis. The engagement with the service design community and collaborations with economists have enriched my thinking and contributed to developing ideas. However, certain compromises were made regarding the knowledge tested and emphasised in this research, with a particular focus on testing commoning approaches in organisational transitions within the prevailing neoliberal economic paradigm.

While engagement with the case study primarily allowed me to explore changes within existing structures rather than the design of entirely new collaborative commons-based infrastructures, the potential for broader systems change through the commons has been identified. The contextual considerations and the need for acceptance within the scholarly community have influenced the research's scope, criticality and positioning.

While efforts have been made to adopt a reflexive approach, acknowledging the role of social structures in enabling or constraining the research, my awareness will always remain partial. Engaging with other researchers and practitioners in economics has helped address some blind spots, but further improvements and continued research will always be needed. Therefore, it is essential to recognise that this research is an evolving and situated process influenced by social and cultural contexts and individual interpretations.

4.3.3 Research validity, reliability and generalisation

This qualitative empirical study acknowledges the inherent influence of my position as the researcher. However, measures have been taken to enhance the validity and credibility of the findings. One key approach in this thesis is the implementation of triangulation based on Flick (2011, 2018), which involves adopting multiple perspectives to address research questions and achieve a more robust understanding of the phenomenon being studied. This study employs four forms of triangulation: methodological, data, investigator and theoretical triangulation.

Methodological triangulation is evident through the use of various methods, including mixed methods such as surveys, observations, interviews, and analysis of archival data and documents provided by the case study sites. These methods provide different exploration angles, allowing for a more comprehensive understanding of the working hypotheses and questions. The qualitative analysis involves the creation of codes and themes, which are validated through additional fieldwork, interviews with case study participants, and consultations with professionals in the fields of service design, sustainability and regeneration.

Data triangulation is achieved by collecting data from diverse sources, such as different organisational levels within the case study sites and over an extended period of time. This multi-source and longitudinal approach provides a more comprehensive view of the phenomenon under investigation. Furthermore, the data collected is triangulated through the qualitative analysis of the scoping review outcomes, which includes conducting a survey with design and sustainability practitioners and running two participatory co-design workshops with conference participants.

Investigator triangulation is facilitated through active involvement and collaboration with core research participants as 'co-creators'. This engagement included coaching them to interview and facilitate co-creation sessions next to me based on my workshop designs. The insights and feedback from case study actors enriched the research process and provided additional perspectives on the findings.

Regular presentations and discussions with my supervisors and engagement with other scholars and practitioners through conferences and seminars also contributed to investigator triangulation and enhanced the robustness of the study.

Theoretical triangulation involved comparing and assessing the utility of various theoretical perspectives I have included in my literature review, such as design theory, systems theory, posthuman theory, economic theory and the theory of the commons. By integrating multiple theories, this study intended to deepen the understanding of the research questions and explore different explanatory lenses (Flick, 2018; 2011). These triangulation strategies strengthen the validity and comprehensiveness of the study's empirical findings, providing a more nuanced and rigorous account of the phenomenon under investigation.

While generalisability – referring to the extent to which the findings, concepts or relationships identified in a particular study can be applied to a broader context – is a consideration in this research, this study places a particular emphasis on context-specific exemplars and the learning that can be derived from them. Exemplars – such as the action research work undertaken with the case study site – offer valuable insights by revealing patterns and nuances, bridging the gap between particularities and formal generalisation. Academic circles and scientific discourse recognise the significance of local and context-specific inquiry, especially in regeneration studies. Scholars advocate for departing from a globalised perspective that prioritises scalability and emphasises the need for highly localised investigations. Regeneration theories stress understanding context-specific factors and challenges, calling for research that delves into local intricacies and develops adaptive strategies. The research, therefore, employs a range of empirical methods, each contributing to different levels of knowledge development, while acknowledging the strengths and limitations of localised and context-specific inquiries.

The qualitative analysis of the scoping research offers broader insights into key practice challenges across contexts, such as different sectors and organisational settings. The organisational ethnographic case study provides a rich but context-specific exploration of contemporary design practice within the context of sustainability and embedded into a specific large-scale organisation. While the findings may not be directly generalisable due to varying organisational contexts at hand, they offer valuable insights into the intricacies of organisational transitions as a phenomenon and provide a model for assessing the information, imagination and governance challenges prevalent in an organisation, as well as how a commons-based perspective may be able to support system transitions. The 'research for design' activities do not seek to generate generalisable insights per se, but rather focus on understanding and prototyping helpful commoning methods based on particular contexts that other designers may be able to build upon. The emphasis lies on the contextual and experiential nature of the knowledge gained, acknowledging its limitations in terms of generalisability. By comparing insights gathered from literature, surveys, observations and interviews, the knowledge generated becomes more transferable and opens up future research fields. Future research should critically assess the transferability of commoning methodologies and their applicability to specific contexts, fostering a nuanced understanding of commoning practices enabled by design and encouraging adaptable approaches based on local conditions.

Conclusion

This chapter offers an overview of the research design chosen for this thesis, which employs three interconnected lenses to shape the methodology. The overarching research philosophy **(Lens 1)** is established upon Saunders' research onion (Saunders et al., 2019). The research methodology **(Lens 2)** adopts a pragmatist and interpretivist stance, drawing from Dewey's pattern of inquiry (1938), enabling a deeper exploration of the research design and emphasising the significance of the practical application of knowledge. The research employs abductive reasoning, qualitative methods and a combination of research into, through and for design (Frayling, 1993). Frayling's distinction guided the selection of creative research methods **(Lens 3)**. By integrating three lenses of resolution, the research methodology was carefully crafted to align with the conceptual and philosophical underpinnings, while incorporating practical and creative approaches to thoroughly investigate the research questions. The discussion on research validity, reliability and generalisation underscored the importance of rigorous data collection and analysis methods, while acknowledging their inherent limitations. The consideration of the researcher's positionality recognised the evolving and situated nature of the research process, shaped by social and cultural contexts and individual interpretations.

Figure 29: The thesis research onion and its interconnected lenses (L2 & L3) zoomed in below; author's own

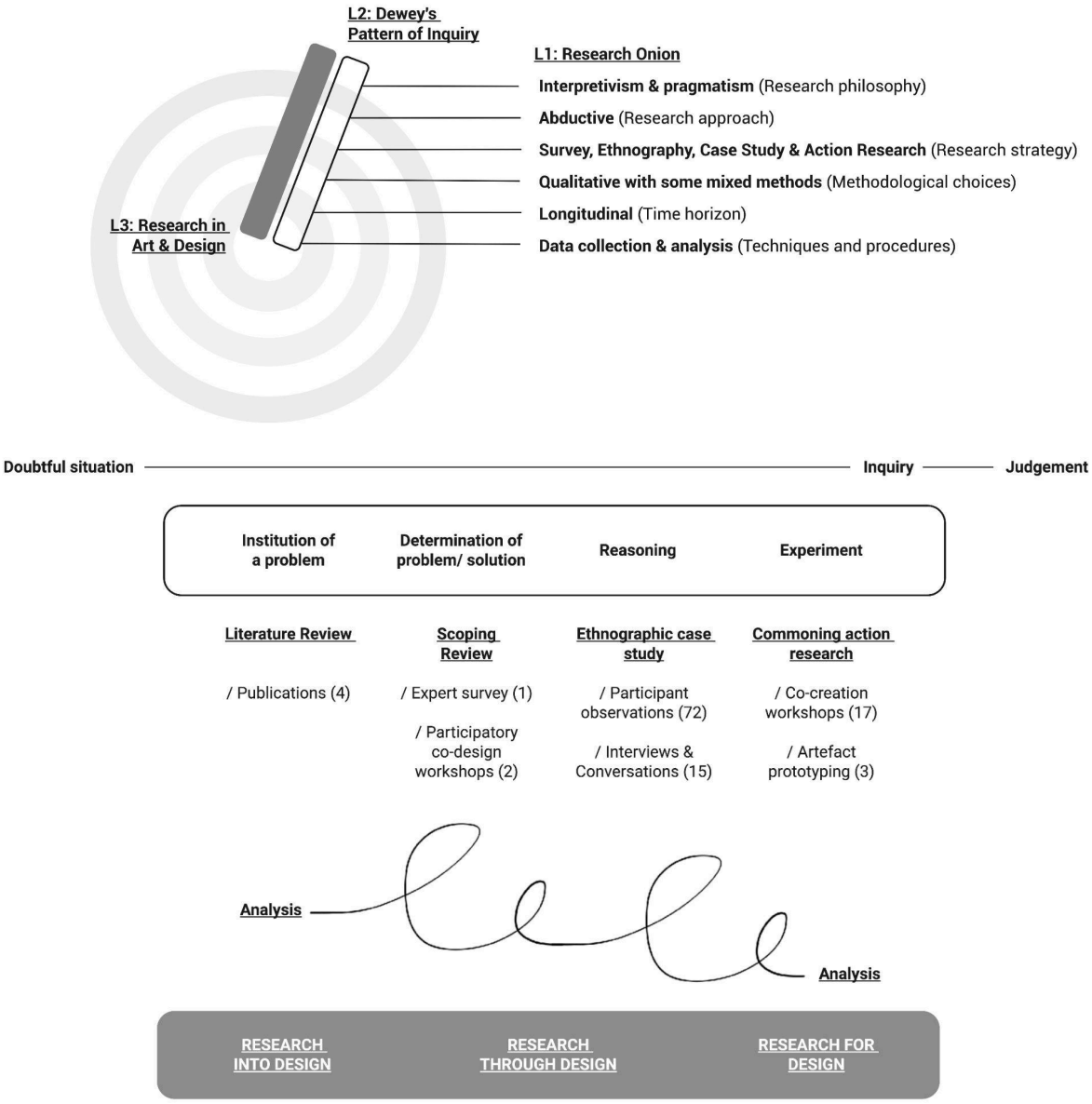


Table 21: Overview of creative research methods and datasets

	Method	Participants	No	People	Date / Location	Avg. duration	Datasets
Research into design	**Literature review**	-	-	-	2018-2021	-	Data from academic papers, books, reports and other publications resulting in literature findings, theoretical frameworks, research aim, working hypotheses and questions
	Publications	-	4	-	2020 - 2023	-	-
Research through design	**Expert Practitioner survey**	International SD / design practitioner community	1	10	March 2022-April 2022 / remote	Over 4 weeks	Survey data
	Participatory co-design workshops	International SD / design practitioner community at RSD11 conference	2	39	Oct 2022 / RSD11 / remote	4 h / 120 min	Miro boards, field notes, workshop transcripts
	In-depth interviews / Informal conversations	Case study site	15	14	Jan 2022 - Feb 2023 / remote	13.5 h / 60 min	Miro boards, field notes, recordings, interview transcripts
	Participant observations	Case study site	72	162	April 2022-May 2023	44 h	Field notes, recordings
Research for design	**Action research / co-creation workshops**	Case study site	17	68	Sept 2022 - Jan 2023	30,5 h	Miro boards, field notes, recordings
	Artefact prototyping	Case study site	3	15	Dec 2022 - Sept 2023	12 h	Miro boards, field notes, prototypes

The subsequent chapters will delve into the empirical research findings, integrating the insights gleaned from the scoping research and case study site. These findings will contribute to a deeper understanding of how planetary challenges relate to contemporary design practice and provide a set of practice-based insights for its advancement through the commons in relation to planetary health.

CHAPTER 5

Scoping research

Planetary challenges in contemporary design

Introduction

This section gives a first glimpse into the realities of contemporary design practice already trying to integrate sustainability and regeneration into its processes. Below, I summarise stories and scoping findings collected and constructed through the initial expert practitioner survey and two participatory co-design workshops at RSD11. These first findings reveal more nuanced insights about design practice and their relation to the three planetary health challenges – information, imagination and governance. The scoping research helped to verify the research framework and working hypotheses in a quick format with pioneering practitioners. It also provided valuable information as to what the specific challenges are for design practitioners already operating at the intersection of design practice and regeneration. Additionally, it offered initial insights as to which of Ostrom's core design principles are perceived to already be implemented in practice and which are not.

5.1 Zooming into the planetary health challenges: The expert practitioner survey

The expert practitioner survey aimed to achieve two main objectives. First, it sought to gain insights from respondents' firsthand experiences in applying a design-led approach to achieve sustainable futures and planetary health. This was crucial in understanding the practical aspects of integrating sustainability into design practice. Second, the survey aimed to understand the planetary health challenges identified in the literature review in the context of contemporary design practice and potential practice gaps. By gathering input from expert practitioners, the survey intended to provide a more comprehensive understanding of the topics in each challenge cluster and contribute to the design of subsequent in-depth empirical research. The goal was to elicit initial information from at least 10 respondents with expertise, specific knowledge or experience in transformation, social and planetary design. The survey questions were deliberately crafted to avoid a bias in respondents' answers and to provide insights into the planetary health challenge buckets, through a focus on projects and pioneering design practices. Instead of seeking simple yes or no responses relating directly to the planetary health challenges, the survey employed a combination of open-ended and multiple-choice questions to delve into the intricacies of real-world projects and practices that begin to incorporate systemic and regenerative approaches in their design processes. This approach aimed to capture an initial understanding of the challenges and opportunities designers face in addressing planetary health concerns, drawing insights from their tangible experiences and practical applications. By structuring the survey in this manner, the intention was to gain a nuanced and context-specific perspective on the various categories of planetary health challenges, thus creating an initial understanding of the diverse ways in which designers can address these challenges. In the following sections, I will explore each challenge area in more detail, examining the specific insights derived from the scoping survey.

5.1.1 Information challenges

The information challenges currently experienced by design practitioners in embedding sustainability approaches into design practice can be summarised as follows.

The strategy/implementation gap: Overcoming the disconnect between sustainability strategy and implementation

Design practitioners face the challenge of effectively translating sustainability ambitions into practical actions in operational terms. Despite many existing policies and regulations at the organisational level, there is often a disconnect between these initiatives and their implementation within organisations. Limited resources and low prioritisation of sustainability metrics can result in actions with minimal impact. Moreover, the lack of integration between sustainability strategies and operational activities widens the theory/practice gap, hindering progress towards sustainable design practices.

Positive existing practices
Based on the survey insights, some design practitioners have implemented several positive practices to enhance environmental and social sustainability. For instance, remote working has been embraced in response to the COVID-19 pandemic, leading to reduced travel and printing of paper documents. Some design practices have permanently established small teams working from home offices, eliminating travel emissions and minimising resource duplication. These practices contribute to environmental sustainability and enhance flexibility and efficiency. Efforts have also been made to improve building, transportation and waste management operations, aligning with national and international regulations. Leadership teams within organisations have often shown endorsement and support for refocusing work and internal operations around the climate crisis. At the employee level, survey participants witnessed high ambitions for sustainability among peers, evident in internal initiatives such as diverting old science equipment from landfills to schools, installing office solar panels for renewable energy, using recyclable materials for business operations and promoting veganism. External advocacy for sustainability, active community engagement, inclusive design training programs and collaborations with charities and public sector organisations, further highlight the positive practices embraced by design practitioners.

> *"We are active in our community, on a weekly basis engaging through public forums. We also recently had one of our staff undertake an inclusive design training programme so that we can better incorporate, particularly in our digital design work, more inclusive, equitable and accessible design experiences and events." Survey participant, Designer, Europe - Transformation focus*

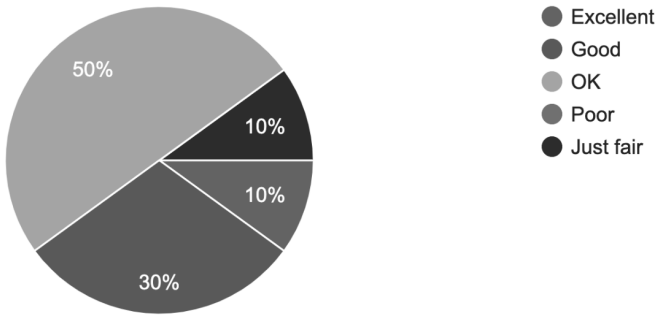
> *"I would say the biggest positive contribution is to remain a small practice where half the team work from the studio on the same property as home, so no travel emissions, and materials, kitchen and food systems are all at hand and not duplicated across two spaces." Survey participant, Senior designer, Europe - Planetary design focus*

> *"We divert old science equipment from landfill and donate it to schools in need. We are installing solar soon to help reduce reliance on traditional energy." Survey participant, Co-founder, Australia - Planetary design focus*

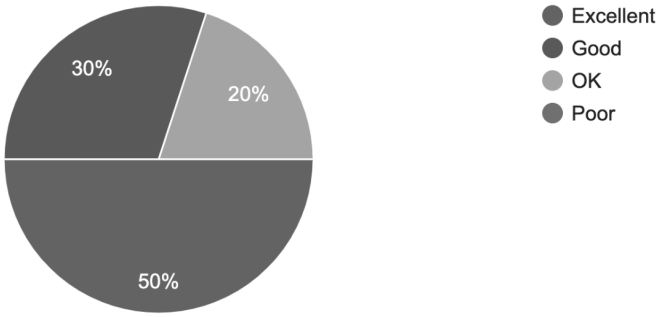
> *"Using renewable and recyclable materials (and) promoting veganism during all our actions." Survey participant, Co-founder, Australia - Planetary design focus*

Figure 30: Two snapshots of expert practitioner survey results; author's own

How good of a job do you think your organization is doing with regard to environmental sustainability? *As a reminder, environmental sustainability ...ewable or recyclable materials, preventing pollution*)
10 responses



How good of a job do you think your organization is doing with regard to social sustainability?
As a reminder, social sustainability refers to goo...ping traditionally disempowered or underserved groups)
10 responses



Remaining information challenges

Despite the positive practices mentioned above, substantial information-based challenges exist to fully embed sustainability into design practice. One significant challenge is the need for more communication and prioritisation of sustainability over other business areas (such as setting key performance metrics), resulting in limited resources for adapting design practices and low-impact actions in existing projects. The coordination between wider sustainability strategies and operational activities needs improvement to bridge the gap between theory and practice. Participants highlighted the fact that sustainability strategy still feels disconnected from everyday work. Additionally, there is a need for better understanding and consideration of the environment as a key stakeholder in the design process, and knowing how to do this appropriately. Traditional design and planning disciplines often limit participation processes to expert consultation involving project stakeholders or shareholders, overlooking the importance of representing diverse interests and needs. Addressing internal diversity within the staff team and improving recruitment processes to ensure inclusivity are crucial steps for advancing social sustainability practices. Challenges related to the hiring process, marketing, storytelling and the absence of a comprehensive social-impact framework impede progress towards sustainability goals. In addition, there is a need for improved information flow and knowledge-sharing within design practice, including stronger interconnections between partners, establishing feedback loops and integrating systemic thinking into design processes. Equipping themselves with the

necessary knowledge, skills and capabilities might enable design practitioners to bridge the gap between ambition and capability, and effectively integrate sustainability into their design practice.

> *"The biggest challenge is knowing where to start!!" Survey participant, Manager, Europe - Planetary design focus*

> *"The words and intention to refocus our work (built environment) and internal operations around the climate crisis is supported by the majority of the company and voiced strongly by leadership in a recent board paper. However, sustainability has not been prioritised over other business areas, little resource is given to the work and the actions selected are low impact." Survey participant, Design director, Europe - Planetary design focus*

> *"We have little time outside of projects for learning and experimenting, which means that we don't have enough time to form our understanding and practice around complex systems change." Survey participant, Senior designer, Europe - Planetary design focus*

> *"We advocate for sustainability externally a lot, but haven't yet implemented an environmental policy and embedded methods in our work to include the environment as a stakeholder." Survey participant, Co-director, Australia - Social focus*

> *"Fixed annual funding is allocated for other specific activities (and) senior leadership (is) deprioritising climate compared to other short-term issues. (There is a) lack of understanding about the scale and urgency of change." Survey participant, Creative Director, Europe - Transformation focus*

> *"Most of our work is focused on social good, through work with charities and public sector organisations (health, local government), but we need a better social-impact framework to assess how and where we're making a positive impact, and identify where we need to improve." Survey participant, Senior User Researcher, Europe - Social focus*

Ambition versus capability: Empowering design practitioners to apply sustainable principles

The next challenge is similar to the previous one but operates at personal, skill and knowledge-based levels. Design practitioners speak about possessing strong personal ambitions to incorporate sustainability into their work but lacking the necessary knowledge, tools and capabilities to do so effectively. This is different to information not trickling down effectively from an organisational strategic perspective; they face information challenges in terms of knowing, understanding and consequently applying regeneration principles on a daily basis. Developing a comprehensive understanding and expertise in sustainability, regenerative economics and systems theory, as well as practical tools to support decision-making seem vital. By equipping themselves with the right skills and knowledge, design practitioners say they may be able to bridge the gap between ambition and capability, and effectively integrate sustainability into their design practice.

Positive existing practices

Design practitioners have shown a strong desire to embrace sustainability, as evidenced by a survey question where approximately 70% of participants expressed a strong desire to be more sustainable, but highlighted their lack of knowledge, tools, processes and capabilities as barriers to achieving their sustainability goals. However, there are positive practices that help them address this challenges. For instance, integrating systems thinking into the design process can provide a holistic perspective, and enable practitioners to identify leverage points for sustainable interventions. Additionally, practical tools

and frameworks for decision-making, such as life cycle assessment and environmental impact analysis, can guide design choices towards more sustainable outcomes.

Remaining information challenges

Design practitioners still face challenges due to personal biases and limited knowledge about the climate crisis, its impacts and alternative practices. These gaps make it difficult for designers to make informed decisions and prioritise actions that effectively address sustainability. To overcome these challenges, continuous learning is crucial to them. Designers speak about the need to educate themselves about the scale of emissions from different sectors, such as energy use and transportation, to ensure they focus on the most impactful areas when designing services. Furthermore, expanding their understanding beyond waste reduction and embracing living systems thinking, complexity science, cognitive science, nonviolent communication and developmental psychology could enhance their ability to design for regeneration.

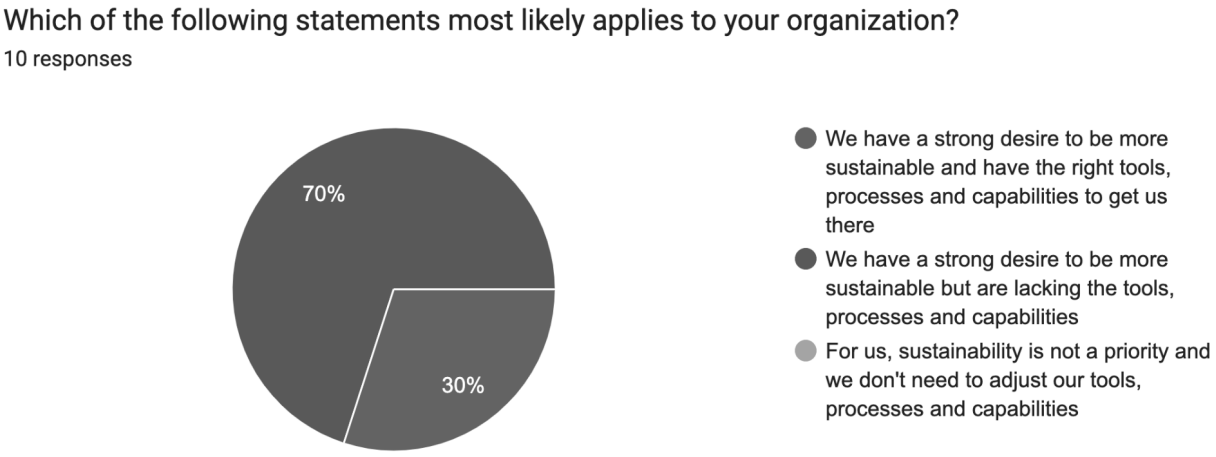
> *"There is low awareness of sustainability and regenerative approach within upper management, the owners and/or shareholders. Fake/empty promises or PR regarding social engagement, seeing ecology as a cost, not a profit." Survey participant, Manager, Europe - Planetary design focus*

> *"We need to develop a much better understanding of systems thinking and systems change theory, including methods and practice, as tools to aid our thinking and our clients' decision-making." Survey participant, Design director, Europe - Planetary design focus*

> *"Lack of knowledge about the climate crisis, its causes and impacts makes it hard for designers to make informed decisions, even with the intention to design for sustainability. It is essential to have a holistic understanding of carbon emissions from key sectors and services to prioritise actions effectively." Survey participant, Design director, Europe - Planetary design focus*

> *"Design practitioners need to overcome these challenges to achieve a more holistic and integrated approach to sustainability in their work." Survey participant, Senior User Researcher, Europe - Social focus*

Figure 31: Snapshot of expert practitioner survey results; author's own



Promoting awareness and shared understanding: Bridging the gap in sustainability definitions

The survey revealed a range of awareness levels and definitions of sustainability and regenerative practices among upper management, owners and shareholders. While differentiating between sustainability and regeneration may not be common practice yet, pioneering practitioners are more likely to grasp the importance of moving beyond sustainability. Promoting awareness and education about sustainability and regenerative approaches becomes crucial to address this challenge, including transcending the notion of sustainability alone and embracing regenerative practices prioritising ecosystem regeneration and giving back. By cultivating a comprehensive understanding of various disciplines and perspectives, design practitioners may bridge the gap in sustainability understanding, and foster a more holistic and regenerative approach to design.

Positive existing practices
Design practitioners with a comprehensive understanding of sustainability and regenerative practices emphasise the importance of extending time to make value judgments based on long-term sustenance, rather than short-term gains. They consider the replenishment of resources, the absorption of waste and pollution and the flourishing of life on the planet as critical aspects of their current design approaches. By adopting regenerative thinking, they aim to go beyond sustainability and actively seek to restore and regenerate ecosystems, positively impacting both present and future generations.

> *"Sustainability to us is based on a compass towards sustainment, which is beyond a productivist paradigm and is more about futuring, which is to always make a value judgement based on what extends time for humans and the biosphere upon which humans depend, rather than taking time away." Survey participant, Co-founder, Australia - Planetary design focus*

Remaining information challenges
However, definitions and understandings of 'sustainability' often vary, lacking a common consensus. Despite positive practices, challenges persist in achieving shared understanding and awareness regarding sustainability and regenerative practices. Some individuals possess a limited understanding of sustainability, perceiving it solely as a means to avoid compromising future human wellbeing. Overcoming this challenge requires comprehensive educational and communication efforts to bridge the gap between the natural world and human society. Design practitioners talk about the need to proactively engage in interdisciplinary learning, drawing on insights from ecology, environmental science, social sciences and economics. By cultivating a more comprehensive understanding of sustainability and regenerative practices, practitioners can address the existing gaps in knowledge. Furthermore, their active involvement in knowledge-sharing initiatives and collaborative endeavours with stakeholders could facilitate the harmonisation of sustainability definitions.

> *"Personally, I bring spiritual and nature practices into my work, but these can often be pushed out on busy projects or with clients that don't align with these values." Survey participant, Design director, Europe - Planetary design focus*

> *"My understanding of sustainability is broad and comes from the MSc in Sustainability & Adaptation I completed a couple of years ago. I understand the need to only use resources at a rate that can be replenished by our planet and only create waste/pollution at a rate that can be absorbed." Survey participant, Creative Director, Europe - Transformation focus*

> *"We think more along the lines of Daniel Wahl's thinking. E.g., sustainability isn't enough; we need to be regenerative." Survey participant, Design consultant, Europe - Planetary design focus*

5.1.2 Imagination challenges

The current imagination challenges faced by design practitioners in integrating sustainability and regenerative approaches into their design practice can be summarised as follows:

Old imagination infrastructures: Overcoming limitations of current business-led approaches

The survey findings highlighted challenges arising from the limitations of current business practices, and established design tools and methodologies, when attempting to integrate sustainable and regenerative practices. These tools often fail to facilitate the necessary systems change, necessitating extensive customisation and adaptation to meet the specific requirements. While sustainability is strategically emphasised, its scope is often confined to a narrow perspective shaped by short-term funding, productivity-driven goals and growth-oriented approaches. Consequently, design practitioners encounter obstacles when extending their tools and processes beyond the confines of familiar methodologies like the Double Diamond, user-centred and agile design methods. It is crucial for the design industry to recognise and address its historical complicity in colonialism, taking proactive steps to rectify these underlying issues. To surmount these challenges, a fundamental shift is necessary, moving from designing isolated solutions to designing for systems and engaging clients in more deliberate and comprehensive practice.

Positive existing practices
Survey participants demonstrated that designers have started to recognise the need to move beyond contemporary design methodologies and embrace a more holistic approach. More and more designers acknowledge the importance of considering the environment and wider systems in decision-making. Some practitioners already actively engage in interdisciplinary learning to inform their design practice. By broadening their knowledge base, design practitioners can better navigate the complexities of sustainability and regenerative design.

> *"We need to learn how to use shared language and meanings with deep respect to nature, the planet, people and other species." Survey participant, Design director, Europe - Planetary design focus*

> *"(We need to) ask questions and frame the project in a way that purposefully surfaces and enables participants to disrupt current mindsets. If change isn't focused at this level, outcomes remain superficial and minimally impactful." Survey participant, Co-director, Australia - Social focus*

Remaining imagination challenges
The survey findings highlighted several imagination challenges that design practitioners face in promoting sustainability and regenerative practices. One such challenge is the mindset of clients and project stakeholders, who often adhere to traditional project frameworks that prioritise efficiency and immediate results, over thoughtful and sustainable practices. Educating clients about the benefits of embracing a more regenerative approach to design can help shift their mindset and create space for innovative solutions. Designers also play a crucial role in actively asking difficult questions and disrupting current mindsets to drive change. Another significant imagination challenge is the lack of infrastructures that encourage experimentation and the exploration of new approaches. Instead, many practitioners adopt a business-oriented, growth-based mindset that prioritises speed and efficiency, often at the expense of imagination and innovative thinking. This limited mindset hinders the development of sustainable and regenerative practices within the design field. Restrictive work routines further impede design practitioners' ability to address sustainability concerns effectively. Projects often

have tight timelines and resource constraints, leaving little room for thoughtful and regenerative design practice. Additionally, climate change is viewed as an additional task rather than recognised as an integral part of design and business. This narrow perspective results in overlooking the broader implications and long-term consequences of design decisions within the wider system. While effective in addressing immediate user needs, user-centred design methodologies can sometimes neglect the larger context of nature and cyclical processes. This short-term focus limits the ability to fully consider the environmental and long-term sustainability aspects of design solutions. Overall, design practitioners point to the need for improved infrastructure, including time to prioritise and learn about sustainability and regeneration. They need a more comprehensive understanding of systems change theory, as well as practical tools and impact frameworks for decision-making.

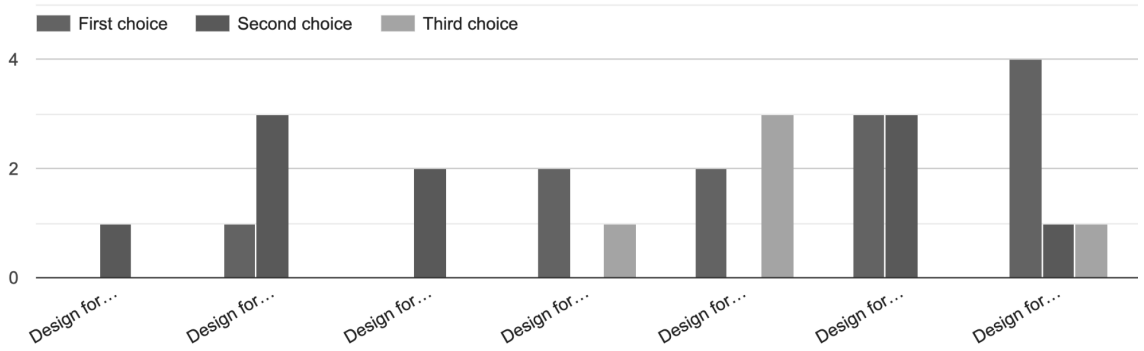
> *"People are in so much of a rush (and) business practice takes over, rather than the solution." Survey participant, Designer, Europe - Transformation focus*

> *"As long as a particular designer or design team is uprooted from nature and (natural) cycles, (it) is not easy to design and talk about responsible solutions for the environment." Survey participant, Design director, Europe - Planetary design focus*

> *"Design tends to be self-focused on its own discipline and methodologies (and is) yet to evolve to include key knowledge and methods from other disciplines, which would enable us to better consider the environment and wider systems in decisions." Survey participant, Co-founder, Australia - Planetary design focus*

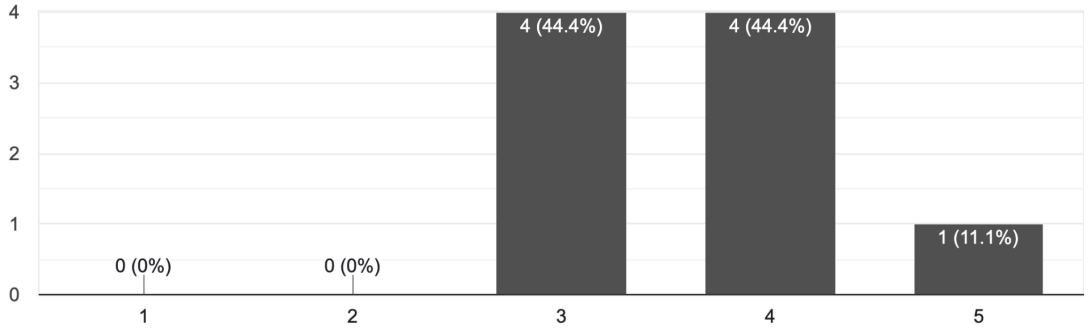
> *"Listen. Be in silence. Get comfortable with nothingness. Otherwise, we design blindly. Designers are not very well equipped to deliver those activities!" Survey participant, Senior designer, Europe - Planetary design focus*

80% of the ecological impacts of a product are said to be locked in at the design phase. What do you consider the top three (3) most important design activities to create regenerati... *ve within ecosystems processes* (East, 2020)



On a scale between 1 and 5, how equipped are practitioners today to deliver those three activities? (1= Very, 5= Not at all)

9 responses



Unleashing non-human perspectives: Cultivating contextual reflexivity in contemporary design practice

Design practitioners strive to cultivate contextual reflexivity and unleash non-human perspectives. These challenges include incorporating a holistic representation of system actors and overcoming limitations regarding available resources and opportunities for broader engagement. Designers recognise the need to move beyond prescribed methods and tools, embracing a reflexive and experimental mindset adaptable to specific contexts. Moreover, there is a growing awareness of the importance of indigenous worldviews and local knowledge systems as design practitioners seek to move away from the dominance of Western systems thinking. By embracing contextual reflexivity, design practitioners explore regenerative approaches that align with their aspirations for systems change, fostering inclusivity, cultural sensitivity and planetary health throughout the design process.

Positive existing practices
Design practitioners are beginning to embrace unconventional practices that intersect design methods with meditation, sound baths, forest bathing and time in silence within nature. These experiential activities are intended to deepen the connection with the non-human world, inspiring designers and providing insights for their design interventions. Furthermore, engaging in place-based research and incorporating nature design metaphors allows designers to understand context and non-human needs comprehensively. Designers also start to recognise and address their complicity in colonialism, unlearn their existing practices and open up to diverse perspectives rooted in indigenous worldviews and local knowledge systems. These experimental practices signify a shift towards embracing a broader context and non-human perspectives, promoting a more holistic and regenerative approach to design.

> *"The gap in design practice today pertains to its inability to see its own complicity in colonialism." Survey participant, Co-founder, Australia - Planetary design focus*

> *"I believe that design tends to be self-focused on its own discipline and methodologies…(it is) yet to evolve to include key knowledge and methods from other disciplines." Survey participant, Design director, Europe - Planetary design focus*

> *"The planet is never a co-design partner or stakeholder... It needs to be." Survey participant, Senior User Researcher, Europe - Social focus*

Remaining imagination challenges
Design practitioners have a limited ability to embrace non-human needs and fully integrate sustainability into their practice. For instance, logistical difficulties often arise when attempting to include a holistic representation of system actors, and there may be little room or budget for broader engagement. The time commitment required for workshops, interviews and prototyping can be challenging within tight project timelines. Additionally, the prevalent adoption of user-centred design methodologies tends to prioritise the immediate context of users, overlooking the broader implications and long-term consequences of design decisions within the wider system. An imagination challenge lies in addressing personal bias within design projects and engaging in critical reflection on one's own positionalities. This self-awareness is crucial to ensure that design interventions are inclusive, respectful and culturally sensitive. Overcoming a potential bias necessitates ongoing self-reflection and dedication to decolonising design practices. Designers also express the need to tap into their authentic selves and embrace fundamental change to become true drivers of sustainability. Genuine authenticity and a sincere commitment to sustainability in their personal lives are seen as essential elements for designing meaningful solutions and fostering collaboration with like-minded individuals.

"It is hard for people brought up above-medium and (being) ego-centred, myself included, to decentre ourselves and be simply parts." Survey participant, Manager, Europe - Planetary design focus

"Bias. Everybody goes into a project or challenge with their own experience, knowledge and preconditions." Survey participant, Creative Director, Europe - Transformation focus

"If you can't be the role model for the fundamental change, it won't be easy to be a true and genuine driver of it." Survey participant, Senior designer, Europe - Planetary design focus

Reimagining designers' responsibilities: Broadening roles and shifting perspectives

The survey findings highlight the need for design practitioners to confront the challenge of redefining the scope and responsibility of their role to effectively address the pressing planetary challenges we face. It is increasingly recognised that tackling these challenges requires designers to possess interdisciplinary knowledge, and to bridge the gap between design and fields such as science, ecology and economy. However, many designers feel unequipped to embrace this expanded role, as their current working context and client briefs have not yet fully embraced more regenerative approaches. This raises important questions about the role of designers as catalysts who can convene diverse disciplines and perspectives, working towards common goals and solutions that foster life, evolution and systemic change. While there is a desire to prioritise designing structures and systemic conditions over immediate solutions, practitioners often find themselves constrained by the demands of clients, resulting in tension between their aspirations and the reality of their practice.

Positive existing practices

Designers begin to take on different roles in projects, seeking to become conveners of collaborations, bringing together different disciplines and expertise to align on common goals and solutions. By embracing experimentation, observation, learning and adaptation, designers start to experiment with navigating the complexity of systems and communicating their presence. They design system parts and systemic conditions, impacting decisions and behaviours of actors through supporting capability, opportunities and motivation. Designers also see the opportunity to design infrastructures, such as rhythms and rituals, that support a common purpose or vision, shaping the energy of the system in the desired direction through everyday actions and habits. By amplifying sustainable perspectives and actively participating in the system, they hope to contribute to long-term change and the self-organisation of systems. These positive practices demonstrate the potential for designers to go beyond their traditional role and actively shape transformative outcomes.

"Design is best placed to become a convener of different disciplines and expertise, bringing different perspectives to align them around a common goal and solution." Survey participant, Co-founder, Australia - Planetary design focus

"Designers can communicate the presence of these systems, which in turn designs back on the system by people knowing the value of the system and taking steps to allow space for self-organisation." Survey participant, Creative Director, Europe - Transformation focus

"We are there to help navigate the complexity." Survey participant, Senior User Researcher, Europe - Social focus

"Designers can design parts of the conditions of the system, impacting decisions and behaviours of actors within the system through supporting capability, opportunities and motivation." Survey participant, Design director, Europe - Planetary design focus

"Designers can design structures in the system, such as rhythms and rituals, which support a common purpose or vision and help make long-term change." Survey participant, Design director, Europe - Planetary design focus

Remaining imagination challenges
Designers seek to embrace roles as navigators of complexity, amplifiers of sustainable perspectives and designers of systemic conditions, which facilitate transformation. Despite the potential for transformation, designers currently struggle to fully embody these expanded roles. The gap between aspirations and practice persists, with clients' expectations and existing systems constraining designers' ability to embrace regenerative approaches. There is a need to navigate the complexity of multiple stakeholders and balance short-term demands with long-term sustainability. Designers must also grapple with the tension between delivering what clients ask for and designing structures and systemic conditions that foster systemic change. Overcoming these challenges might require a shift in mindset within organisations and a commitment to creating space for the emergence of new possibilities.

"The agency model we follow means that the priority is to allocate team member's time to billable projects and briefs, which often consist of delivering our 'traditional' methods of design, within which there's often limited time to embed regenerative methods or sustainability considerations appropriately." Survey participant, Manager, Europe - Planetary design focus

5.1.3 Governance challenges

The governance challenges that design practitioners encounter when incorporating sustainability and regenerative approaches into their design practice can be summarised as follows:

Overcoming neoliberal economic constraints: Unleashing regenerative potential

The survey findings shed light on the significant governance challenges that design practitioners face when integrating sustainability and regenerative approaches into their practice. These challenges primarily stem from constraining economic practices and focusing on short-term profit. Designers often find themselves limited by intrinsic neoliberal foundations, struggling to break free from reactive modes of operation. However, amidst these challenges, positive practices emerge, along with remaining governance hurdles that need to be addressed to foster a more sustainable design ecosystem.

Positive existing practices
Pioneering design practitioners recognise the need to invest time, resources and capability building to effectively tackle complex social and environmental issues. They strive to move beyond the traditional 'business as usual' approach to embed regenerative methods and sustainability considerations into their work. Slowing down the design process, prioritising thoughtful practice and seeking holistic approaches are desired strategies to counter the constraints of economic pressures. By embracing a sustainability mindset, aligning operations with sustainable practices and prioritising long-term impact over short-term gains, designers are hopeful of paving the way for transformative change.

"Slowing down and not rushing. Clients are stuck in a mindset of how projects work, often not giving enough time for thoughtful practice." Survey participant, Creative Director, Europe - Transformation focus

"Getting investment in time, resources, and capability building in order to be able to tackle complex social and environmental issues in the most appropriate and effective ways, without falling to 'business as usual', with targets and ways of working focused a lot on profit." Survey participant, Manager, Europe - Planetary design focus

"We need time and resources for staff to explore and understand how a more holistic approach to these challenges is and could be relevant to their roles, and how this could show up in their work." Survey participant, Manager, Europe - Planetary design focus

Remaining governance challenges

External factors such as regulations and policies often drive reactive behaviour at an organisational level rather than internal commitment and understanding. The funding landscape, characterised by short-term priorities and narrow definitions of sustainability, influences decision-making. Senior leadership's deprioritisation of climate concerns and a lack of awareness about the urgency of change, are pointed out and further impede progress. Designers encounter internal challenges, including limited time and resources for staff to explore and understand holistic approaches, and embed sustainability in their roles and projects. Bridging the gap between the narrow organisational view of sustainability and the broader scope of planetary health remains an ongoing challenge.

"One of the biggest challenges is being inescapably enmeshed in neoliberal capitalist economies and politics." Survey participant, Co-director, Australia - Social focus

"Structural barriers created by the business model and hierarchical structures." Survey participant, Manager, Europe - Planetary design focus

"Needing to chase 'the business case'." Survey participant, Design consultant, Europe - Planetary design focus

"The cost of sustainable options can put off our members transitioning to more sustainable solutions." Survey participant, Senior designer, Europe - Planetary design focus

"We are mainly driven by external challenges, including the funding landscape. Whilst saying we are interested in sustainability, we still take a very narrow view of what this means, focusing on short-term funding, driven by narrow data and definitions, productivity and growth-focused." Survey participant, Senior User Researcher, Europe - Social focus

"Fixed annual funding, which is allocated for other specific activities, senior leadership deprioritising climate compared to other short-term issues, lack of understanding about the scale and urgency of change." Survey participant, Creative Director, Europe - Transformation focus

Limited by efficiency, pace and mindset: Nurturing time for reflection and connection with nature in design

Governance challenges in integrating sustainability into contemporary design practice are found to be multifaceted, encompassing issues of time, resource allocation and the need for a more holistic

approach. The survey highlighted that design practitioners often operate in fast-paced environments, with limited time for experimentation, reflection and learning. The demands imposed by billable projects and traditional design methods hinder the seamless integration of regenerative practices and sustainability considerations. Additionally, the survey revealed a need for designers to connect with nature, foster shared language and deepen their understanding to effectively address complex systems change.

Positive existing practices

Positive practices are emerging within design that recognise the need for slowing down and reconnecting with oneself and nature. Design practitioners acknowledge the importance of taking time outside of project work for learning, experimentation and forming a deeper understanding of complex systems change. By creating space for reflection and nurturing a connection with nature, designers can gain fresh perspectives and insights that inform their regenerative approaches. This shift towards a more holistic approach may allow for a deeper alignment with regenerative principles and enable practitioners to engage in meaningful collaborations with stakeholders who live in a regenerative way.

> *"Need to slow down and connect with yourself and nature around you." Survey participant, Design director, Europe - Planetary design focus*

Remaining governance challenges

The remaining governance challenges are primarily rooted in the scarcity of time, resources and investment, for design practitioners to explore and understand the relevance of holistic approaches in their roles and work. These challenges are further compounded by competing work priorities, increasing levels of stress and a lack of understanding about the urgency of change, hindering the integration of sustainable practices. For instance, the focus on billable projects limits the available time for effectively incorporating regenerative methods and sustainability considerations, while efficiency-led projects remove the possibility for experimentation and slowing down. Overcoming these challenges necessitates a transformative shift within the design industry and the broader business landscapes. Recognising and prioritising the importance of slowing down, fostering connections with nature, and investing in learning is crucial for designers.

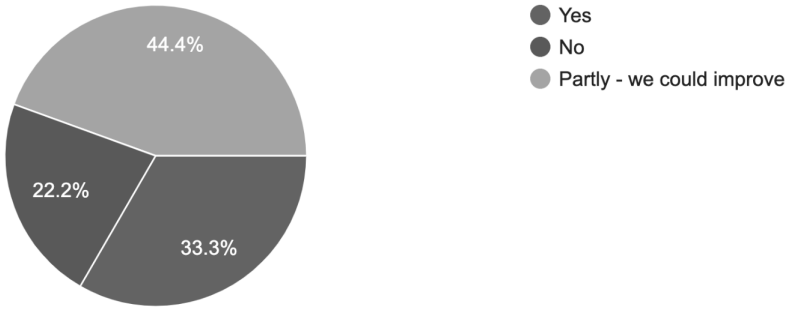
> *"I want to find ways to reconnect deeply with nature and the Earth, as this connection feels lost at the moment and missed in any 'business' or 'work' decisions." Survey participant, Design director, Europe - Planetary design focus*

> *"We need to learn how to use shared language and meanings…with deep respect for nature, the planet, people and other species." Survey participant, Design director, Europe - Planetary design focus*

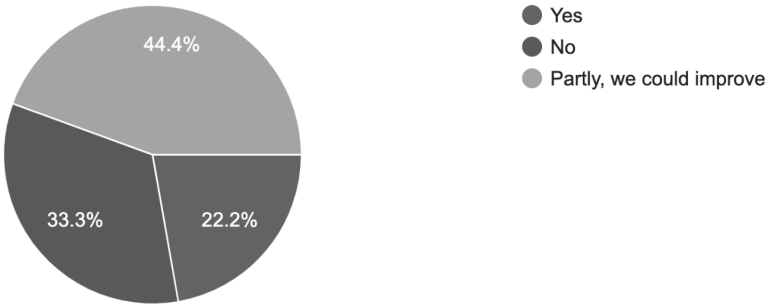
> *"We have little time outside of projects for learning and experimenting, which means we don't have enough time to form our understanding and practice around complex systems change." Survey participant, Creative Director, Europe - Transformation focus*

Figure 33: Two snapshots of expert practitioner survey results; author's own

Does your organization look inside to find ways to reconfigure internal operations and accelerate a transformation toward regenerative futures?
9 responses



Do you feel your teams have the time and resources to be reflecting on, testing and integrating new practices for more regenerative futures?
9 responses



Siloed structures: Nurturing strong relationships for effective collaboration and governance

The findings from the survey highlight additional governance challenges in contemporary design practice, particularly concerning siloed organisational structures that hinder collaboration and the development of strong relationships. This section delves into the survey responses to shed light on the critical need for breaking down these silos and nurturing robust connections within teams and outside partners.

Positive existing practices
Survey participants identified practices that emphasise collaboration and relationship-building. The survey reveals a growing recognition among designers regarding the detrimental effects of working in isolation and the importance of collectively investing in scalable solutions. Participants emphasised the significance of shared language and meanings, mainly when collaborating with individuals who deeply respect nature and embrace regenerative practices. The survey findings indicate that fostering better cooperation and stewardship across design disciplines can lead to bolder actions and challenge traditional business models. These practices underline the transformative potential of relationships in driving effective design governance.

"Relationships are key to changing systems' design still focuses too much on 'objects' or 'events', rather than the glue or space between things which enable change." Survey participant, Co-director, Australia - Social focus

"Better group cooperation and stewardship across design disciplines in order to enable bolder actions and change the status quo in the industry, which is still very dominated by the dominant traditional model of business and organisational design." Survey participant, Design director, Europe - Planetary design focus

Remaining governance challenges

Additional governance challenges include barriers that hinder nurturing strong relationships and dismantling siloed structures. Survey participants expressed concerns about current hierarchical systems within their organisations, which create barriers to collaboration and hinder the development of well-functioning relationships. The survey also highlighted a need for more transparency in decision-making processes, with senior voices often dominating discussions and alternative perspectives being overlooked. Furthermore, participants noted a tendency in design methodologies to focus primarily on immediate user contexts, neglecting the broader system and the long-term implications of decisions. The findings revealed that these established processes can result in siloed responsibilities, challenging cross-functional collaboration and the sharing of knowledge and practices. The separation of environmental and social challenges further exacerbates this issue, and the difficulty in recognising the interconnected nature of the challenge.

"We still silo environmental and social challenges in our work, and don't see this in a holistic and interdependent manner." Survey participant, Senior designer, Europe - Planetary design focus

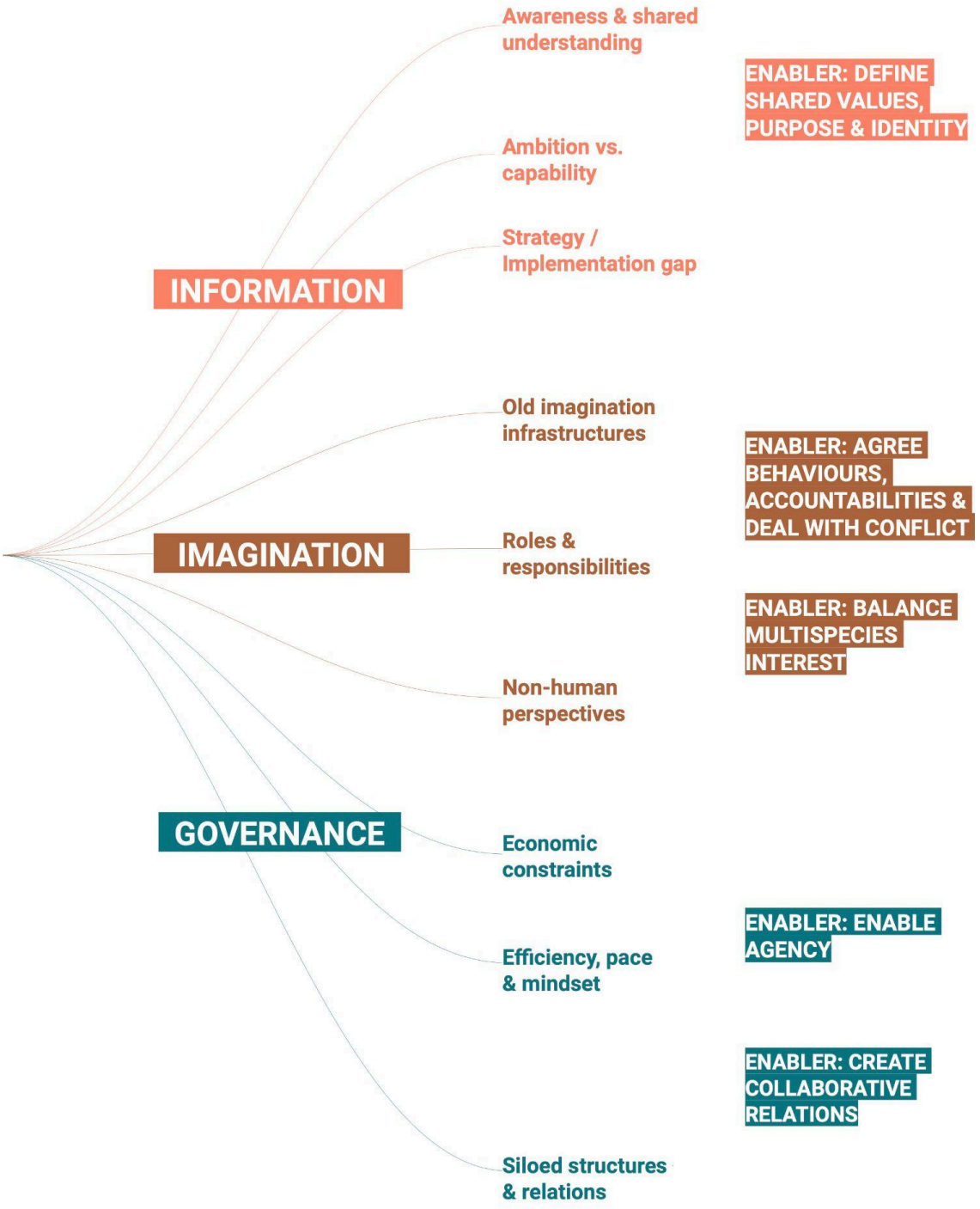
"There is so much silo working and waste as a result, along with not collectively investing in scalable solutions. The planet is never a co-design partner or stakeholder... It needs to be. People are in so much of a rush, and ego, business practice takes over, rather than the solution." Survey participant, Senior User Researcher, Europe - Social focus

"Design (and user-centred design methodologies widely adopted across government and businesses today) tends to focus on the present context of users, and not enough on the longer-term context of a wider system and implications of current decisions." Survey participant, Senior User Researcher, Europe - Social focus

5.1.4 Reflections

The scoping survey aimed to determine the applicability of planetary health challenge categories as defined by Whitmee et al. (2015) in contemporary design, particularly in pioneering practices addressing climate challenges and working towards supporting regenerative systems.

Figure 34: Mapping scoping survey findings to planetary health challenge categories and Ostrom's commoning design principles



The scoping survey confirmed the validity of the three working hypotheses and revealed the existence of three distinct challenge areas identified in the planetary health agenda: information, imagination and governance. This activity provided valuable first insights within each challenge category when integrating sustainability approaches into design practice. Information challenges include empowering designers to apply sustainable principles effectively, increasing capabilities, promoting awareness and shared understanding of sustainability concepts, and bridging the gap between sustainability strategy and implementation. Imagination challenges revolve around embracing non-human perspectives, overcoming the limitations of current business-led approaches and expanding designers' role, reach and responsibility. Governance challenges highlight the need to overcome neoliberal economic constraints and infrastructures, nurture time for deep reflection and connection with nature, and foster strong relationships for effective collaboration.

Table 22: Validating survey insights with working hypotheses

Planetary health challenge category	**Working Hypotheses**	**Hypothesis validation after scoping review**	**Contemporary design practice challenges**
#1 Information	There are inherent knowledge gaps around how systems operate, constitute and reproduce themselves in contemporary design practice today.	Yes, true to contemporary design	• Lack of awareness, knowledge and shared understanding of sustainability and how to design for systems • High ambitions vs low capability & knowledge levels • Strategy/implementation gap
#2 Imagination	A human-centric, neoliberal economic paradigm limits designers' imagination. Imagination can be enhanced through interrelatedness and cooperation, fostering a regenerative approach that balances the wellbeing of both humans and nature.	Yes, true to contemporary design	• Lack of non-human perspectives in the design process limits imagination • Old imagination infrastructures restrict possibilities • Need to expand the mandate, roles, and reach of designers to break imagination barriers
#3 Governance	Contemporary design lacks a comprehensive understanding of bridging cooperative relationships with sustainable governance. Adopting a commons perspective can cultivate a more relational design practice prioritising equity, inclusivity and sustainability.	Yes, true to contemporary design	• Economic constraints hinder design for sustainable systems • Efficiency focus, high pace, and mechanistic mindset as barriers to sustainable governance • Siloed structures and relations

The survey also revealed emerging positive practices that can help overcome these challenges. These practices involve supporting shared purpose and ambitions among individuals, aligning company-wide strategies with sustainability goals, investing in upskilling and capacity creation, and shifting mindset

towards long-term impact and sustainability. Collaboration, stewardship and recognising non-human interests were identified as transformative elements in design governance. By challenging neoliberal foundations, adopting a holistic approach and prioritising connections with nature, design practitioners are trying to unleash their potential for creating a more sustainable and regenerative future. The survey insights were further analysed by mapping them against Ostrom's commoning principles. This mapping process provided additional perspective on how the emerging positive practices identified in the survey align with principles of commoning. I found that shared purpose, alignment of strategies, upskilling, mindset shift, collaboration, stewardship and recognition of non-human interests can be seen as elements that resonate with commoning principles, reinforcing the potential for sustainable and regenerative design practices that pioneering design practitioners are beginning to embed.

Table 23: Mapping the alignment of positive design practices with Ostrom's principles as enablers for system transitions towards planetary health

Positive design practices and practice enablers for system transition and planetary health (based on survey insights)	**Ostrom's Core Design Principle**	**Principle function**
• Becoming convenors – getting people to align on planetary health, common goals and solutions • Support commitment and team ambitions • Focus on long-term sustenance rather than short-term gains • Use rhythms and rituals that support a common purpose or vision • Emphasise the significance of shared language and meanings	**1. Clear boundaries**	Define shared values, purpose and identity
• Deepen a connection with the non-human world • Place-based research • Incorporate nature design metaphors	**2. Benefits & costs**	Balance multispecies interests
• Consider the environment and wider systems in decision-making • Frameworks for collective decision-making including life cycle assessment and environmental impact analysis • Create space for reflection • Recognise and address complicity in colonialism	**3. Collective choice**	Make inclusive decisions
-	**4. Monitoring**	Agree on behaviours, deal with conflict and create accountabilities
-	**5. Graduated sanctions**	
• Open up to diverse perspectives rooted in indigenous worldviews and local knowledge systems	**6. Conflict resolution**	
• Move from solutions to systemic conditions • Invest time, resources and capability to tackle complex social and environmental issues • Slow down the design process, prioritising thoughtful practice	**7. Rights to organise**	Enable agency
• Integrate systems thinking and change theory • Interdisciplinary learning, drawing insights from ecology, social sciences and economics • Emphasise collaboration and relationship-building • Foster cooperation and stewardship across design disciplines	**8. Nested enterprise**	Create collaborative relations

The survey responses provided valuable initial insights into the specific challenges that design practitioners experience when striving to transition their practice and design outcomes towards promoting planetary health. These insights, particularly in the areas of information, imagination and governance, helped to build an initial map of challenges that will inform the subsequent case study fieldwork and the development of interview guides. Insights from positive design practice and practice enablers were used to guide the action research activity design within the case study in chapter 6.

5.2 Testing Commoning starter questions: Participatory co-design workshops

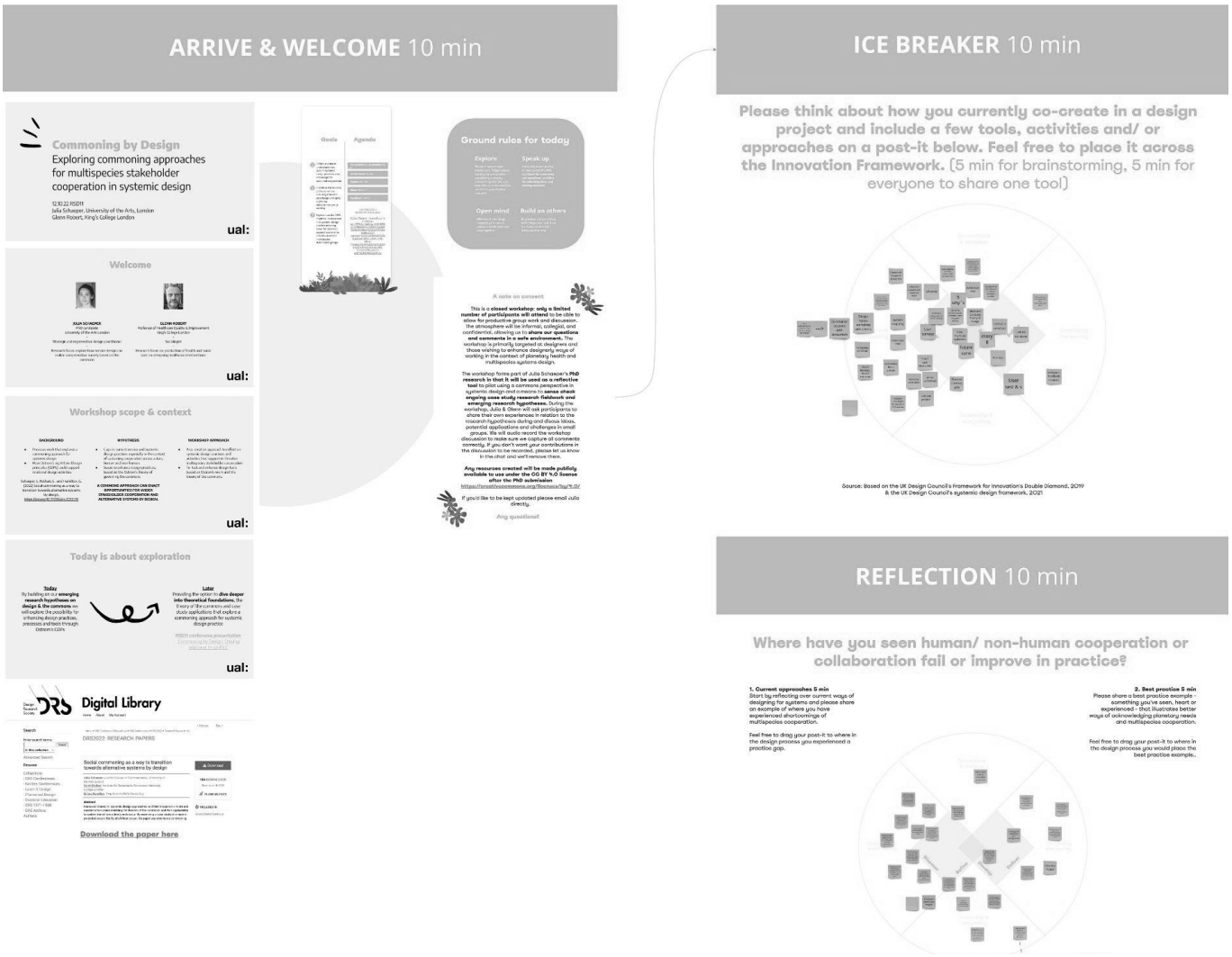
The participatory co-design workshops were a crucial step in the scoping research process, aiming to test emerging thinking and insights from the literature review with expert practitioners. The primary objective was to explore the potential, viability and usefulness of applying a commons-based approach to address prevalent practice gaps in using design for planetary health. Specifically, the workshops aimed to test the design starter questions I derived from Ostrom's core design principles (see Appendix), outlined in my paper 'Social commoning as a way to transition towards alternative systems by design' (Schaeper et al., 2022). They also served as a platform to prototype a workshop format that could be implemented in the case study sites.

By prototyping an interactive commons-based workshop format, the workshops aimed to refine the framing of Ostrom's principles, assess the clarity and effectiveness of the starter questions, and generate initial insights into new approaches, methods and activities that could foster cooperative behaviours within the design process. The co-design workshop findings informed the subsequent case study research, guiding the development of interview guides and action research designs.

5.2.1 Exploring co-design through insights on cooperative behaviours

The first part of the workshop began with an icebreaker activity, encouraging participants to map the co-creation practices and tools commonly employed in contemporary design projects, using the Design Council's Double Diamond design process as a reference point. Through their practical experiences and working methods, the workshop participants identified various co-design approaches that are frequently used. These approaches encompassed stakeholder mapping, co-creating theory of change, user research, interviews, focus groups, immersive observation, cultural probes, user surveys, customer journey mapping, system mapping, co-creation sessions, futures literacy labs and user testing, to mention a few. They highlighted the range of tools and methodologies frequently employed by designers to engage stakeholders, gather insights and foster innovative solutions.

Figure 35: Participatory co-design workshop Miro board: Mapping current approaches ice breaker



While current co-design approaches are widely accepted as part of contemporary design processes, the workshop participants also recognised several shortcomings in sustaining cooperation and nurturing collaboration with multiple species. Participants identified a limited focus on nature, neglecting planetary needs and long-term sustainability in current design processes. Stakeholder mapping was criticised for narrowly focusing on project scope and overlooking the broader ecological context and the needs of future generations. Furthermore, it was stated that a dominant human-centred design approach prevails, disregarding the interconnectedness of systems and the importance of considering diverse perspectives. The workshop participants highlighted a lack of embedding a meaningful multi-species cooperation, a limited understanding of non-human needs and insufficient consideration of ecosystems. Additionally, shortcomings were identified as inadequate interdisciplinary collaboration, challenges in acknowledging bias, and the absence of systemic design processes and feedback loops for iterative improvements within larger systems. These observations underscored the need for designers to broaden their perspectives and approaches to foster more inclusive, sustainable and cooperative design outcomes.

Table 24: Current ways of co-designing versus their shortcomings in achieving planetary health

Current ways of co-designing in contemporary design projects	**Shortcomings of current co-design approaches** (not in direct relation to the left column)
• **Stakeholder mapping:** Identifying and visualising stakeholders to understand their relationships and influence. • **Visual dialogue through narratives**: Using visual storytelling techniques to engage stakeholders and facilitate meaningful conversations. • **5 Whys**: Delving deep into root causes by asking 'why' multiple times to uncover underlying issues. • **Co-creating Theory of Change:** Collaboratively developing a shared understanding of desired outcomes and strategies for change. • **User research:** Conducting participatory user research to evaluate the usability and effectiveness of design solutions. • **Lead and extreme user Involvement**: Engaging influential and unconventional users to inform the design process (all human). • **Interviews:** Conducting targeted interviews with diverse actors to gather insights and perspectives. • **Focus Groups:** Gathering insights from targeted interviews or stakeholder discussions. • **Immersive Observation:** Observing users in their natural environment to gain deep insights into their behaviours and needs. • **Cultural probes:** Using creative tools and activities to elicit personal and cultural insights from participants. • **User surveys:** Collecting quantitative and qualitative data through surveys to inform design decisions. • **Collaborative customer journey mapping**: Co-creating customer journeys with stakeholders to understand their experiences and needs. • **System mapping:** Visualising complex systems and their interdependencies to identify leverage points. • **Design fiction workshop:** Using speculative design methods to envision future scenarios with clients. • **Co-creation sessions with consumers:** Engaging end-users in co-design activities to ensure their perspectives are incorporated.	• **Limited focus on nature:** Co-design approaches often prioritise sustainability from a human perspective, neglecting the inclusion of nature in the conversation and failing to address planetary needs or the long-term future. • **Narrow stakeholder mapping:** Stakeholder maps are frequently created based on narrow project scopes, disregarding the broader ecological context and the needs of future generations. • **Single (human) actor focus:** Design solutions for city-wide services often concentrate solely on the user, overlooking the importance of considering multiple actors and their diverse perspectives. • **Dominance of Human-Centred Design:** The prevailing design approach remains predominantly human-centric, with limited consideration given to the broader systems and the interconnectedness of all actors. • **Lack of multi-species cooperation:** Co-design processes often fail to facilitate meaningful collaboration among different species, with limited efforts to understand and meet the needs of non-human entities. • **Limited understanding of non-human needs:** It is challenging to truly comprehend and address the needs of non-human beings, leading to a gap in designing for their wellbeing and coexistence. • **Insufficient consideration of ecosystems:** Co-design activities often fail to account for existing ecosystems and their interdependencies, resulting in environmental disruptions. • **Overlooking indirect systemic stakeholders:** Traditional co-design approaches prioritise direct stakeholders while de-prioritising the needs and impacts on indirect systemic stakeholders, leading to incomplete solutions. • **Insufficient interdisciplinary collaboration:** Cooperative approaches and practices among different disciplines, particularly inter and transdisciplinarity, are often lacking, hindering comprehensive problem-solving. • **Challenges in acknowledging bias:** It is often difficult to acknowledge biases, particularly when considering non-human entities, which can hinder inclusive and equitable design processes

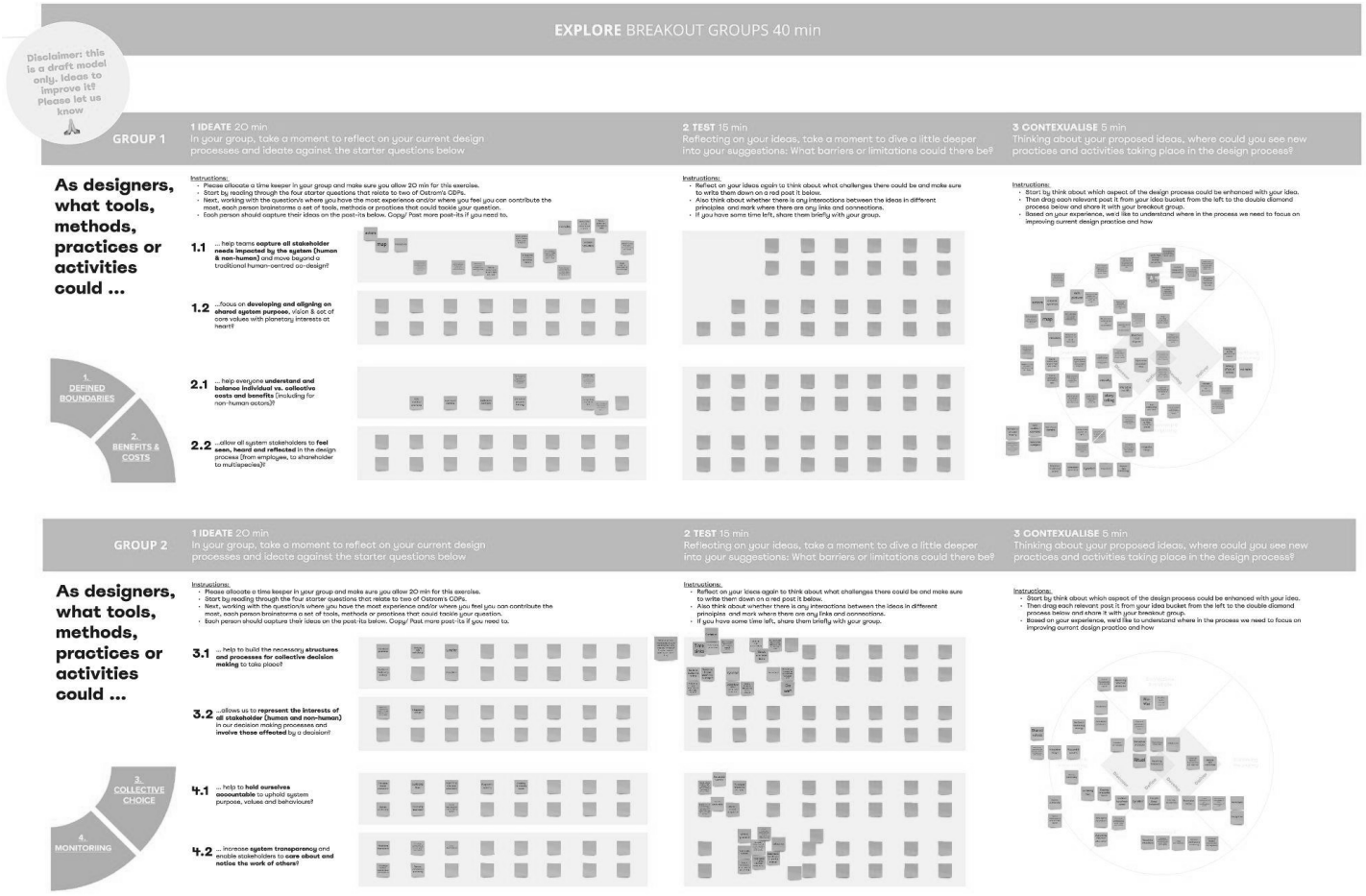
• **Co-creative scenario creation:** Developing alternative future scenarios to explore potential outcomes and inform design decisions. • **Critique and feedback sessions:** Providing opportunities for constructive critique and feedback to refine design solutions. • **Participant involvement:** Inviting participants to be actively involved in the design process from start to finish. • **Job-to-be-done:** Focusing on understanding the underlying needs and motivations of users. • **How Might We questions**: Framing design challenges as open-ended questions to encourage innovative thinking. • **Crazy 8:** Rapidly generating multiple ideas through sketching or brainstorming exercises. • **Future cone:** Visualising potential future scenarios to explore different possibilities and their implications. • **Futures literacy labs:** Engaging participants in futures thinking and exploration to envision alternative futures. • **User testing:** Conducting usability tests and gathering feedback through surveys to evaluate design effectiveness.	• **Lack of systemic design processes:** Iterations and feedback loops for redesigning solutions within a larger system are not widely embraced as a common concept in co-design practices.

During the analysis of this short exercise, an intriguing insight emerged: while the workshop participants acknowledged the absence of non-human representation in design, they seemed unaware that cooperation was not intentionally designed for in current co-design approaches. There was an inherent assumption that cooperation simply occurs following a co-desing event. This observation reveals a significant knowledge gap within the design community regarding the intentional design of cooperative behaviours. Although scientific research on cooperative behaviours and relationships, from microbial species to ants and bees, as well as Elinor Ostrom's work on the tragedy of the commons, provides insights into the factors required for successful cooperation, this knowledge remains largely overlooked among designers. Instead, cooperation in current co-design practices appears as a byproduct of the design process, relying on user involvement, feedback and co-creation mechanisms. While these activities have value, they can fall short of intentionally establishing group identity, appreciation, recognition, agency and strong relationships — elements that scientific insights on effective cooperation emphasise. Consequently, this observation strengthens my third working hypothesis and the argument that designers may rely too heavily on co-design, i.e. bringing people into the same space, and this 'doing the job' to foster cooperation without fully understanding or incorporating the necessary support and structures to sustain it. This observation reinforced my hypothesis that adopting a commons-based approach could allow designers to intentionally design for cooperation among all actors, including human and non-human entities.

5.2.2 Contextualising Ostrom's Core Design Principles (CDPs) in design practice

The second part of the workshop focused on exploring the theory of the commons and commoning in the context of design practice, aiming to enhance cooperative behaviours and evaluate design's impact on planetary health. Participants were divided into small groups of 2-3 individuals and tasked with generating ideas for tools, activities and approaches aligned with each of Ostrom's Core Design Principles (CDPs) that could promote cooperation in the design process. Using a collaborative Miro board, these ideas were then mapped onto the Double Diamond design process stages. Subsequently, a group discussion took place to reflect on the challenges and barriers faced when integrating commons-based approaches into design practice and identify areas where contemporary design falls short. Valuable feedback was gathered from the participants, contributing to the workshop's outcomes.

Figure 36: Participatory co-design workshop Miro board: Brainstorming against each core design principle



The two workshops generated a total of 164 ideas for activating Ostrom's Core Design Principles, aiming to bridge practice gaps and foster planetary health. Through a comprehensive synthesis of both workshops, these ideas were combined and categorised into clusters. This process resulted in a collection of refined and concrete ideas for innovative tools, activities and practices that enhance group cooperation within each commoning cluster (see Table 25). Many of these ideas introduced novel approaches not sufficiently used in contemporary design, highlighting the need for experimentation and fresh perspectives in project work. The clusters encompassed key areas of Ostrom's Core Design Principles (CDPs), such as establishing an ethical framework and guiding principles to define boundaries and foster responsibility among stakeholders (CDP1), integrating non-human actors throughout the design process to ensure balanced decision-making and consideration of their perspectives and interests (CDP2), collaborative and inclusive decision-making processes (CDP3), monitoring and feedback loops (CDP4) to comprehend system dynamics and nurture stakeholder trust, transparency, dialogue and knowledge sharing to foster positive relationships (CDP5), conflict-resolution mechanisms and restorative practices (CDP6) to maintain harmonious relationships, empowering stakeholders and enabling collective decision-making through autonomy and self-governance (CDP7), and gaining a comprehensive understanding of the system through mapping, visualisation and considering long-term change and future relations (CDP8).

Table 25: Participatory co-design workshop synthesis: Using commoning principles to enhance contemporary design practice

Ostrom's CDPs	**Idea clusters** Contexualising Ostrom's CDPs in design practice	**Commoning ideas** Including ideas for new tools, activities and practices to enhance group cooperation by design
Defined boundaries	**Purpose, ethical framework and guiding principles** This cluster focuses on establishing an ethical framework and moral guidance to balance needs and interests, guide decision-making and foster a sense of responsibility among system actors.	• **Fostering collective awareness and sense of urgency:** Deep dive sessions to cultivate shared awareness and urgency among participants, fostering collective consciousness and uniting them in understanding pressing issues and the need for immediate action. • **Clarity Compass:** A tool to guide system actors in aligning with sustainability, expanding into crucial social and governance aspects, as we embark on the transition towards regeneration and establish ethical guidelines and team directions. • **Embodied knowledge**: An 'embodied knowing' workshop to explore diverse ways of understanding designed future states including cognitive, physical, intuitive and emotional ways of knowing. • **Bias awareness tool:** A set of resources and activities to surface and check for possible stakeholder biases. • **Shared multispecies values workshop:** An activity to identify and establish shared values among human and non-human stakeholders. • **Purpose workshop:** Create a workshop to elicit needs and interests, and create an aligned understanding of the group's key purpose. • **Commitment or manifesto:** Draft a collaborative commitment statement to outline shared values and principles guiding the decision-making process.
Benefits & costs	**Non-human actor integration** This cluster emphasises the inclusion of non-human actors throughout the design and decision-making process, considering their perspectives and interests.	• **Nature stakeholder evaluation tool:** A framework for evaluating the impact of decisions on non-human stakeholders and the natural context. • **Empathy role-playing exercise:** An activity where participants assume the role of non-human stakeholders to imagine experiences from their perspective. • **Non-human actor integration charter:** A document defining the role and representation of non-human stakeholders in decision-making processes. • **Nature representative panels:** Dedicated panels or working groups comprising experts and representatives advocating for non-human interests. • **Rights of nature framework:** A design practice that recognises and assigns equal legal status to non-human stakeholders. • **Caregiver/caretaker role:** Designating a specific role to ensure non-human stakeholders have a say in decision-making processes.

		• **Biodiversity co-design teams:** Involving biodiversity experts and other nature representatives in co-design teams from the project's outset. • **Non-human actor heuristics:** A set of profiles and principles to facilitate empathy and effective engagement and participation of non-human actors. • **Sensory experience workshop:** An immersive workshop in nature using sensory experiences to explore and bridge the gap between humans and non-humans, i.e. nature walks, forest baths. • **Games for non-human interests:** Designing games and interactive experiences specifically to involve and prioritise non-human interests. • **Futuring games:** Using games as 'sandboxes' to imagine and explore complex futures where human and non-human interests are considered. • **Context-based storytelling methods:** Using storytelling techniques that consider the specific context and perspectives of both human and non-human stakeholders. • **Knowledge commons platform:** Creating a digital platform for sharing and accessing knowledge and resources among human and non-human stakeholders. • **Stakeholder identification framework:** A process to record and identify different stakeholders based on recordings of the setting environment. • **Boundary object Interface:** A tangible or digital interface that facilitates communication and interaction between humans and non-humans. • **Microcosm modelling tool:** A tool to create models and maps of microcosms within the larger system. • **Voice and sound recording:** A tool to capture and incorporate voices and sounds from different system actors (i.e. nature). • **Visual representation techniques:** Applying visual diagrams, such as the Blackfoot need diagram, to represent stakeholder relationships and dynamics.

Collective choice	**Governance and decision making** This cluster emphasises the importance of inclusive and collaborative decision-making processes that consider the perspectives of all stakeholders.	• **Holistic impact assessment:** Conducting comprehensive capability and impact assessments that go beyond traditional metrics and consider social, environmental, and economic aspects, ensuring a balanced evaluation of design choices. • **Cause and effect mapping:** A tool to define and visualise the relationships between human and non-human stakeholders regarding cause and effect. • **Working from a Long Now basis:** Adopting a mindset that acknowledges the intergenerational impacts of design decisions and seeks to create sustainable and beneficial solutions for future generations. • **Constellation governance model:** A governance framework that recognises the interconnectedness of stakeholders and allows for adaptive decision-making. • **Natural system personhood:** Widely apply system advocacy and personhood to ensure equitable consideration of non-human stakeholders. • **Multispecies prototyping:** Adopting an iterative prototyping approach to test and refine solutions in collaboration with human and non-human stakeholders. • **Contextual rule interpretation guide:** A framework for soft (contextual) interpretation of rules to allow flexibility and adaptability in decision-making. • **Distributed decision-making:** Establishing mechanisms that enable decentralised decision-making, empowering stakeholders to make decisions that directly impact their lives and environments.
Monitoring	**Monitoring and feedback loops** This cluster highlights the significance of monitoring, feedback loops, and visualisation in understanding system dynamics and nurturing trust and understanding for each other.	• **Feedback loop system:** Designing a system that enables the collection, analysis, and integration of feedback from all stakeholders, including non-human entities. • **Collaborative monitoring and evaluation:** Involving stakeholders in the monitoring and evaluation processes to promote collective learning and adaptive management. • **Learning review workshops:** Regular workshops to review and reflect on the outcomes and lessons learned from previous actions and initiatives. • **Co-learning spaces:** Establishing physical or virtual spaces where stakeholders can learn from one another and co-create knowledge.
Graduated sanctions	**Transparency and dialogue** This cluster emphasises the need for transparency, dialogue, and the open sharing of knowledge, information and consequences among stakeholders.	• **Code of conduct guidelines:** Clear and concise guidelines outlining expected behaviour and consequences for rule violations, fostering a positive and respectful environment. • **Transparency hub:** A centralised online platform for transparent communication, providing stakeholders access to project information and updates. • **Reflective dialogue sessions:** Structured sessions fostering reflection and positive communication to prevent misunderstandings and conflicts.

		• **Incident reporting mechanism:** An anonymous reporting system that allows individuals to report incidents of rule-breaking or unhelpful behaviour, ensuring a safe space for reporting without fear of retribution.
Conflict resolution	**Conflict resolution and restorative practices** This cluster focuses on conflict resolution mechanisms and promoting restorative practices to address conflicts and maintain harmonious relationships among stakeholders.	• **Nurture multiple viewpoints:** Creating spaces and processes that value and incorporate diverse perspectives, allowing for a more comprehensive understanding of conflicts and enabling collaborative problem-solving. • **Embrace protest:** Organise a Protest Simulation Game to allow stakeholders to express dissent and explore the implications of different forms of protest. • **Switching roles:** Encouraging stakeholders to switch roles and responsibilities for a short time to find mutually beneficial solutions, fostering a sense of shared responsibility and collective action in addressing conflicts. • **Conflict-resolution agreement:** A documented process for addressing conflicts and resolving disputes fairly and constructively. • **Pro-social reinforcement:** Mechanism to provide positive reinforcement for pro-social and beneficial actions by stakeholders. • **Conflict-resolution team:** Providing resources and support systems that facilitate personal and group growth, fostering resilience, empathy, and self-reflection in conflict resolution. • **Nonviolent communication techniques:** Implementing strategies and techniques that encourage peaceful and empathetic communication to resolve conflicts and promote understanding. • **Restorative justice:** Practices that focus on repairing the harm caused by conflicts, emphasising accountability, reconciliation and restoration of stakeholder relationships. • **Mediation and facilitation techniques:** Employing mediation and facilitation strategies to guide constructive conversations and negotiations, facilitating understanding, collaboration and resolution of conflicts. • **Acceptance of failure:** Create a Failure Reflection Activity to encourage learning from mistakes and promote a growth mindset.
Rights to organise	**Autonomy and self-governance** This cluster explores the importance of autonomy and self-governance in designing systems that empower stakeholders and enable collective decision-making.	• **Self-governance handbook:** A comprehensive guide that outlines the principles, processes, and structures necessary for fostering self-governance within a community or organisation. • **Community empowerment**: Workshops aimed at empowering local communities to implement and sustain sustainable practices in their specific contexts. • **Panarchies**: Incorporating panarchy concepts that recognise the nested and interconnected nature of governance systems, allowing for self-governance at different scales and levels. • **Adaptive management framework:** Implementing a framework that allows for iterative decision-making and continuous adaptation based on feedback and new information.

		• **Participatory Governance Structures:** Governance alignment that allows for active participation and engagement of stakeholders in decision-making, promoting collective ownership and accountability.
Nested enterprise	**System understanding, future orientation and long-term change** This cluster focuses on understanding the system and its stakeholders comprehensively through mapping and visual representation.	• **Ecosystem mapping:** A tool combining a workshop and a visual mapping to create a shared ecosystem map, capturing relationships among stakeholders, including depletable and non-depletable commons. Promotes informed decision-making and collaboration. • **Outcome mapping visualisation:** A digital tool or platform to create and visualise outcome maps, making them transparent and accessible to stakeholders. • **Design fiction scenarios:** Creating fictional narratives and scenarios to explore and communicate different possibilities within the system. • **Resource tracking:** A digital tool or database to track and transparently present the life cycle of resources within the system. • **Behavioural pattern analysis:** A set of methods and techniques to record and analyse behavioural patterns of stakeholders within the system. • **Relationship coach:** Assigning coaches to design teams to manage and foster positive relationships between humans and non-humans. • **Local context adaptation guide:** A guide to help stakeholders adapt sustainable practices to suit local contexts' unique characteristics and needs. • **Policy advocacy strategy:** Developing a strategy to advocate for policy changes, and support the scaling and replication of sustainable practices at a systemic level. • **Utilising SDGs (Sustainable Development Goals):** Integrating the United Nations' Sustainable Development Goals framework into the design process to ensure alignment with global sustainability targets and address multidimensional challenges. • **Utilising Doughnut Economics:** Incorporating the principles of Doughnut Economics, which seeks to balance social needs within planetary boundaries, to guide design decisions and promote regenerative and equitable systems. • **Life Cycle thinking:** Considering the entire life cycle of a product, service, or system, from extraction to disposal, to minimise environmental impacts and optimise resource use.

5.2.3 Reflections

Feedback from the workshops emphasised the importance of engaging with the starter questions pertaining to the commoning principles. Participants expressed that the principles successfully addressed significant gaps in contemporary design practice and provided a valuable framework for evaluating design's weaknesses and opportunities in pursuing planetary health. Overall participant feedback indicated that the principles serve as a valuable ideation framework, allowing not only for the identification of gaps in the current design process but also for the generation of alternative tools and techniques.

> *"This prompts really big questions for design practice in a short time." Workshop participant, systemic design background*

> *"It was surprisingly effective how the principles moved us from practical tasks to addressing essential questions for our practice" Workshop participant, policy and organisational science background*

The exploration of conflict mechanisms prompted participants to question the prevailing tendency in co-design practices towards convergence and underscored the necessity of acknowledging, considering and holding space for conflicting viewpoints. Furthermore, challenges regarding non-human representation were raised, such as how to authentically obtain consent for non-human entities.

> *"In the design process, there is a tendency for converging and arriving at a shared consensus" Workshop participant, service design background*

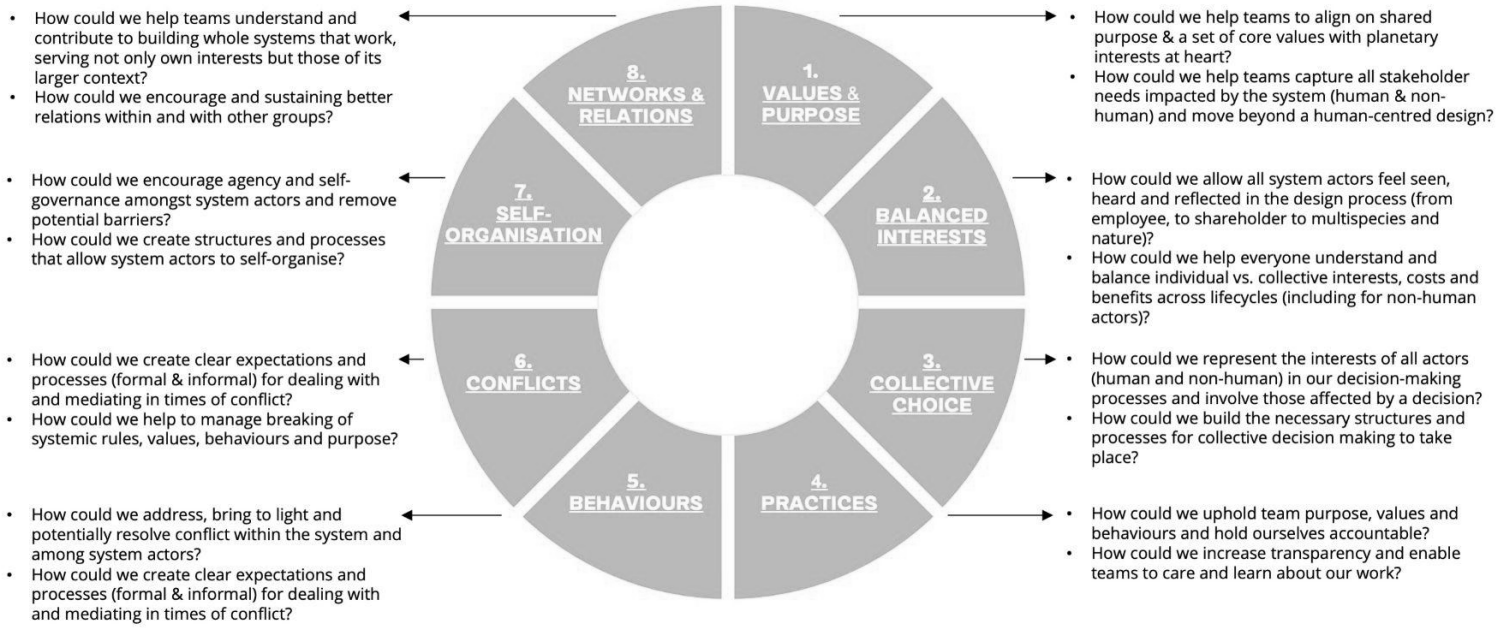
> *"We tend to want to converge too much… I wonder if we have to?" Workshop participant, service design background*

> *"How can we consider a living thing that doesn't have a voice? " Workshop participant, policy and organisational science background*

> *"How do you get consent for a non-human?" Workshop participant, design research background*

During the co-design workshop, testing the commoning starter questions revealed the need to begin with a deeper awareness-building session instead of jumping right into the commoning brainstorm process. Before exploring commoning principles in detail, participants emphasised the importance of aligning on the need for regeneration and improved approaches, including regenerative economics and degrowth, highlighting the urgency of addressing the polycrisis we are currently facing. That way, participants would have the opportunity to come together as a group and commence on the same level. Participants also found the language of Ostrom's original design principles confusing and required contextual translation and examples for better understanding. Similarly, the abundance of starter questions and a lack of differentiation among them proved slightly overwhelming, indicating the need for simplified and distinct questions aligned with each principle. Feedback also revealed that the workshop could have benefited from more time and in-depth group discussions. Participants expressed a desire for extended opportunities to delve deeper into the topics and engage in thorough exchanges of ideas. Nevertheless, using the commoning principles as a framework prompted significant reflections among participants, encouraging a wide variety of new ideas and improvements for design practice to improve collaboration infrastructures and embrace commoning by design.

Figure 37: Refined Commoning starter questions and language of Commoning principles



Conclusion

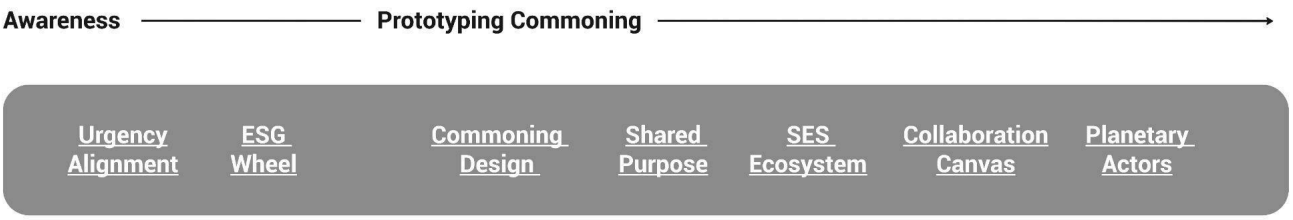
This chapter presents the key findings from the scoping review activities, including a survey and participatory co-design workshops. These activities provided valuable learning opportunities to prepare for the case study research, which aims to test the practical application of Ostrom's commoning principles in design.

The **scoping survey** focused on understanding the relevance of planetary health challenge categories in contemporary design, leading to the identification of specific information, imagination, and governance challenges in contemporary design practice. The survey also highlighted a set of positive practice enablers that align with Ostrom's Core Design Principles, providing insights into potential activities and approaches that leading practitioners found to work well. These findings contributed to further developing the three working hypotheses related to information, imagination and governance challenges, and how they might relate to design practice. This informed the design of the case study participant observation and interview guides. The **participatory co-design workshops** generated three outcomes for the subsequent action research design. First, they revealed that starting with the **awareness creation phase** is essential for participants to allow alignment on the urgency of change and the need to move beyond sustainability alone. Second, they tested and refined the proposed **commoning starter questions**, including the language and terminology used, adapting them for practical application and assessed their effectiveness. Third, the workshops generated a fruitful brainstorming session that resulted in a wide range of **commoning ideas and activities** that can be embraced and integrated into design practice.

From that list, two awareness activities – the 'Collective awareness sessions' and the 'Clarity compass' tool – were chosen together with participants from my case study site in order to begin the ethnographic case study research and prototype a commoning approach within a real-life organisational context.

The next chapter will summarise the case study research, building upon the insights from the scoping review and exploring the application of commoning principles in an organisational design context.

Figure 38: Commoning action research design informed by scoping review insights



CHAPTER 6

Exploring commoning
A case study perspective

Introduction

This chapter presents an in-depth ethnographic case study of a global sportswear manufacturer, with a specific focus on its in-house service design team. The case study uses a combination of interviews and action research to explore how commoning principles could be integrated into design practices within the organisation, addressing the potential impact on the working hypotheses and research questions. The analysis in this chapter draws on a combination of methods, including interviews, participant observation, co-creation workshops, artefact prototyping sessions and secondary research data, as outlined in the research methodology. The aim of the organisational ethnographic case study is twofold. Firstly, it seeks to gain insights into the experiences of individuals working within the organisation, with the goal of validating and potentially refining the researcher's understanding of the challenges related to information, imagination, and governance. Secondly, the study aims to explore how a commoning approach could effectively address these challenges within the existing capitalist structures, offering valuable insights into the working hypotheses and questions. The chapter begins with a case study introduction, providing essential background information about the case study context based on publicly available information and insights gathered from interviews. Subsequently, the context is analysed based on participant observations, interviews and secondary research data, exploring how planetary health challenges manifest within the case study organisation and its design practices. A catalogue of commoning activities was subsequently created, with a few of them being tested in collaboration with the case study organisation during the action research phase. The prototyping of commoning activities involved on-site and remote co-creation workshops and the development of relevant artefacts. This process ultimately led to the proposal of a 'Commoning by Design' framework along with a collection of commoning resources, described at the start of the next chapter 7 (7.1). The unique application of commoning in this capitalist context is rooted in a strategic response to the polycrisis: By examining how commoning principles intersect with design practices within a current capitalist organisation, the study aims to provide insights into how such principles can foster collaboration and innovation within existing economic structures. The rationale behind this approach lies in the recognition that traditional capitalist models often prioritise competition over collaboration, which can hinder efforts towards sustainability and regenerative change. By exploring commoning within this context, the research seeks to uncover alternative pathways for organisations to embrace more inclusive and sustainable practices.

6.1 A multi-level case study

The multi-level perspective (MLP), as proposed by Geels (2006) and Geels and Kemp (2000), offers a valuable framework for analysing the case study context and understanding sustainable transitions within the organisation. The MLP suggests that transitions occur through dynamic interactions across three analytical levels: macro, meso and micro. The micro level represents localised 'niche' contexts, where innovative ideas and practices emerge. The service design team operates within these niches in the case study, generating transformative ideas and implementing them into business practices. This level provides a fertile ground for experimentation and developing novel approaches. The meso regime level encompasses the dominant sets of rules, norms and practices that shape the functioning of a specific domain. Within the organisation, the sustainability strategy, information communication and implementation policies form part of this regime. Understanding the regime level is crucial as it influences and constrains the possibilities for sustainable transitions within the organisation. The socio-technical landscape level refers to the broader external context in which the organisation operates. It includes economic, political and societal factors that shape the boundaries and conditions for transitions. By considering the organisational landscape at a macro level, such as the overall business purpose, core proposition, revenue generation, ownership structure and operational setup, one

gains insights into how external forces and factors influence sustainable transitions. This level encompasses economic, political and societal factors that shape the boundaries and conditions for transitions. By integrating the macro, meso and micro levels of analysis within the MLP, researchers can understand the dynamics and interplay between niches, socio-technical regimes and the socio-technical landscape. The following section introduces the organisational case study background based on Geels and Kemp's three analytical levels of multi-level perspectives.

6.1.1 Macro: The organisational landscape

The global sportswear manufacturer has established itself as a leading industry player. The company has gained international recognition by offering a diverse range of products, including clothing, shoes, bags and accessories. It operates globally through various channels, such as e-commerce, retail stores and franchises. With a significant presence in the sports industry, it has successfully positioned itself as a popular performance and lifestyle brand. While its manufacturing facilities are primarily located in the Global South, the brand's headquarters in the Global North remains responsible for design and testing. Although the company was originally privately owned, it has undergone changes in ownership and is now a public company. As a sportswear player, the company recognises the increasing importance of long-term trends on fitness, health and wellbeing by pushing the boundaries of products, experiences and services. In response to the significant recent changes in the economic and political environment, the company undertook a strategic review in recent years. The company's brand function is responsible for innovation, design, development and marketing of sports through a strong brand image and lifestyle offerings. Product, user experience (UX) and communication design are integral to brand function. They contribute to developing, marketing and delivering the company's sports offerings. The department focuses on creating desirable products, delivering inspiring experiences and building a strong brand image to establish consumer trust and loyalty. This strategic approach enables the company to seize growth opportunities within the sporting goods industry. The company sales function is crucial in converting brand desire into profitable and sustained business growth. The company aims to deliver the best shopping experience across all customer touchpoints in the sporting goods industry. Recently, service design has been integrated into the sales function as part of the company's business transformation team, specifically leveraging service design principles to enhance and create seamless shopping experiences across e-commerce, retail and wholesale channels. While wholesale remains its largest channel, the company has been actively shaping and accelerating the growth of its integrated trade network. They operate more than 1000 retail stores worldwide, with e-commerce being their single biggest retail presence.

6.1.2 Meso: The sustainability context

As a key strategic objective, sustainability is embedded in the company's core business practices, driven by its mission to leverage sport for positive societal impact. With an intensified focus on sustainability since ca. 2020, the company has established a roadmap for 2025 and beyond to offer a comprehensive range of sustainable products that prioritise environmentally preferred materials, while also targeting a 15% reduction in greenhouse gas emissions per product. By embodying sustainable attributes and offering environmental benefits compared to conventional alternatives, these products seek to significantly reduce the company's ecological footprint. Looking towards 2050, the company is committed to achieving climate neutrality across its value chain and reducing absolute greenhouse gas emissions by 30% throughout the value chain by 2030. Recognising the multi-stakeholder nature of sustainability, the company strategically commits to the needs and concerns of employees, consumers, suppliers and workers in the supply chain. It openly states that upholding responsible business practices and respecting human rights contributes to long-term economic success. The company collaborates closely with suppliers to realise its sustainability targets, encouraging them to align their

operations with decarbonisation efforts. Moreover, the company actively seeks partnerships to scale innovative materials and recycling technologies, enabling the integration of cutting-edge sustainable practices throughout its value chain. Upholding high social compliance standards across the supply chain represents another critical objective, ensuring that ethical principles are consistently upheld. The company states that its governance structure plays a pivotal role in executing its sustainability programs effectively. On paper, the structure is designed for the head of sustainability to report to the executive board. To oversee the implementation of the companywide sustainability strategy and ensure its integration across various business functions, a dedicated team is responsible for managing sustainability initiatives. A sustainability board has also been established to facilitate a trickle-down effect, ensuring that sustainability principles are embedded throughout the organisation and guide decision-making processes. Transparency serves as a foundational pillar of the company's sustainability approach. By adhering to global reporting standards and consistently disclosing information through established frameworks, the company ensures the dissemination of sustainability updates via its corporate channels. Moreover, maintaining a global supplier factory list and disclosing factory names further enhances transparency within its operations. The company's sustainability efforts have garnered significant recognition from international institutions, rating agencies, NGOs and socially responsible investment analysts. This recognition is exemplified through inclusion in sustainability indices, high environmental and social performance ratings and accolades for transparency and governance practices.

6.1.3 Micro: The service design context

I centred my research on the company's business transformation and newly established service design team. This team operates within the global sales division of the organisation. It comprises seven designers (at the time of research), including a service design director, two senior designers, four mid-level designers, a design operations manager and a vice president of business transformation, besides a director for change management and business architecture and their respective teams. The primary objective of the service design team is to lead the company in co-designing comprehensive service experiences, prioritising people and the planet while also strengthening connections with consumers, customers and internal users. Operating across various levels of service delivery, the service design team undertook projects from strategic planning to execution, intending to generate human-centred outcomes. They share core competencies with other teams in other business functions, including consumer-centric approaches, strategic thinking, structured and visual mindset, research-driven insights, future-oriented perspectives, storytelling capabilities, problem-solving skills, and a commitment to social and environmental responsibility. A significant focus of the service design team's efforts lies in transforming the organisation's sales function by helping to implement the SAP S/4HANA enterprise resource planning system/software. The integration of SAP S/4HANA[5] is usually aimed at streamlining sales processes, providing centralised management of sales orders, customer information, pricing, inventory and distribution. Adopting SAP S/4HANA in the company's context facilitates real-time visibility into sales operations and improves decision-making and operational efficiency. The service design team applied their expertise to sales processes and operations to infuse a customer-centric approach. Collaborating closely with the digital teams, they also enhance user experiences (UX) and explore innovative business opportunities and value propositions to augment the existing sales offerings.

The service design team provides a distinct perspective and valuable skills to their context. They have adopted a collaborative, multidisciplinary approach, seamlessly transitioning from strategic visioning to practical implementation. Guided by customer centricity, they conceptualise individual touchpoints and

[5] SAP S/4HANA is an enterprise resource planning (ERP) software suite developed by SAP SE, designed to streamline business processes, provide real-time data processing and enhance the user experience for organisations (Source: www.sap.com)

craft memorable moments within a broader brand experience that spans product, service (online and offline), community and ecosystem interactions. From a research perspective, the service design team demonstrates distinct perspectives and unique capabilities. For instance, in interviews and during participant observations, they described that one of their key strengths was the ability to integrate and choreograph efforts across different vertical business units, ensuring alignment and harmony. By bridging the gap between front-stage (design, digital and retail) and back-stage (people, process and technology) operations, they stated they are able to deliver end-to-end holistic service experiences. They also skillfully balanced the perspectives of consumers, business objectives, operations, technology and sustainability, effectively considering all these aspects in their designs. They shared core competencies with other teams within the company, including a consumer-obsessed approach, problem-solving skills, and a commitment to people and the planet. Collaborating closely with these teams, they aim to scale their impact, furthering corporate priorities and achieving critical business outcomes. By placing people and the planet at the core of their designs, the service design team aims to co-create holistic service experiences that resonate with consumers, customers and internal users. Their multidisciplinary approach, combined with the ambition to integrate different business units and perspectives, was created to allow them to unlock new possibilities and achieve business success. As such, service design expertise was positioned to elevate the sales function and propel the organisation towards a digital transformation that embraced innovation, efficiency and customer-centricity.

Operating at different levels of service delivery, the service design team works on projects from strategy to execution to create meaningful and impactful organisational outcomes. During the research, they were involved in a diverse range of projects. For instance, one project involved developing a digital retail strategy for the coming years, which entailed conducting research to understand and outline the needs of both customers and consumers. By gaining insights into their preferences, behaviours and expectations, the aim was to develop a set of opportunity areas to align retail operations more effectively for the future. Another project involved supporting the organisation's expansion into international markets, where shipping services were not currently offered. In these projects, the team played a role in designing the customer and consumer journey for these new experiences and developing a prioritisation tool to help teams with key decision-making when implementing international shipment features in new markets.

In this case study, the focus shifted from understanding 'service design' as designing specific services to creating infrastructures supporting consumer experience and organisational efficiencies. Unlike service design practices focused on, for instance, designing digital platforms or circular service offerings, the internal service design team of my case study addressed consumer and operational challenges within their organisation. Despite not yet defining service design for themselves or its broader business context, they used service design methodologies to tackle intricate internal issues, often involving applying service design principles to improve operational processes and consumer-facing experiences. In the organisational context of my case study, service design expanded beyond its traditional definition and included addressing relational and cross-functional issues, resolving operational challenges and enhancing organisational processes, while aiming to improve team capacities for human-centricity and collaboration. Consequently, the application of commoning in this industry case study may appear unconventional too, compared to previous design/ commoming case studies (e.g., Seravalli et al., 2017; Botero et al., 2020; Teli et al., 2022; Schranz, 2024). Instead of emphasising specific resource management typically provided through a service, such as a community collectively managing a shared resource like a public park or a digital platform, the focus here is on connecting design and commoning approaches to enhance organisational governance and collaboration practices. This involves designing infrastructures that can support collaborative commoning within the organisation in order to gradually steer it towards improved stewardship practices.

6.1.4 Industry case study timeline of two-year ethnographic work

The table below summarises a timeline of the two-year ethnographic study that underpins my research into commoning practices within an organisational settings of a sportswear manufacturer. This timeline offers a high-level overview of key events and research activities, detailing their occurrence and frequency. Its inclusion at this point serves to encapsulate the depth of the study, as extensively detailed in the methodology chapter, providing a quick-reference to the chronological progression of the ethnographic work undertaken. While the comprehensive details of these activities are already explored thoroughly in the methodology section, this timeline serves as a reminder to summarise the sequence of ethnographic activities. (6.2 and 6.3).

Table 26: Overview timeline of two-year ethnographic work

<table>
<tr><th>2021</th><th colspan="4">2022</th><th colspan="4">2023</th></tr>
<tr><td>Q4</td><td>Q1</td><td>Q2</td><td>Q3</td><td>Q4</td><td>Q1</td><td>Q2</td><td>Q3</td><td>Q4</td></tr>
<tr><td colspan="2">NDA creation
● 3 drafts & final version

Participants:
Director Business Architecture, Legal, UAL, PhD researcher

Key takeaways:
Setting the legal framework for the case study research and collaboration</td><td colspan="2">Interviews & observations
● 15 interviews
● 72 case study observations

Participants:
Service design and business transformation team, sustainability experts, PhD researcher

Key takeaways:
Providing insights into the validation of the three working hypotheses and planetary health challenges.</td><td colspan="5">Action research
● 17 participatory action research activities (3 Awareness activities (6.3.1) & 15 Prototyping Commoning activities (6.3.2)
● 3 commoning artefact prototyping activities

Participants:
Service design and business transformation team, PhD researcher

Key takeaways:
Providing insights into answering the three research questions, testing and adapting commoning approaches to the organisational case study context and the development process of creating the final 'Commoning by Design' artefacts and framework.</td></tr>
<tr><td colspan="2">/ Informal conversations & calls with the case study to set up the research (3-4)

/ Planning of research activities, observation & awareness phases</td><td colspan="2">/ In-depth interviews with SD and business transformation experts (8)

/ Informal conversations with company sustainability experts (7)

/ Observations of service design projects, sustainability, EU taxonomy, service design, digital sales and strategy meetings (72)</td><td>/ Urgency alignment (2)

/ ESG Wheel (1)

/ Com-moning Design (1)

/ Shared purpose (1)</td><td>/ SES eco-system mapping (6)</td><td>/ Collabo-ration canvas (3)</td><td>/ Plane-tary actor cards (3)</td><td>/ Com-moning compass (1)

/ Com-moning canvas (1)

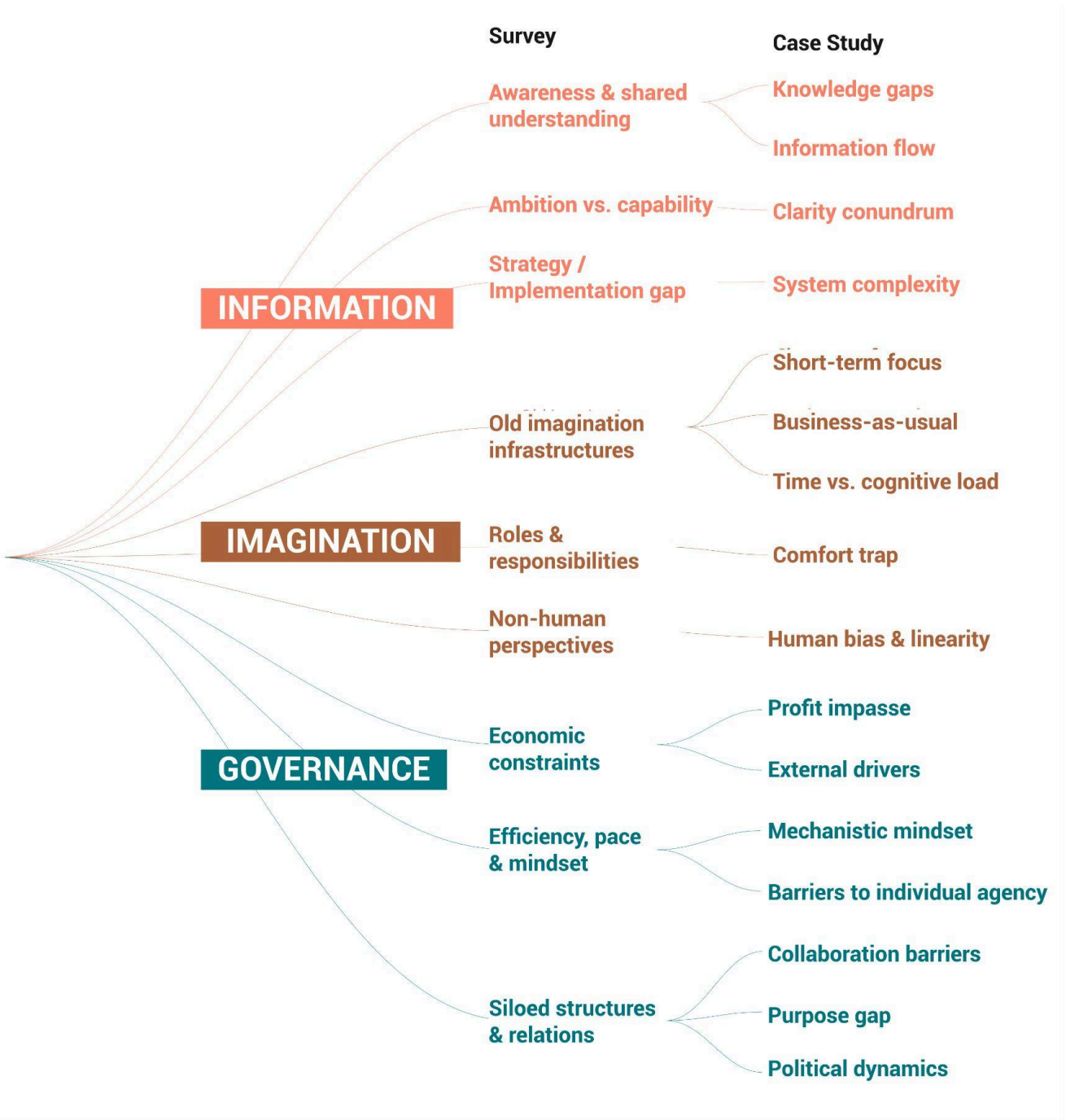
/ Com-moning cards (1)</td></tr>
</table>

6.2 Planetary health challenges in the case study context

To understand the planetary health challenges within the organisation, the case study research began with a multi-faceted approach that included participant observations, interviews and secondary research data to delve into the planetary health challenges. The objective was to examine the three identified planetary challenge categories of information, imagination and governance (Whitmee et al., 2015) within the context of the case study organisation's service design and business transformation practice. The primary focus was on understanding the experiences of individuals facing these challenges in the case study environment. Insights from the scoping survey (see 5.1.4) provided a foundation for what types of planetary health challenges to look out for in contemporary design practices. These insights were further refined by analysing interview and participant observation data from the case study.

This process shed light on the specific planetary health challenges that a large-scale global organisation and its internal service design team might encounter. The research confirmed the existence of the three planetary health challenge categories – information, imagination and governance – in the case study context. These challenges were found to be interconnected, underscoring the systemic nature of an organisation's efforts to adopt planet-centric approaches. Information challenges revolved around knowledge gaps, broken information flows and a lack of clarity in key messaging and across teams. Imagination challenges encompassed barriers to envisioning alternative futures due to short-termism, driven by current growth-focused business paradigms, constrained creativity, and human bias preventing designs for non-human entities and multispecies. Governance challenges involved structural and mindset limitations, as the case study's current business model made the adoption of sustainable options more challenging and expensive to implement. A hierarchical culture added complexity due to political dynamics and a lack of shared company-wide sustainability purpose and individual agency. The following section will present each insight relating to these challenge categories in more detail and conclude with overall reflections and key learnings.

Figure 39: Comparing scoping survey findings with planetary health challenges from the case study



6.2.1 Information challenges

The sportswear manufacturer encountered a series of information challenges when attempting to embed sustainability approaches – including CO2 reduction strategies and other methods and practices that an organisation can adopt to minimise its environmental impact – into their business transformation and design practice. These challenges encompassed knowledge gaps, which manifested as a deficiency in know-how, confidence and awareness, significantly impeding the team's ability to adopt and implement sustainability practices into their work. Information flow from the global sustainability team suffered from broken ripple effects, limiting the seamless dissemination of sustainability strategy and principles. A clarity conundrum emerged due to unclear company direction and alignment, hindering well-informed decision-making. The team also faced complexity of information within everyday organisational realities, making it challenging to incorporate sustainability practices. These information challenges limited the service design team's capacity to develop and integrate sustainability practices, impeding their ability to make well-informed decisions based on sustainability targets and effectively drive more sustainable change. The section below will provide a detailed summary of each insight gathered.

Knowledge Gaps: Lacking know-how, confidence and awareness

Knowledge gaps in economic theory, systems theory and sustainability/ecology
Research participants recognised substantial knowledge gaps in economic theory, systems theory and ecology. One research participant (6) highlighted the consequences of lacking knowledge of business processes, ecology and material sustainability, saying, *"So, when we want to make connections into the company and talk about sustainability concerns, we lose credibility if they realise we don't know what we're talking about."* This quote underscores the impact of knowledge gaps on the participant's ability to engage effectively in sustainability-related discussions or include sustainability expertise in their work. Participants emphasised the need to acquire more information and engage with experts in meaningful conversations throughout their projects. Participants also desired more specialist knowledge and access to internal and external resources to address these gaps. Another participant (4) emphasised the need to learn more about the topic of sustainability and planetary health, stating, *"We need to know more… We need to read more books, we need to read more papers, we need to probably speak to more experts, because, otherwise, we won't be able to have those important conversations."*

The service design team faces challenges when integrating environmental with social and governance factors for regenerative change, which participants (3, 4, 5, 6) define as *"the ability of systems not only to sustain themselves but also to improve over time."* Participants feel that regenerative change requires a holistic approach that addresses the interconnectedness of the environment, economy and society, but that the organisation is not yet set up, nor does it have the knowledge to embrace all aspects in equal terms. Encouraging open communication channels can facilitate the dissemination of knowledge across areas throughout the organisation. As one participant (12) noted, *"The word sustainability is being used more and more often, and people really want to work on it, but they don't know how."*

Learning and training shortage
In the context of sustainability and regenerative change, *"there is a need for greater expertise and structured programs to support sustainability initiatives, as not everyone may have the necessary knowledge and experience" (Research participant 7).* Retail staff need to be well trained and have the right levels of expertise, especially with new regulations coming in and consumers becoming more educated. Participants acknowledged that their traditional business-led approaches might not suffice, emphasising the importance of continuous learning and exploring new tools and approaches. To bridge these knowledge gaps effectively, the organisation should invest in targeted training programs and

provide access to expert insights. One participant (6) emphasised the need for dedicated time and resources, saying, *"There's a lot of thinking and doing that needs to come from scratch. That's complex because we need to have the time to define new ways of working, which we don't have."* Another participant (4) stressed the need for training and learning, stating:

> *"I really, really want to work more and expand my service design skill set around sustainability. The point is that we need a lot of training and learning because, at the moment, we just don't know enough to have those important conversations with the right stakeholders."*

The absence of a cohesive learning platform for sustainability and the lack of a clear sustainability strategy, pose additional challenges to collaboration. Employees expressed difficulty accessing and retaining sustainability-related knowledge, due to a lack of interactive learning resources and adequate time to use them. To address this challenge, participants suggested creating schedules of routines and meetings with other teams and disciplines and establishing a knowledge-learning speaker series to facilitate cross-functional learning and knowledge sharing. At the same time, this knowledge challenge seems closely tied to the company's underlying economic and governance model, including a lack of time and financial means to invest in sustainability upskilling programs in teams that are not strictly sustainability related.

Impeding informed decision-making

Research participants raised questions about using sustainability knowledge effectively in important decision-making processes. For instance, when designing back-of-house blueprints and deciding on supply-chain process design decisions, a participant (10) highlighted this concern, *"We have a lot of internal sustainability know-how that sits in other teams, but do people know how to access these insights? Do they use them when their decisions need to be made*? *The answer is no, they don't*." They found that a lack of clarity and fragmented flow of information within the organisation, along with silos and limited transparency, can obstruct effective decision-making on a daily basis. Participants emphasised the need for enhanced communication and transparency across value streams and teams in order to develop a holistic understanding of actionable sustainability-related insights for effective and responsible decision-making. Another two participants (13, 8) emphasised the need for clarity in distributing information, stating:

> *"How do we distribute sustainability insights so that whoever is making decisions on how we are investing is informed?"*
>
> *"Where the knowledge and insight get generated is often in the strategy teams, which look three years ahead of time… It is sometimes hard for them because they might think: 'OK, now I have the insights, but how do I distribute them?' It is complex for an individual to know."*

Impact awareness gaps

The case study organisation faces a significant challenge of employees lacking awareness of how their work contributes to the company's sustainability targets. This lack of awareness arises from a general unfamiliarity with the targets and their application to specific work areas. Notably, in sales, where the primary focus is increasing conversion rates, it becomes difficult to envision how sustainability can be meaningfully integrated. However, it is crucial to recognise that sales-related decisions, such as expanding international shipment options, involve sustainability factors in supply chain processes. One participant (14) emphasised the need for better comprehension of the consequences of initiating or discontinuing initiatives, stating, *"We know that if we initiate or stop an operation, we don't even know who would be impacted in the wider system."*

One participant (9) highlighted the company's relative sustainability compared to others in the industry, noting investments in research, materials and production. They stated, *"I believe the company is sustainable, at least a little more sustainable than many others in the industry. But I don't actually know what our impact is".* A critical question arises regarding how the sustainability strategy translates into actionable guidance for design teams and how necessary information trickles down. The participant (1) further emphasised the need to provide teams with something to orient themselves with, stating, *"We must give the teams a clear direction to head towards".* To bridge this awareness gap, the organisation should prioritise transparent communication of sustainability targets, provide guidance on how these targets translate into actionable guidance for design teams, and cultivate a deeper understanding of the role and contributions made by all departments.

Information flow: Broken ripple effects

Opaque workflows

In the context of the organisation's information challenges, one issue lies in transparent workflows and processes. This concern is vividly conveyed by a participant who expressed anxiety about the fate of products sold by the company, questioning the destiny of thousands and millions of these products, and the lack of attention given to these critical questions. This participant noted a prevailing indifference towards these inquiries, raising doubts about the seriousness with which such concerns are taken and prompting questions about the need to reevaluate their underlying business model. Moreover, the participant pointed out that the organisation lacks knowledge about its current processes, indicating a lack of clarity and insight into the company's inner workings. Another aspect contributing to the opacity of the organisation's workflows was the lack of transparency in the origin and reasons behind the themes that emerge from the strategy cycles. For instance, one recent investment theme focused on redesigning online membership programs to align with the growing importance of sustainability for customers. The goal was to create innovative loyalty experiences that resonated with consumers and drove long-term value for investors, while adhering to the company's sustainability commitments. As a result, participants find themselves with incomplete understanding, uncertain about how and where these themes originated, which adds to the challenge of comprehending the broader strategic context and embracing a sustainable lens. Another crucial problem is identifying the necessary teams to work on specific topics. A research participant (2) highlighted this issue:

> "*The problem is that we don't know what teams we need to work on certain investment themes. And then we have a problem during execution when we finally realise what teams we need, but, by then, they have other priorities and no time for us.*"

This lack of clarity in workflow and team allocation leads to inefficiencies during the execution phase, impeding progress and potentially hampering sustainable project outcomes.

Silos

The presence of silos within the organisation poses a significant challenge to information flow and collaboration, hindering the effective integration of sustainability approaches. Research participants have highlighted the impact of these silos on knowledge sharing and dissemination. One participant (9) stated, *"Strategic insights and guidance go into silos and are then supposed to trickle down. But often it doesn't work, and the flow is stopped somewhere."* This limited flow of information prevents the organisation from fully executing its strategy and leveraging its employees' diverse expertise and perspectives. The organisation also grapples with a lack of information about shared values and a North Star. As one participant (4) pointedly stated, *"I don't know what our shared values are. What is our North Star?"* This lack of communication and clarity on shared values can result in confusion and

misalignment within the organisation's vision. Participants agree that it is essential to break down silos and foster cross-functional collaboration to address this challenge. By establishing platforms for collaboration and promoting transparency, research participants argue that they might be able to engage in more meaningful discussions and share valuable sustainability insights. Creating opportunities for individuals across different teams to contribute to sustainability initiatives might help bridge the gaps caused by siloed information. In addition to internal collaboration, ensuring the flow of information from higher-level teams to other departments is crucial. Participants expressed concerns about how sustainability insights generated in management teams often do not reach those who need them for decision-making and investment purposes. Developing effective distribution mechanisms becomes paramount to overcome this complexity. Another participant (2) emphasised the need for breaking down silos and fostering transparency, stating:

> *"Currently, we are talking to each other, but the investment teams are organised in silos. They are not cross-functional work-related, but rather product-area related. And with that, you have silos right from the beginning and prioritise within silos."*

Support and capability blindspots

The case study organisation faces a dual challenge related to guidance and capabilities in embedding sustainability approaches. Participants highlighted the lack of clear internal guidance on whom to approach and how to seek answers regarding sustainability issues. One participant (5) expressed their uncertainty, stating, *"I don't know how or when to ask these questions or where to turn to seek help on sustainability."* This lack of well-defined communication channels and support mechanisms hamper employees' ability to navigate the landscape of sustainability knowledge and information effectively. The absence of clarity necessitates significant time and effort spent sifting through various channels and sources, sometimes resulting in frustration and delayed access to relevant information.

> *"I know everything tends to be hidden somewhere on Sharepoint. But until I finally find what I'm looking for, months could pass, and I give up" (Research participant 7).*

There is also a blindspot regarding identifying teams needed to work on sustainability initiatives, as already mentioned in Opaque Workflows, above. This lack of clarity on team responsibilities and resource allocation can create barriers during project execution and can result in not integrating sustainability expertise. To address these challenges, the organisation should establish clear and accessible channels for seeking guidance and support, enabling employees to make informed decisions and contribute meaningfully to sustainability initiatives. Additionally, identifying the necessary teams and aligning their priorities with sustainability goals is essential to ensure resource allocation.

Data void

Design and business transformation teams encounter a gap in data availability and insights, when evaluating and comprehending their sustainability performance. While there is a perception that the company is relatively more sustainable than industry peers, the absence of concrete data limits the ability to measure sustainability performance, quantify this perception or make informed decisions about integrating sustainability into work processes. One participant (11) highlighted this data void, stating:

> *"According to the NPS, we are perceived by consumers as a sustainable company... because of the materials we chose or because of… I don't know what it is. There is something out there. But we don't have data to validate this assumption."*

This participant's remark suggests that although there is evidence of positive consumer perception, comprehensive data is lacking to support a subjective Net Promoter Score[6] (NPS) perception. There is also a lack of data when trying to understand how the team could contribute to enhancing sustainability targets through the sales perspective.

> *"We're missing data on how our service design work impacts the company's sustainability performance" (Research participant 3).*

Participants proposed that the organisation should prioritise establishing more robust data collection and analysis mechanisms to address this challenge. By collecting accurate and comprehensive data on sustainability practices, participants state that they might be able to measure their progress more, identify areas for improvement and make informed decisions based on empirical evidence. Embracing data-driven decision-making would enable teams to bridge such a data void and drive meaningful sustainability outcomes.

Clarity conundrum: Unclear company direction and alignment

Terminology and language misalignment

Teams face information challenges in understanding and integrating key terms, like sustainability and regeneration, into their workflows. Research participants highlighted the importance of the social sustainability governance aspect of sustainability, which was previously overlooked and not even understood. One participant (5) reflected, *"I had a blind spot to how important the governance part was when it comes to sustainability and think many others think of sustainability in environmental terms only."* Another participant acknowledged that their vision of sustainability lacked the inclusion of governance, but now, after the research engagement, they see it as an essential piece completing the puzzle. The complexity arises from the need to produce results within the working environment while exploring new areas. Participants emphasised the necessity to align definitions and key terminologies. As one participant (3) admitted, *"It's complex because we need to have the time to align and define ways of working. Too often, we don't and end up with different understandings."* The organisation also grapples with conflicting company views on sustainability and employees' personal values. Some participants (8) expressed their concerns about the company's progress on sustainability, noting the long way ahead for improvement:

> *"I work here, and I like this company and the environment a lot, but sometimes, being fully transparent, the company view conflicts with my personal views on sustainability and what I believe to be my values."*

Participants recognised the importance of framing sustainability within the company strategy amid these challenges. By inviting people to discover sustainability and embed it in the design process, they aim to navigate the complexities effectively.

> *"One of the good things about our strategy is that it says the word 'sustainability', so I can frame it up to help ensure we deliver against this. It could start with awareness and inviting people to go on this journey of discovery. At its core, we could say: Hey, let's check with ourselves on how sustainable we would like to be. Then it's a way of being more aligned and having the company's mandate to do that." (Research participant 1)*

[6] A Net Promoter Score (NPS) is a metric measuring customer satisfaction and loyalty based on their likelihood to recommend a product or service. It uses a scale of 0-10, categorizing respondents as promoters, passives, or detractors. The NPS is calculated by subtracting the percentage of detractors from promoters, yielding a score from -100 to +100. Higher scores indicate stronger customer advocacy.

Language misalignment poses an information challenge for teams, as terms like 'planetary health', 'degrowth' and 'regeneration' may be perceived as unhelpful or too abstract. Participants state that practical reframing of these terms into business language is crucial. Instead of focusing on 'planetary health', the word 'sustainability' provides an entry point and has therefore been used in this research. Instead of 'degrowth', individuals can talk about building resilient companies. Similarly, 'regeneration' can also be reframed to emphasise long-term stability and navigating the VUCA (volatile, uncertain, complex and ambiguous) world. By adopting this practical language, the service design team might be able to bridge the gap between sustainability goals and business objectives, fostering a shared understanding and commitment to a sustainable and regenerative future.

> *"We need to put it in a way that we don't talk about 'not growing' to those who care about the growth bit, like our shareholders and owners who want to make money. Instead, let's talk about how we live in this crazy VUCA world and how we can become stable in the long-term." (Research participant 1)*

Another research participant emphasised that at its core, the concept of growth is about promoting stable companies rather than solely focusing on traditional upward growth. They highlighted that growth can take on various dimensions, such as expanding the root system or following transformative paths, much like a butterfly's metamorphosis. The participant suggested that therefore repositioning the idea of 'degrowth' towards resilience could foster greater buy-in and motivation within the company.

Missing North Star

Research participants expressed concerns about the absence of a company-wide North Star relating to sustainability guiding their path towards more regenerative practices. One participant (10) reflects:

> *"I think the future we need is far, far away for the company, if I'm being brutally realistic. A future where we are going to rethink the business model to stop thinking about growth and infinite growth, and to start building regenerative practices. Sustainability is in our strategy, but it's unclear how all teams can relate to it."*

Participants state that the organisation currently emphasises growth and sales without a clear sustainability-led purpose, leaving regenerative mostly efforts overlooked at a more systemic level. Participants also highlighted the need to reduce harm and prioritise sustainability actions before aiming for net positivity. One participant (5) remarks:

> *"We are very far from being a company that can just jump into redesigning their business model and become more regenerative. I think right now we're even far away from being in a good position to reduce harm."*

While some progress has been made, with sustainability and social responsibility becoming part of the company's strategy, participants note the absence of explicit goals and a clear understanding of success beyond financial achievements. As one participant (6) points out, *"We don't have a clear North Star, and I think we lack a good understanding of what success means to us other than monetary success."*

System complexity: Submerged by organisational realities

Organisational complexity

The organisation faces knowledge and information complexity challenges, as one research participant (9) expressed, *"There are small things that can be done, focusing on less consumption or repair, which*

are great concepts generally, and good for brand and marketing purposes. But it's complex, as these are happening in small pilots, and we really have to understand how to make the jump from small pilots to bigger global initiatives so it can create more impact."

Another participant (1) emphasised the complexity of knowing how to integrate sustainability and regeneration within the organisational context, stating:

> *"The challenge is clearly right: how do we integrate sustainability and regeneration and make it meaningful in the context of our company? But I think in the broader context of, you know, a late-stage capitalist organisation, the challenge is how do we shift mindsets, behaviours, value propositions, incentives, etc., towards this transitional path? So, the principle agenda is clear, but the organisational context is complex to navigate."*

Research participants (13) state that the organisation acknowledges its potential for transformation, but highlighted that it is not an overnight task and involves fast and complicated efforts:

> *"From an organisational perspective, you can see that our company wants to and does have the potential to shift and transform towards a more regenerative path. And, still, I don't see this happening overnight; the task is vast and complicated."*
>
> Understanding value generation and overcoming siloed Invest teams are additional hurdles, as explained by research participants (2):
>
> *"For me, the initial approach is to understand how we generate value today. Essentially, it's like taking a snapshot to comprehend which teams need to collaborate in order to generate value. But this is quite complex and challenging. At the moment, we are talking to each other, but the Invest teams are siloed. They are not work-related but rather product-area related. And that's where the problem starts with silos and prioritising within them, making it difficult to get an overview."*

Unknown leverage points

In complex organisational systems, symptoms of issues often manifest without clear visibility of their underlying root causes. Participants stated that it becomes crucial to understand, visualise or see these hidden factors to achieve system improvement. As a research participant (1) pointed out, *"it boils down to understanding what you are replacing. But, often, we don't know what the leverage points are. Finding them is essential to bring about sustainable change."* This observation underscores the necessity of identifying crucial leverage points within the system, as they serve as catalysts for initiating transformative actions and encouraging positive shifts. Organisational complexity and siloes (linking to the point above) can obscure these leverage points, making it challenging for individuals to discern where the most effective interventions should be applied. As an example of this, participants expressed concerns about greenwashing within the organisation, as a byproduct when those important interventions are not identified early enough. While the company's intent to promote sustainability is genuine, some initiatives may be perceived and delivered as greenwashing by only superficially addressing the issue without activating actual leverage points. As one participant (10) elaborated:

> *"Sustainable concepts will probably be marketed in a slightly different way, but you're not really provoking any thoughts with consumers. We're not really saying to consumers, 'reduce your consumption', and therefore are not removing the problem from its root. Not changing the underlying issues or our business model. I'm not going to change the way I approach my consumers. I'm just going to make the product less harmful."*

6.2.2 Imagination challenges

As the service design team aimed to infuse sustainability approaches into their business transformation and design practice, they faced a range of imagination challenges that hindered the adoption of fresh and innovative design methods, moving beyond the conventional human-centred neoliberal growth-based approach. These challenges include the tendency to focus on short-term goals, limiting progress and imagination to small and incremental steps, and the comfort of sticking to familiar human-centred tools and techniques, which can stifle creative thinking. Additionally, time constraints and adherence to profit-driven business-as-usual practices restrict envisioning sustainable business models. Also, cognitive overload and human biases can lead to inaction, and teams may struggle to explore perspectives beyond human needs. In the following section, I will dive into a comprehensive exploration of the gathered insights.

Short-term focus: Restricted by incremental steps

Neglecting long-term purpose
Research participants revealed an imagination challenge when it comes to embedding long-term purpose and barriers around imagining more sustainable solutions and decision-making processes. One participant (2) emphasised the need for increased cross-functional collaboration, stating, *"Ideally, we would really need a big room where cross-functional teams can meet and discuss their investments, aligning on a shared long-term vision."* This highlights the lack of coordinated efforts and shared purpose across departments. Another participant (11) stressed the importance of incorporating sustainability as a lens for evaluating ideas and concepts during funding evaluation, addressing the need for sustainability assessment in the prioritisation process:

> *"For Retail, we now have a third dimension, which includes the consumer lens. This means that in our prioritisation process, we consider not only finances and the business case but also consumer desirability when evaluating ideas and concepts for funding. Sustainability is still missing and should be integrated as the fourth lens, serving as an assessment or even as an investment theme at a higher level, indicating where we should invest in the first place."*

The company's reliance on portfolio management tools raises concerns about aligning actions with long-term value generation. As one participant pointed out, current operational processes focus on achieving short-term objectives without systematically questioning the organisation's long-term value-generation goals. This approach often leads to a disconnection between daily tasks and the broader vision, potentially leading to misalignment with strategic objectives. The lack of clarity surrounding the company's overarching purpose inhibits the development of a cohesive sustainability strategy, including new concepts and ideas. One participant (12) highlighted that *"The company doesn't ask what its organisational purpose is, nor how it can be measured or fulfilled across departments. There is a gap to be filled."*

A pragmatic lens
Amidst the pursuit of sustainable transformation, the organisation encounters the unique challenge of striking a balance between pragmatism and imagination. While pragmatism is essential for practical decision-making and implementation, it runs the risk of limiting imagination and constraining innovative solutions. Research participants highlighted the need for gradual change due to the organisation's complexity and dependence on existing systems. As one participant (14) explained, *"I know we cannot just change our business model from one day to the other... it is not something that can be done immediately."* This pragmatic approach ensures stability and protects employees' livelihoods but may inadvertently stifle radical imagination and transformative endeavours. A catch-22 scenario. Another

participant expressed optimism about integrating sustainability principles into the organisation's strategy. This progress demonstrates the organisation's willingness to embrace sustainability as a guiding principle, but the challenge remains in translating this vision into tangible and imaginative actions that surpass incremental steps. One research participant (1) said:

> "*The key is not to come out too strong. I know the planet needs us for all the right reasons. And yet, taking a strong approach will just bounce straight off the organisation, and we won't get anywhere. From a pragmatic perspective, influencing change is through taking steps. It's critical to talk the language that the company is talking and nudge towards where it needs to be.*"

The same participant (1) suggested, *"I'm seeing that we need to be aligned as a team towards this overall topic... it's better to be in the room to influence change than not being invited to the meeting."* Encouraging cross-functional collaboration and providing opportunities for employees to explore unconventional ideas is seen to be a step towards unlocking untapped potential for sustainable change.

Net sales and market capitalisation metrics

The organisation faces another imagination challenge driven by overemphasising traditional growth metrics, such as net sales and market capitalisation. A fixation on financial performance can restrict creative thinking and innovative problem-solving. As one research participant (1) pointed out, *"Right now, we're talking about growth in the measure of net sales and market capitalisation."* This myopic focus on financial indicators can overshadow the need to explore alternative, more radical, imaginative approaches to address our pressing planetary issues. This challenge is compounded by the organisation's prioritisation of specific trends and business areas, driven by top-level sales-driven decisions. The participant remarked, *"Digital is a sales function; you're there to push sales. The commitment and the priorities are set from the top."* As a result, the organisation's focus may shift rapidly between different trends and market demands, diverting attention from long-term sustainability considerations and consumer-centred perspectives.

Comfort trap: Perpetuating familiar tools

The comfort of (tweaking) known methods

Teams face an imagination challenge in finding the right balance between adapting existing tools and embracing new approaches to drive sustainability initiatives. Research participants highlighted the importance of rethinking and adding to current practices to foster change, while acknowledging the comfort and security that familiar methods provide. One participant (14) emphasised, *"We can have a component of rethinking or adding to existing practices and to define what example needs to change and how."* This insight underscores the need for a pragmatic approach that builds upon established foundations while incorporating innovative elements. Efficient time management and collaborative rituals are key factors in addressing this challenge. Participants stressed the significance of allocating time to share knowledge and progress, and creating spaces for work to be accomplished. As one participant (3) explained, *"You need time and rituals where you share what you learn, and times where work gets done."* Participants (5) stressed the importance of integrating sustainability values into project evaluations and decision-making and the need to have tools for this: *"Every time that we have a new project, we should have some sustainability tools to evaluate what we want to work on based on our priorities and sustainability conversations."* This approach, they argue, could ensure that sustainability objectives remain at the forefront of project planning and execution.

Participants questioned the trade-offs between introducing entirely new approaches and modifying current structures to achieve similar outcomes. As one participant (1) pondered, *"The question is, is the effort worth the impact it can have?"* Integrating new ways of thinking into familiar processes, such as

replacing stakeholder mapping with lifecycle assessment, can lead to more holistic perspectives without significantly increasing the workload. However, addressing this imagination challenge requires thoughtful consideration of how existing tools can be refined and where new approaches can drive meaningful impact. By striking a balance between adaptation and novelty, the organisation might enhance its sustainability initiatives and promote collaborative problem-solving. The research participants displayed a strong inclination towards learning from existing tools and case studies of sustainable or regenerative design approaches, highlighting a challenge in envisioning novel methods when evidence-based case studies are lacking. Having tools and templates available served as a focal point, offering the participants a sense of structure and security. However, the prospect of developing entirely new content evoked feelings of uncertainty, risk and discomfort. *"It's hard to imagine what else there could be. Do you have any examples of tools or case studies from other places?" (Research participant 6).*

Effort vs impact

The service and business transformation team must navigate the delicate balance between adopting new approaches and assessing their effort versus tangible business impact. Research participants highlighted the importance of testing and iterating tweaked approaches to find the right balance that aligns with their goals. One participant (3) noted, *"It's testing and iterating, testing and iterating until you find the right balance for you and something that works."* This iterative process allows teams to refine their strategies, ensuring that the effort put into adopting new tools or approaches yields meaningful outcomes. At the same time, communicating the potential impact of these new approaches to others within the organisation is crucial in order to free up valuable time to test and develop them in the first place. Impact is typically evaluated through metrics, which, in turn, are often based on profit-centric economic business models, in other words, improving employee productivity or meeting company or team KPIs (Key Performance Indicators). As another participant (9) emphasised, *"You need to communicate to others, that these are the things that we're trying to achieve with this new approach, and these are the differences they will make. This takes extra time".* Above all, participants stress the critical importance of rigorously assessing whether the effort invested in developing new ways of working aligns effectively with the anticipated impact. As a research participant (1) said:

> *"What is the amount of effort required to use and socialise a new tool, what level of granularity do you need to go into? How stable it is, versus being a framework that needs to be filled in dynamically."*

Demotivated by the past

Research participants revealed another imagination challenge related to comfort in the context of feeling demotivated to try something new, especially when previous attempts have failed or proven to be difficult. The comfort derived from familiar methods and established practices leads individuals to resist deviating from the known path and experimenting with innovative approaches, particularly when they have negative past experiences. As one participant highlighted, there might be a tendency to adopt a fixed mindset in large corporate settings due to previous experiences with methods that resulted in a stagnation or did not bring desired results. The fear of repeating past failures or encountering obstacles may deter individuals from stepping out of their comfort zones, limiting their willingness to explore new possibilities and creative solutions.

> *"So sometimes people start to have a bit more of a fixed mindset, because maybe they have tried different things and they didn't work. And then there is a bit of slowing down in pushing new practice" (Research participant 13).*

The research participants underscored the need for a dedicated commitment to the process, allocating sufficient time, and establishing structured rituals for knowledge sharing and collaboration.

> *"I'm currently plotting ideas for new sustainability tools on our project lifecycle that we can commit to and that are inspired by the research to understand how and where we can create or tweak existing tools" (Research participant 6)*

By creating an environment that values learning from mistakes and celebrates failures, teams might be able to overcome the demotivation brought on by past attempts. The service design team grapples with a sense of dehumanised work processes and their impact on employee wellbeing, leaving individuals feeling disconnected and unable to bring their full selves to work, hindering their capacity to contribute innovative ideas. One research participant (6) emphasised this sentiment:

> *"Relating day-to-day work practice, we don't take time to reflect for ourselves. You're almost not a human, like you don't have feelings, which is so important for employee wellbeing. I think the company really values your health and family on paper. But in practice, it's not always like this."*

This insight highlights the need to promote employee wellbeing and foster an environment where individuals can fully engage, collaborate and contribute their unique perspectives and ideas. Participants stressed that creating a workplace that values the whole person is essential for unlocking employees' full potential, and nurturing a culture of creativity and innovation that can support planetary health.

Business-as-usual: Struggling to imagine alternatives

Growth-driven prioritisation

Imagination challenges result from overarching strategic processes primarily driven by growth and profit-oriented goals. According to one research participant (2), *"It's about growth and optimising the order cycle and consumer experience. We are trying to create more value for the consumer."* The process involves enterprise-level strategy development, where value streams are defined every five years based on business goals, primarily serving shareholders' interests. This prioritisation currently lacks a crucial element – sustainability, as highlighted by another participant (7), *"sustainability is currently missing from this process".* While future experience roadmaps get created, encompassing business and consumer value assessments, the absence of sustainability as a fundamental criterion in evaluating ideas and concepts for funding is evident. The participant (4) pointed out, *"It was important for us to include the third dimension, and not just consider finances and the business case when evaluating ideas and concepts for funding. Sustainability is missing from that".* The focus on growth optimisation and customer experience leads to defining OKRs (Objective Key Results) and KPIs for each team, but the current framework still requires integration of sustainability to ensure long-term value creation and to address broader societal and environmental impacts. Top-down sustainability targets do not reach these teams or their KPIs either. Research participants grappled with imagining the viability of sustainability as a transformative offering that can adequately support individuals, generate income and present a sound business proposition. Some participants (13) shed light on the existing hurdles in achieving this goal:

> *"At the moment, we have sustainability lectures for all employees. But when we want to actively contribute, my management says, 'No, my team has to drive the business and growth forward'."*

Management prioritises business growth over sustainability initiatives, leaving little room for them to proactively contribute towards sustainability.

Uncharted terrains
Teams experience an imagination challenge when needing to conceptualise sustainable ideas into viable offerings that align with economic realities. This challenge is particularly pronounced in the context of sustainability and planetary health, where initiatives may incur higher costs for consumers and production. Research participants (4) expressed their experiences regarding this challenge and emphasised the need to help turn initial sustainability pilots into successful business cases, stating, *"I think that having had a service design team that could have helped us power these initial sustainability pilots and really turn them into a successful business case would have been great."* Shortcomings were identified in the promotion and launch of sustainable pilots, with a lack of differentiation from traditional product launches and inadequate consideration of the underlying circular business model options. As another participant (13) mentioned, *"We almost treated it like an ordinary product. Our sustainable pilots then weren't making the numbers we were expecting, we didn't produce the sales compared to our usual products."* The lack of a circular business case, insufficient demand creation and limited understanding of the cost of sustainable products hindered their scalability and success. As the participant (12) mentioned:

> *"We should have treated circular services more as a solid business case, to challenge the usual business setup. So I think we missed an opportunity to really show how this could be a viable proposition for us and how engaging people could contribute to us being a healthy business in the long run."*

Time vs cognitive load: Challenging dominant narratives

No time to challenge the status quo
Substantial imagination challenges arise from the lack of time and capacity to explore new areas and think outside the box, while also being constrained by the demands of producing results and adhering to the status quo. Research participants highlighted the complexity of dedicating time to rethink and prioritise new practices, which require overcoming time constraints and competing priorities. One participant emphasised the need for time for learning and ideation. However, the challenge lies in allocating sufficient time and resources to these endeavours, as participants (6) noted, *"It's not common for us to rethink our practice and add new things to it. And that's where, at least in my opinion, there's complexity in terms of finding time to prioritise this and understand who will be the owner."* Another participant gave the example of how engaging people in an ideation process that aimed to inform strategy development proved to be extremely challenging due to employee time constraints, work stress and lack of capacity. This challenge is particularly complex as it necessitates addressing social sustainability topics and creating human capacity within teams to delve deeper into these areas, including work structures and organisational culture. *"One of the key insights was that it was extremely challenging to engage and integrate people into ideation processes due to time constraints, work stress, lack of capacity and different priorities" (Research participant 2).* Participants (2) stated that to address this challenge, they currently aim to achieve better transparency and clearer decision-making processes:

> *"We are now trying to gain better transparency so that we can hopefully make clearer decisions. Our intention is to approach management and advocate for providing people with time and capacity to develop ideas, collaborate more effectively and, above all, establish a shared goal."*

In the context of fostering sustainability-led imagination, participants also emphasised the need for dedicated space to engage in creative envisioning and storytelling as a means to inspire the team and develop a shared vision. One participant (11) highlighted the value of storytelling, stating, *"What I've seen working really well is when people have time for storytelling if you give people a little bit of space to*

imagine sustainable alternatives...." However, the lack of time and the technical focus often hinder such opportunities, limiting the organisation's capacity to break away from traditional approaches and explore innovative possibilities for sustainability business transformation.

Cognitive overload
In the face of complex systems and uncertainties, service designers encounter an imagination challenge rooted in cognitive overload, which can lead to indecision and, at times, inaction. Research participants (8) highlighted the difficulty of translating big sustainability topics into tangible action and outcomes.

> *"The topics are so complex that sometimes you can feel disempowered to take any action at all…There is so much work to do already and these topics are hard to understand. At least I'm happy that the words sustainability and planet-centricity and being socially responsible are now part of our purpose, mission and vision." (Research participant)*

Participants expressed a strong desire to be actively involved in the conversation to do with regeneration and sustainability and contribute to addressing deep systemic issues. Nevertheless, they also revealed how the overwhelming complexity of the topics can lead to feelings of disempowerment, making it challenging for them to take decisive action in advancing more sustainability-driven work processes. The disconnection between the strategy level and execution (also discussed above in the Information challenges) presents additional complexity. Being close to execution provides a clear understanding of immediate value but lacks the big-picture perspective, while being further away from execution can lead to uncertainties about long-term objectives.

Human bias and linearity: Lacking non-human perspectives

Separation mindset
The findings from the interviews reveal a prevailing "separation mindset" among many participants, wherein sustainability is often viewed in isolation from other crucial aspects of organisational practice, such as diversity, equity and inclusion. This mindset often leads to an incomplete understanding of sustainability, failing to recognise its interconnectedness with social and governance components. As one research participant (10) stated, *"The way the current conversation is around sustainability, I almost hear nobody in the sustainability world really talking about the people element, and so I think it is treated as a complementary piece."* This disconnect prevents implementing sustainability holistically, interconnecting environmental, social and governance aspects. The separation mindset emphasised limited imagination for non-human perspectives, linked to the linear nature of the design processes currently employed in many organisations. These processes often break down complex challenges, such as sustainability, into separate entities to make them more manageable and comprehensible. *"We have different teams looking at all those individual aspects,"* one participant (2) said. Techniques like blueprinting and journey mapping focus on dissecting and analysing individual components, too, overlooking the systemic and relational nature of sustainability issues. *"In our journey mapping, we now include a consumer lens to understand all individual steps of the sales journey. But we don't have a sustainability lens yet."*

Imagination gap for non-human solutions
The prevailing focus on consumerism and human-centric approaches presents a significant challenge in considering non-human perspectives and needs. Research participants highlighted the difficulty of shifting away from the current consumer-oriented mindset, which prioritises human desires and preferences over non-human concerns. One participant (6) emphasised the need for a paradigm shift, stating, *"Yes, we need a change of paradigm. But it starts in our own mindset. We need to cultivate*

acceptance and awareness of what we have, plus avoid consumerism as a form of entertainment." This consumer-driven lens often dominates design processes, making it challenging to incorporate non-human considerations. The emphasis on consumer-centricity limits the ability to conceive and imagine non-human solutions. As one participant (4) expressed, *"At the moment, we stretch ourselves to include a consumer lens. That's already challenging. A non-human lens would confuse people's minds. How do we even consider non-human needs, being human ourselves?"* The deeply entrenched focus on human preferences and experiences makes it difficult for individuals to transcend their human perspective and empathise with the needs and perspectives of non-human entities.

6.2.3 Governance challenges

The governance challenges revealed during the observation and interview analysis present a significant planetary health obstacle for the company as they seek to incorporate sustainability approaches into their business transformation and design practice. These challenges encompass various themes, including the entrenchment in a profit-oriented mindset tied to perpetual growth, a mechanistic leadership outlook with top-down priorities, collaboration barriers arising from organisational silos, a lack of shared purpose and leadership void, navigating hierarchy and political dynamics, barriers to individual agency, capacity constraints and the reactive nature of external regulatory drivers, such as policies and regulations. Subsequently, I will provide detailed summaries for each insight.

Profit impasse: Tied to perpetual growth

Shareholder primacy and profit-based infrastructures
The prevailing paradigm of shareholder primacy influences the organisation's business activities, including transformation and service design endeavours. Participants expressed that the prevailing notion of prioritising shareholders' interests and profit generation tends to overshadow other important aspects, such as social and environmental concerns (see also Imagination challenges). The pursuit of increasing sales and revenue often takes precedence, limiting the exploration of alternative forms of value that could align with sustainability and regeneration goals. As one participant (1) highlighted, *"The hypothesis of care and value for our shareholders to the exclusion of all else didn't work. But still, we are pursuing this"*. The prevailing understanding of value often revolves around the imperative to increase sales and revenue. Another participant (6) said, *"At the end, we are a sales function. So we're there to push sales*". This profit-driven approach can limit the exploration of alternative forms of value and may hinder the consideration of more sustainable and regenerative approaches. Rethinking value definitions and integrating broader perspectives is vital to fostering more inclusive and holistic business practices. As one participant (1) pointed out, *"We need to have a business case in place that explains if we are to add X amount of value propositions pushing people to buy less from us, then how do we keep the cash flowing still?"* To effectively address sustainability governance, participants emphasised the need for explicit structures and dedicated time within job descriptions to focus on sustainability topics. This would prevent sustainability efforts from being easily forgotten amidst other priorities. As one participant (9) pointed out, *"Exploring the governance aspect of sustainability requires explicit structures, perhaps even becoming part of somebody's role. We might need dedicated time for it as part of someone's job description, otherwise, it's too easily forgotten."*

Currently, organisational structures and work processes often reflect established practices rather than prioritising sustainability. As one participant (1) stated, *"Our challenge is how do we shift mindsets, behaviours, incentives, internal structures, etc., towards a transitional path"*. For sustainable initiatives to make a substantial impact, there is a need for a connected organisational model that supports a holistic ecosystem view. Participants (9) emphasised that lacking a connected system with space for

growth hinders the progress of sustainability initiatives. *"We need to have an organisational model to have an ecosystem view. If we don't have a system that is connected or space for personal growth, then any new sustainability initiatives are not really going to go anywhere, nor are they going to create actual sustainable impact,"* one participant said. Moreover, for the organisation to shift towards a more regenerative path, infrastructures that support employees are essential. Participants recognised the potential for the company to transition into a more sustainable approach but highlighted the need for the right collaboration infrastructures to facilitate this change. As one participant (12) pointed out, *"From an organisational perspective, you can see that our company does have the potential to shift to move into the transformational, more regenerative path. But we will need infrastructures to support our employees work together."*

Metrics misalignment

The insights provided by the research participants highlight the critical issue of KPI misalignment when it comes to driving sustainability, which poses significant obstacles to implementing sustainable practices within the organisation. The predominant focus on increasing net sales and revenue as the primary KPI hinders the integration of sustainability-related goals. One participant (11) emphasised this challenge, stating, *"We need to increase net sales and this is one of the KPIs people look at, but in the future we also need to anchor a KPI on sustainability to ensure it is an area we really look at."* The conflict between individual KPIs and company-wide sustainability goals further exacerbates the issue. Participants noted the tension between driving sales and prioritising sustainability. Conflicting scenarios make it challenging for teams to balance short-term financial targets with long-term sustainability aspirations. One participant (10) observed:

> *"The issue is systemic, as people's individual KPIs are often based on increasing net sales and conflict with company-wide KPIs. And this to me is just like a clear manifestation very down the road of having a lack in business strategy at the top."*

Additionally, the lack of well-defined sustainability-related KPIs leaves employees uncertain about their roles and responsibilities regarding sustainability initiatives. Without clear targets and sustainability performance metrics, engaging employees in sustainable practices becomes difficult. Participants highlighted the need for better KPIs, not solely on sales but sustainability perception and engagement. One participant (13) pointed out, *"Engagement and perception, rather than sales, should be the focus of sustainability-related targets. It's important to change KPIs to allow people to collaborate more and implement sustainability (if the company is serious about it)."* A disconnect between brand and brand channels, and global versus local initiatives creates additional challenges in aligning KPIs with sustainability objectives. Participants described how misalignment results in a lack of coherence in sustainability efforts across different organisational levels. They emphasised the importance of bridging this gap to ensure a more unified approach to sustainability.

The cost of sustainability

The cost of sustainability presents a significant barrier to the implementation of sustainable practices within the organisation. Research participants emphasised the financial challenges associated with adopting more sustainable business models and reducing harm. One participant (6) stated, *"We are very far from being a company that can just jump into redesigning their business model and become more regenerative."* The lower profit margins associated with sustainable products pose a dilemma for the organisation. Participants acknowledged that sustainable products often have lower profit margins, and the shift towards sustainability requires understanding how the loss of profit can align with traditional business cases and targets. As one participant (14) said: *"Fact is that we have a lower margin with more sustainable products. A sustainable product only becomes worthwhile in a system where people either wouldn't buy our products, because we encourage buying less, or are willing to pay a premium for that*

sustainable product." The absence of a clear business strategy related to sustainability creates uncertainty about the financial implications of sustainable initiatives. Participants stressed the importance of having a well-defined plan that considers both the potential losses and gains associated with sustainability efforts. One participant (7) noted, *"If you would have a business strategy related to sustainability, you should have a plan to say that we are OK to lose X amount from helping consumers do these activities, but will gain the difference from, for instance, a rental proposition. What we would focus on instead of increasing net sales is increasing engagement – through rental options."* The cost of sustainability impacts profit margins and influences teams' overall readiness to embrace more sustainable practices. Transitioning from small-scale pilot initiatives to larger global efforts requires a comprehensive understanding of the financial implications and how sustainability aligns with traditional business objectives.

Risk of greenwashing

The risk of greenwashing represents another obstacle when implementing sustainable practices within the organisation. Research participants emphasised the delicate balance between marketing sustainability efforts to consumers and ensuring a genuine commitment to sustainability. One participant (13) expressed concerns, stating, *"It's tricky because consumer perception is something that we naturally care about. But are we focusing on how they perceive us superficially – or are we actually trying to reduce materials and communicate the positive impact we have?"* Sustainability must be more than just a marketing campaign; it must be deeply integrated into the organisation's values and practices beyond environmental concerns. Participants emphasised that sustainability should not be merely used as a marketing item towards consumers, as it may lead to confusion and undermine the authenticity of sustainability efforts. One participant (8) stated, *"Sustainability needs to be honest, otherwise, it may lead to accusations of greenwashing."* The legal team collaborates with the brand communications team to develop approved sentences and terminology for consumer-facing storytelling to avoid greenwashing. As noted, *"Teams are constantly working with brand communications on approved sentences and terminology for consumer-facing storytelling to ensure all teams are on the same page."*

Mechanistic mindset: top-down priorities

Top-down decision-making

Top-down decision-making structures can cause stagnation when it comes to spreading sustainable practices within the organisation. Research participants underscored the importance of having a mandate to work on sustainability, shared decision-making and the need to avoid pressuring themselves to have all the answers immediately. One participant (3) expressed this challenge, stating:

> *"Shared decision-making is important. But I also feel like we cannot pressure ourselves to have all the answers to the climate crisis now. I think the important thing is to have these topics in our mind, and know that we really care about implementing them."*

Senior leadership is pivotal in aligning and setting priorities for individuals working on sustainability initiatives. Some participants (6) expressed uncertainty about their ability to impact important decisions. Reflecting on the role of senior leaders, they said, *"I honestly don't know if we can impact anything at our level. Senior leadership should align and set priorities for everyone."* Another senior leader (1) acknowledged their influence in shaping conversations and supporting sustainability efforts, stating, *"As a senior leader, I guess I can sometimes be influencing some of those conversations and support."* The organisation's decision-making structure itself can be a barrier to sustainability and planetary health. In one instance, a participant (13) described the current organisational model as top-down, where decisions and priorities come from higher levels, limiting the scope for bottom-up contributions

to sustainability. They mentioned the need for aligned roadmaps derived from service design and value stream perspectives for more effective decision-making. *"So far, it's a top-down story of priorities and decisions."* Additionally, the participant emphasised that OKRs (Objective Key Results) should describe the 'why' behind actions, but the organisation lacks a clear strategy for achieving sustainable objectives. The lack of prioritising sustainability-based decisions and difficulty in saying "no" to non-sustainable practices at different levels within the organisation compound the challenges.

One participant (2) highlighted the organisation's collaborative nature but noted that it struggles to manage work effectively, leading to potential resource allocation issues. *"We are indeed very collaborative and open, but at the same time, we are very bad at saying no and setting priorities."* A bottom-up approach that empowers teams to take ownership of sustainability initiatives was suggested. However, concerns were raised about the ability to move forward without top-down support. One participant mentioned the risk of teams investing time and energy in topics related to planetary health, only to be blocked by leadership if sustainability is not a key business priority.

Hierarchical leadership culture

A mechanistic leadership culture hinders the implementation of sustainable practices across teams. Research participants emphasised the challenge of integrating regenerative practices in the context of a capitalist organisation, which requires a fundamental shift in behaviours and incentives towards a more transitional path. A mechanistic leadership culture further hinders sustainable practices. Another participant (2) emphasised the challenge of shifting mindsets, behaviours and incentives towards a transitional path, stating, *"The challenge is how do we integrate sustainability and regeneration into a hierarchical culture, and make it meaningful in the context of our company".* Additionally, finding a balance in nudging the organisation towards sustainable strategies without being overbearing is crucial, as expressed by another participant (1):

> *"Being able to find that balance in terms of nudging the organisation into the way we think about positioning and strategy, and to be proud of the fact that it's at least included, while not being overbearing about it suddenly all being about planetary health..."*

The linear process and lack of top-of-mind focus on sustainability at the leadership level slow progress, as stated by a participant (2): *"We have a linear process, and at the strategic level, the value streams are defined. Often, there is no sustainability included. From there, certain strategic themes are built, and then comes the annual funding cycle."* Internal enablers at the leadership level appear to be lacking, as sustainability is not consistently a top-of-mind concern.

Performance pressure

Linear processes and the pressure to produce results through increasing sales or revenue pose a huge governance challenge to the uptake of sustainable initiatives within the organisation. Research participants emphasised the dilemma of wanting to explore sustainability in more depth while needing to produce results in the working environment, as also previously explored in Imagination challenges. One participant (5) explained, *"There's a lot of topics, tools, artefacts and thinking that need to come from scratch. …while having to perform."* The pressure to achieve sales targets and demonstrate profitability often take precedence over sustainability efforts, as noted by another participant (13): *"At the same time, the underlying business model remains, and we have to produce results in sales."* The design team faces the challenge of exploring new areas and rethinking existing practices, while still meeting business targets and producing business results within a growth-focused working environment.

> *"Producing results often takes precedence over anything else." (Research participant 14)*

This highlights the need for dedicated time, the definition of new ways of working, and the establishment of governance structures. The lack of sustainable project management and a platform for employees to learn about sustainability further impedes the implementation of sustainable practices and the integration of sustainability criteria in decision-making. As one participant (7) pointed out:

> *"We don't even have a proper project management process in place, which is applicable to all functions and departments. Every department is doing a project management process and there is no 'green component' in it."*

The lack of clear sustainability criteria often leads to prioritising cost-effective options with potential negative environmental impacts over more sustainable choices.

> *"For instance, when picking vendors and machinery products, you can choose a cheap machine that has a negative sustainability impact but affects the bottom line more positively, or one that is more expensive but brings environmental and maybe financial benefits later on. Currently, the cheap product/service is being bought." (Research participant 12)*

Individualised responsibility

The burden of integrating sustainability is often placed on individuals rather than addressing it systematically within the organisation. Research participants highlighted the issue of individualised responsibility, where companies expect consumers to make sustainable choices and consider product end-of-life, without taking sufficient responsibility for their own operations. One participant (14) emphasised this point, stating, *"Companies cannot put all the pressure on consumers to be responsible and make the right choices and think about a product's end of life."* For instance, the focus is often on creating sustainable products and services without considering the need to dismantle them responsibly. Participants noted that while new sustainable offerings may be introduced, companies overlook the importance of evaluating their own operations for sustainability. As another participant (11) pointed out, *"We might add a new sustainable service or product, so the consumer needs to have the choice to consume responsibly, but we don't look at our own operations so much."*

Individualised responsibility places an undue burden on consumers and overlooks the systemic changes required within companies to drive sustainability. It is essential to shift towards a more holistic and systemic approach, where companies take responsibility for the entire life cycle of their products and services, including responsible end-of-life management. This requires integrating sustainability considerations throughout the organisation's operations and decision-making processes.

Collaboration Barriers: Organisational silos

Collaboration infrastructure disconnect

Broken ripple effects, as discussed in Information challenges, become evident when observing communication and collaboration around sustainability initiatives within the organisation and are highlighted within Governance challenges as well. For example, research participants highlight issues around integrating sustainability into their digital feature teams, as translating the company's sustainability strategy into actionable steps for teams remains a key gap. One participant (8) pointed out:

> *"Here we have our company strategy, which already deals more intensively with sustainability. But how exactly do we translate that into our feature teams? We don't know. It's not present. We need to provide the teams with something they can orient themselves with."*

Communication and information gaps across functions and teams further exacerbate the issue when it comes to collaboration, impeding the flow of knowledge and ideas between different teams working on sustainability. The disjointedness between the operations and brand sustainability strategy teams illustrates the need for more effective communication and alignment. Another participant (13) expressed concerns about the lack of transparency and access to information, saying, *"It's difficult to find anything; you need to find the person that worked with the information first, to find the resource."*

Collaboration infrastructures are disconnected or non-existent, leading to confusion in project execution. Participants point out that teams often lack clarity about other teams' sustainability efforts, and work packages are shuffled back and forth, causing inefficiencies and misalignment. One participant (2) explained, *"There is a risk that work packages only go back and forth. This also applies to sustainability initiatives."* Furthermore, the lack of a unified focus on sustainability from leadership hampers interest in Yammer[7] groups and other resources. The participant (8) stated:

> *"Many employees are not knowledgeable about sustainability or how it's relevant to their work. The lack of a focus on sustainability from leadership and how it can trickle down, means that it is not a priority for employees, and this results in a lack of interest in Yammer groups."*

A lack of collaboration infrastructure became evident in project scenarios when cross-functional teams came together. For instance, experts from service design, digital, business architecture and change management collaborated on a significant digital transformation initiative within the organisation. This initiative aimed to integrate the organisation's digital platforms across finance, sales, operations and customer relationships. Despite establishing clear project goals at the outset, significant collaboration challenges surfaced during the project. While these teams shared a common purpose, they did not establish mechanisms to integrate this shared vision into their daily collaboration. There was also a lack of alignment regarding working methods and desired and undesired team behaviours. Over time, the shared purpose eroded, increasingly highlighting differences in working methods and approaches. This, in turn, resulted in heightened conflicts among team members, requiring management intervention for resolution. The service design team recognised that conflicts and differences were typically addressed reactively after they had already escalated to unmanageable levels. This retrospective approach proved ineffective and was likely attributable to the absence of a robust collaboration infrastructure.

> *"We don't proactively think about how people can effectively collaborate and what processes and supportive structures we may need outside of the usual project management approaches… People feel uncomfortable talking about conflict, or anticipating it when everything is still OK." (Research participant 7)*

Proprietary behaviours

According to research participants, there is a challenge of proprietary behaviours when working in silos. Research participants highlight the presence of knowledge gaps and complexity surrounding sustainability, leading to a lack of understanding among some employees. At the same time, there is a strong sense that sustainability should not be considered everyone's responsibility. As one participant (9) expressed, *"Not everyone in the organisation understands sustainability, and it is a highly complex topic. In fact, not everyone should actually work on sustainability. We take care of it"*. A lack of understanding and limited involvement in sustainability initiatives is further exacerbated by siloed behaviours and practices across teams. Participants point out that certain teams may not have access to or share information freely, hindering cross-functional collaboration. The presence of silos restricts the flow of knowledge, slowing down the progress of sustainability efforts.

[7] A Microsoft social networking service

One participant (13) emphasised this issue, stating, *"The problem is that the information usually goes into silos and then trickles down. But there's no awareness of what value streams people are part of and what the value streams stand for."* Proprietary behaviours can lead to an experienced lack of transparency. When teams or individuals prioritise their own interests over shared goals, it becomes challenging to align efforts and achieve meaningful progress towards sustainability. As one participant (9) pointed out:

> *"The lack of a clear sustainability strategy and the inability to inspire employees is highlighted as a problem. Many employees are not knowledgeable about sustainability or how it's relevant to their work. And those who are but are not in the right team don't have a place to contribute."*

Conflicting team priorities

Conflicting team priorities also hinder effective collaboration around sustainability initiatives. Research participants have highlighted that teams often have distinct priorities, emphasised in different KPIs as previously discussed, which can lead to misalignment and slow down progress in sustainability efforts. As one participant (13) pointed out, *"We have priorities in terms of the company goals, and in terms of what our line manager wants us to work on."* This conflict of priorities extends to sustainability topics as well, with teams having different focuses and roadmaps, making it challenging to achieve a unified approach. Another participant (2) noted, *"We often don't have aligned roadmaps across teams, and teams have different priorities. It's no different with sustainability topics."* Participants acknowledged the difficulty in maintaining global consistency in sustainability messaging, with some markets being more receptive to sustainability efforts than others. This inconsistency in implementation arises due to a lack of ownership and accountability for certain initiatives. For instance, one participant mentioned the challenge of advancing a repair service, which was handed over to retail operations but consequently not sufficiently driven forward. Balancing sustainability with other business priorities and financial constraints poses another challenge, particularly in markets resistant to change. Finding budgetary support for sustainability initiatives in such markets becomes a significant obstacle.

Purpose gap: Bridging a leadership void

Lack of shared purpose in the company DNA

Interviews revealed that the level of sustainability and planetary health integration in the company's DNA and shared purpose determines the effectiveness of collaboration in sustainability initiatives. Without a cohesive organisational focus on these values, conflicting priorities and varying levels of commitment can impede progress. Research participants have expressed conflicting views on the importance of sustainability, with some aligning their personal values and ambitions with the company's sustainability efforts, while others feel distant from the company's approach or that of other colleagues. One participant (13) mentioned, *"The company view is in conflict with my personal views on sustainability …."* This misalignment between personal and organisational values can lead to a sense of dissonance, making it difficult for individuals to fully engage and contribute to sustainability initiatives. Individuals may also feel the need to advocate for their commitment to sustainability within the organisation – as another participant (6) shared, *"On a very personal note, I'm fighting to have some of my hours dedicated to this sustainability workstream."* This indicates that individuals' dedication to sustainability might not always be recognised, harnessed or supported. A lack of alignment on how sustainability relates to each team and should be worked on hinders a shared understanding of strategic goals and ways of getting there. Differing ambitions, such as aspiring to be *"the best team"* in the respective areas are viewed as competitive rather than collaborative, leading to a disconnect in goals, sometimes also within the teams. A participant (4) expressed their desire for collaboration and creating communities, stating, *"I want to create communities and collaborate and share learnings and*

grow together." This reflects the need for a stronger sense of purpose and shared values to unite the team towards a common sustainability vision.

> *"There is an opportunity to align and position ourselves more closely to sustainability and say, 'Hey, the top of the mountain should include elements about the future of the planet, the future of societal care'. These dimensions, at a minimum, should ask you to tick a box in terms of thinking about planetary health and ideally, designing for that outcome. That's where I see a big opportunity within the company and then also within my remit to nudge us towards that future." (Research participant 1)*

While some see the potential for change and advocate for incorporating sustainability elements into the company's vision, others are uncertain about its significance. Aligning individuals at a deeper level, understanding their values and fostering a collaborative environment is essential to drive sustainability efforts.

The question of ownership

Linking with issues around team priorities and silos, the question of ownership and defining who is responsible for sustainability initiatives poses a challenge to effective governance approaches. As one research participant (5) stated:

> *"Sustainability is positioned inside global sustainability teams, and ownership of 'sustainability' is attributed to those teams. We have been told this is not our area of concern. While it is acknowledged by the senior leadership that many individuals are interested in the topic, there is a sense that it is not everyone's task to work on sustainability and that people should not get too involved."*

This ambiguity regarding individual ownership and participation in sustainability efforts can lead to inefficiencies and hesitancy in taking collective action. The absence of explicit sustainability direction and accessible information further complicates the matter. According to another participant (9), *"There are work plans and a governance system in place for sustainability, but there may be a lack of accessible information for those interested. Not everyone needs to know about how we implement sustainability."* This lack of clear guidelines and transparency on ownership questions may result in limited awareness among potential sustainability contributors and advocates, hindering the organisation's ability to mobilise collective efforts in driving sustainability initiatives forward.

Political dynamics: Navigating around hierarchy

Navigating politics for transitional pathways

Interviews highlighted the need to navigate internal politics to transition and promote sustainability within the organisation. Participants emphasised the need for a strategic approach to influence senior leadership and leverage existing programs for transformation. One participant (1) noted:

> *"There are two ways that we can approach the political side of things. One is to change mindsets at the senior leadership levels, which will influence how people turn up and engage in it. And the second is continuing to use current programmes as a vehicle of transformation. And so in that context, we need to position new approaches to support our current strategy."*

The significance of framing sustainability within the existing corporate strategy emerged as a key theme. The role of influencing key decision-makers and participating in important conversations was underscored as a strategic necessity to enable the transition. One participant (1) expressed the need to

"get into those rooms where the important conversations are being held and then influence those conversations bit by bit." Participants acknowledged the complexity and time required for such a shift, as highlighted in previous challenges. Participants also highlighted the need to empower individual employees and provide clear pathways for sustainable practices. A participant emphasised the prevalent feeling of helplessness among employees, perceiving sustainability as a corporate matter beyond their influence, and underscored the importance of encouraging individuals to consider their role in contributing to planetary wellbeing beyond simple actions like using recyclable materials.

Managing conflicts

Hierarchical structures and political dynamics require having to navigate differences and conflicts proactively, often dealing with different views and approaches in sustainability initiatives. However, these processes are often not given the time or space they need to be resolved at the root cause. As one research participant (10) highlighted:

> *"Some teams are in conflict between what should happen at the sustainability front versus what they see is happening based on current economic models."*

These conflicts often arise when sustainability goals clash with traditional economic KPIs, creating a tension that is not yet adequately addressed within the organisational structure. Another participant (13) shared:

> *"Sustainability initiatives require different KPIs, and you need to let go of normal business KPIs in exchange. Often these KPIs are in conflict, but it's not dealt with systemically. So you have that negotiation and, of course, that's not ideal either because no time is allocated to do this in a meaningful way."*

Unresolved differences and the necessity to navigate conflicts in sustainability initiatives can lead to compromised outcomes that may not fully align with the overarching sustainability objectives. Research participants shared that in their context, this manifested in the failure to launch a sustainable service in a way that reflected sustainable business practices, or the failure to engage consumers effectively in the marketing process due to underlying sales-driven KPIs. Such tensions between sustainability goals and traditional business dynamics impede the organisation's ability to achieve its sustainability targets in a coherent and impactful manner.

The need for 'burning platforms'

Creating a real sense of urgency, often fueled by a 'burning platform' —a metaphorical crisis or imminent need for change— appears to be crucial for driving the necessary sustainable changes. As one research participant (1) stated, *"Covid was a real burning platform that brought change... Those major macro shifts have forced companies, including us, to revisit how we work."* The urgency and necessity for change became evident during the pandemic, leading to shifts in work practices and priorities. When it comes to sustainability, however, a comparable burning platform has yet to emerge, as a participant (1) pointed out: *"We certainly don't yet have a burning platform that makes us save the planet."* The reluctance to fully embrace sustainability transformations is often anchored by dependency on the current business model. The pressure to achieve financial targets takes precedence, with jobs depending on it and sustainability initiatives being sidelined as secondary concerns. As one participant (11) emphasised, *"We need to make sales. All the rest will be immediately pushed to the side. It might be a nice idea, but you don't want to lose your job."* Given the individual futures that may depend on the existing business model, the chosen path to change is often gradual and incremental. Making immediate and radical shifts may not be feasible for some, especially if it jeopardises job security or financial stability. It is again a catch-22 of wanting to do the right thing but being structurally prevented

from doing it. The challenges lie in instilling a sense of urgency that sparks collective action and aligning individual motivations with the broader sustainability objectives. While external factors like the COVID-19 pandemic served as catalysts for change, generating an internal sense of urgency and commitment to sustainability remains a key driver for meaningful progress.

Barriers to individual agency: Capacity constraints and limited resources

Lack of mandate

Research participants highlighted the challenge of needing to feel empowered to drive sustainability efforts, with some stating that they are told not to invest their time or are given limited opportunities to contribute. As one participant (6) explained, *"If we would get a clear direction and mandate to actually go for it, we will manage to do a good job. But we just don't have that mandate."* Proactivity from the bottom, rather than the top, is observed in individuals who are passionate about sustainability and eager to make a difference. However, they may face frustration and a sense of heaviness due to a lack of agency to effect significant change at the level they are at. Despite the enthusiasm and interest in sustainability from employees, access to low-level information and clarity on their role in driving sustainable change remains limited. As one participant (9) pointed out:

> *"What I do think is an issue is that sustainability is often a passion topic for many people. They want to know more and say there's no access to low-level information. I get those same questions every day from normal employees."*

Senior leadership's distinction between passionate personal interests and essential need-to-know information about sustainability can sometimes lead to missed opportunities for building communities of change and harnessing momentum when it exists. While allocating specific roles and responsibilities based on expertise and relevance is important, adopting an attitude of *"they don't need to know" as one participant stated,* may inadvertently hinder the potential for widespread engagement and collaboration in sustainability initiatives.

Lack of resources and infrastructure

Participants have expressed concerns about the time required for adopting sustainable tools and techniques, highlighting the difficulty in justifying resource allocation for sustainability initiatives. For instance, one participant (4) stated *"The biggest risk to adopting sustainable tools and techniques is the time it takes. It's hard enough for us to justify maintaining blueprints, and they are super easy compared to this."* Time constraints also limit individuals from engaging more deeply in sustainability efforts, as acknowledged by another participant (2): *"People don't tend to have time to do more."* Some participants expressed feelings of inadequacy in driving sustainability within projects, citing a lack of time and expertise as barriers. For example, one participant (6) shared, *"I don't feel I have the resources in terms of expertise to meaningfully contribute to driving sustainability within our projects."* Participants also pointed out a lack of understanding of how to market sustainable services, leading to a missed opportunity to provoke thoughtful engagement with consumers, as discussed in previous challenges.

High levels of stress and overworked teams

High levels of stress present additional barriers to the uptake of sustainability initiatives and the adoption of new ways of working. The demanding workloads and lack of defined structures hindered the integration of innovative approaches in the past. As one participant (6) said, *"Sustainability is something that needs to be very clear, for example, defined as a work stream. Otherwise we will struggle to work on it."* The absence of adequate support infrastructures for employees further exacerbates the challenges. As another participant (2) pointed out, *"We have overworked teams, our teams are overloaded. The question is how can we prevent teams from this? Make self-organisation easier?".*

The need for self-organisation and better support systems becomes evident to address the challenges arising from high stress levels and excessive workloads.

Regulatory external drivers: The reactive nature of laws, policies and regulation

Legislation forces action
Sustainability initiatives within organisations are heavily influenced by external regulatory drivers, with legislation playing a crucial role in compelling sustainable action. As one participant (13) highlighted, *"There is an increase in focus in the public, which means we will be held accountable for our sustainability efforts."* The growing scrutiny from the public and regulatory bodies will create an increased sense of urgency for businesses to address sustainability challenges and align with legal requirements. In this context, participants recognise that merely making incremental changes or adding sustainability initiatives without fundamentally reevaluating business practices may not be sufficient. One participant (12) said:

> *"We would be a bit naive in thinking that we can just carry on doing the same business by adding sustainable initiatives. We need to start discussing how we keep a healthy business going because in five years, we will be in a very different situation with many more EU regulations obliging us to conduct our business more sustainably."*

These insights underscore the critical role of legislation in driving sustainability efforts within organisations. As regulatory pressure continues to mount, businesses are compelled to engage in meaningful sustainability actions to comply with legal mandates and adapt to changing external circumstances. Participants also acknowledge that governments are increasingly placing responsibility on companies to create sustainable solutions. However, companies may not be taking significant action due to a lack of incentives. One participant (12) remarked, *"Companies are not doing anything about it now because they don't yet have incentives."* Participants emphasise that businesses may prioritise financial gains over sustainability without new government regulations. Another participant (13) said *"Companies want to earn more money and get bigger and hire more people. If governments don't create new regulations, then, of course, nothing is going to happen."* The relationship between governments and businesses is symbiotic when it comes to sustainability. While companies are expected to take responsibility for their environmental impact, governments also play a vital role in ensuring environmental protection through regulations and enforcement. Participants (12) recognised the importance of government intervention, particularly in preserving natural resources and national parks, with punitive measures in place to ensure compliance: *"We need them [governments] as the stick towards compliance."*

6.2.4 Reflections

The analysis of participant observations and interviews, not only confirmed the presence of three distinct planetary health challenge categories within the sportswear manufacturer — information, imagination and governance — but also shed light on their intricate interconnection. Importantly, it revealed additional layers of complexity associated with each challenge category, expanding the working hypotheses with additional challenges.

In the analysis, **governance** emerged as the most prominent challenge, characterised not only by collaboration barriers but a lack of understanding sustainable governance, a profit-driven leadership mindset and a reliance on external drivers for change. Overcoming political dynamics and navigating conflicts also stood out as a crucial barrier in transitioning towards sustainability. Siloed ways of

working and a lack of self-governance hinder establishing a shared purpose and collective direction. Limited **imagination** presented the second significant challenge area due to the organisation's alignment with growth-focused neoliberal business structures, further hindered by key performance indicators prioritising business expansion over environmental, social and governance sustainability. Encouraging regenerative thinking was challenging, as familiarity with traditional approaches prevailed. The organisation's decision-making processes lacked consideration for non-human perspectives, emphasising short-term financial gains. The **information** challenge category underscored a lack of expertise and knowledge in systems theory and various cross-functional areas related to economic theory, sustainability, and the need for degrowth and regeneration. Broken information flows further exacerbated governance issues, hindering the dissemination of information and inhibiting the potential for positive, sustainable action. Language misalignment was also identified as an information challenge and the missing expression of a shared vision.

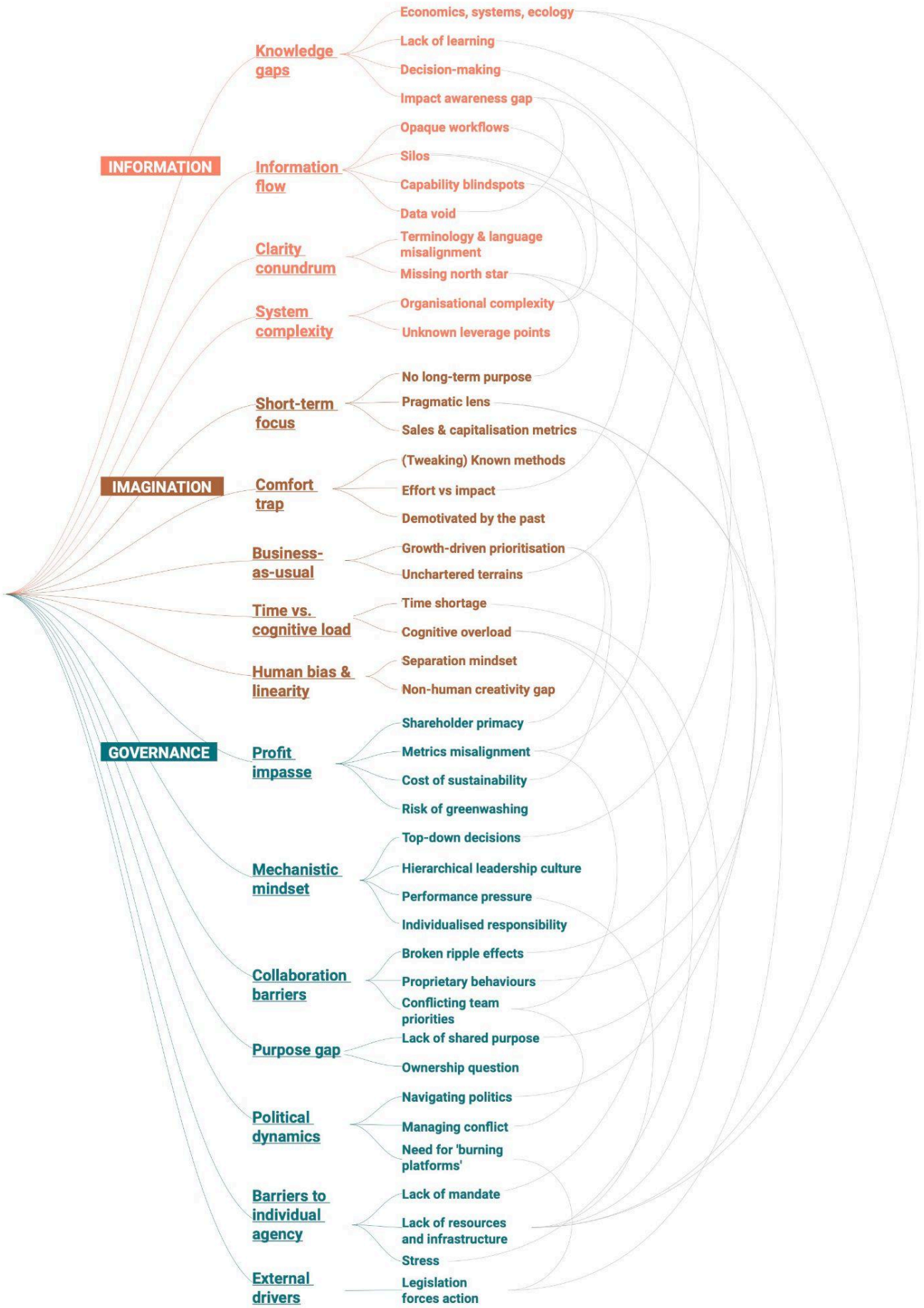
Table 27: Validating participant observation and interview insights with working hypotheses

Planetary health challenge category	**Working hypotheses**	**Hypothesis validation after participant observation and interview insights**	**Additional challenges revealed within the case study organisation**
#1 Information	There are inherent information and knowledge gaps around how systems operate, constitute and reproduce themselves in contemporary design practice today.	Yes, true to contemporary design	● Lack of awareness, knowledge and shared understanding of economic theory, sustainability, ecology, the need for degrowth and regeneration ● Broken information flows and silos ● Language misalignment across teams and lack of shared North Star ● Organisational complexity obscures understanding effective leverage points for transformative change
#2 Imagination	Designers' imagination is in part limited by the human-centric, neoliberal economic paradigm, constraining much-needed explorations of human/nature interconnections.	Yes, true to contemporary design	● Focus on short-term gain ahead of long-term purpose ● Familiar approaches feel comfortable ● Key performance indicators prioritising business expansion over sustainability and regeneration ● Time shortage and cognitive overload
#3 Governance	Contemporary design lacks the understanding of how to incorporate commoning principles to support sustainable and collaborative governance.	Yes, true to contemporary design	● Profit-driven leadership ● Mechanistic mindset ● Reliance on external drivers for change ● Siloed ways of working and lack of self-governance ● Lack of shared purpose ● Political dynamics ● Lack of managing conflicts sufficiently

In mapping these challenges, it became evident that allocating specific challenges to distinct categories was not always straightforward. Instead, what emerged was a consistent theme of overlap and interdependency among the challenges, demonstrating their mutual influence. For instance, information-related challenges arising from language misalignment and the absence of a shared "North Star" were direct outcomes of governance challenges, including siloed ways of working, lack of practices that facilitate the definition of shared purpose among cross-functional teams, such as the corporate sustainability and sales-based service design team — and other collaboration barriers impeding the healthy flow of information (see Figure 40 below).

The research findings and mapping of planetary health challenges underscore the transcontextual nature of these issues. Transcontextuality, as defined by Gregory Bateson (1969) and later adapted by Nora Bateson (2021), emphasises the interconnectedness of various contexts, including families, individuals, societies and cultures, challenging the tendency to compartmentalise and decontextualise information. This approach encourages recognising the complex web of contexts in which planetary health challenges exist.

Figure 40: Refined planetary health challenges based on case study analysis



The concept of double binds (Bateson, Jackson, Haley & Weakland, 1956) becomes particularly significant in the context of today's world, such as the need for environmental preservation and economic growth, creating dilemmas. These double binds were evident in the analysis of the planetary health challenges, manifesting as 'catch 22s' in numerous occasions through conflicting KPIs that hinder the implementation of sustainability targets. Another example was conflicting ambitions to support planetary health, while being bound to business-as-usual, typically sales-focused activities and teams working in silos due to poor communication infrastructures (see 6.2.1-6.2.3). Nora Bateson describes these double binds as a pattern resembling a Catch-22, a situation with no apparent solution or escape (2021). The research analysis so far revealed numerous instances of contradictory messages and demands within the case study organisation, creating dilemmas for individuals and groups. These instances, as uncovered by the research, are characterised by an inherent paradox, wherein individuals find themselves ensnared in a no-win situation with conflicting expectations that resist easy resolution. This often contributed to a sense of confusion, frustration and, at times, resignation to the status quo of accepting extractive business operations.

The pressing question that arises in this section is how to navigate these double binds, which might be a crucial step in supporting organisations to eventually transition to a different paradigm. Bateson proposes that breaking free from a double bind requires an elevated level of consciousness and a shift to new ways of thinking, building on the wisdom encapsulated in her father Gregory Bateson's quote: *"The major problems in the world are the result of the difference between how nature works and the way people think"* (2021). To some degree, the research has facilitated the identification, visualisation and understanding of conflicting demands within double binds to create consciousness, which, going by Bateson, might offer a potential avenue for addressing these contradictions and fostering the development of more collaborative and relational systems.

Eitherway, examining planetary challenges within the context of the case study organisation emphasised the interconnected nature of these challenges and highlighted the importance of avoiding oversimplification. While reductionist thinking might tempt one to work with distinct challenge categories, the analysis underscores the intertwined and transcontexual nature of challenges within complex systems, as systems theory emphasises (see 3.1). They highlight the risk of addressing these challenges in isolation, as doing so can lead to unintended consequences, thus emphasising the importance of holistic and systemic approaches to planetary health. It therefore remains a question as to whether commoning approaches should (or could) address a specific challenge category in isolation, or if they are more likely to have an impact on and influence a combination of challenges simultaneously. The intricate web of interconnected planetary health challenges described above suggests that addressing one challenge may inherently affect others. Reflecting on double binds and considering how commons-based approaches might help in identifying and navigating them adds another layer of complexity to the question.

The next section is dedicated to developing and testing a set of commons-inspired activities to explore how commoning could enable a shift towards relational design based on living systems and collaborative infrastructures, ultimately facilitating a transition towards planetary health.

6.3 Action research

The forthcoming text provides an overview of the action research activities, which aimed to co-create practical commons-inspired activities promoting a relational and regenerative approach to design. The approach emphasised group participation, and participants engaged in a total of seven commoning activities. These sessions explored the implementation of commoning principles and developed resources, such as an ecosystem mapping tool. The detailed section below outlines the design, observations and reflections from each activity and highlights the collaborative nature of the research process.

6.3.1 Awareness

These initial sessions focused on the need to start by creating awareness and a shared understanding of sustainability and planetary health as a starting point, while also highlighting the limitations of current sustainability approaches in design. One of the sessions involved an interactive exercise that explored existing design and business practices through an environmental, social and governance lens informed by commons-based practices. As an awareness building activity, this session assessed team knowledge and capabilities and encouraged discussions about future priorities.

6.3.1.1 Urgency Alignment

The action research activities began with two sessions in response to insights from participant observation and in-depth interviews (see 6.1.2), which revealed critical gaps in team knowledge and awareness related to sustainability topics and the pressing need for upskilling and expertise sharing in sustainability-related areas. Significant challenges were identified, including a lack of alignment on overall sustainability goals and terminology. To address these issues, fostering a shared understanding of sustainability and the imperative of planetary health among the participants was essential. Hence, the first two workshops were carefully designed as awareness sessions aiming to cultivate a collective understanding of sustainability and regeneration based on my literature review findings. These sessions also highlighted the limitations of current sustainability approaches, providing participants with a clearer rationale for the need for change. During the one-hour-long sessions held in both September and October 2022, approximately 40 participants were engaged. The first session included team members from the service design and business transformation team, while the second session consisted of members from the wider digital sales teams. To enhance the accessibility of the insights and discussions, we recorded the workshops and made them available on the company's SharePoint site. However, specific data on the number of viewers who accessed the recording online could not be retrieved at this time.

Aim and session design
The awareness sessions were conducted as a speaker series to align participants on sustainability terminologies and foundational concepts. The sessions were delivered through talks supported by slides (see Appendix), allowing for open discussions and feedback. The first part focused on core members from the service design and business transformation team, while the second included a wider audience from digital sales. The sessions were structured as follows:

> **1. Introduction and warm-up (10 minutes online before the session started)**
> Participants engaged in a warm-up exercise using the Menti interactive presentation software, an online platform facilitating polls, surveys and quizzes, before the online awareness session. They were asked two questions: "What does sustainability mean to you personally?" and "What

does sustainability mean for your business transformation/service design team?" They were asked to capture their answers using the online tool. The exercise aimed to gauge the group's diverse perspectives and understanding of sustainability before the awareness session started.

2. Interactive Call to Action slides (30 minutes)
The talk was split into three key parts and designed to be interactive throughout, allowing for some discussion and participant feedback (see Appendix).

3. Participant feedback (10 min)
Following the talk, participants were given an opportunity to provide feedback and share their reflections, compared with the initial Menti results they provided before the session.

Observations and findings
Several findings and reflections emerged from the awareness sessions. One key observation was that people had diverse understandings of sustainability, both personally and within the company as well as their perceived level of urgency to act. There was a clear need to align on key terminology, understand the differences between sustainability, regeneration and planetary health, and recognise that sustainability encompasses not only environmental aspects but also social and governance dimensions. During the Menti exercise, participants expressed various personal views on sustainability, emphasising the need for improved long-term decision-making, the struggle of dealing with limited resources, fears of climate impact and wanting to create a better world for future generations (see Appendix). When considering sustainability in the context of the business transformation or service design team, responses included the need to focus more on sustainability as a company-wide goal, integrating it into operational processes and creating sustainable products and services. The Menti exercise revealed that participants predominantly approached sustainability on a personal level, focusing on individual responsibilities and long-term impact, often extending to their families. However, a clear company-wide vision and alignment on achieving sustainability in the workplace context were not readily apparent among the responses.

Similar to findings from the interviews and participant observations, participants expressed strong ambition to have a sustainability focus at the core of their work, but they identified a crucial gap between their aspirations and the actual practices within the organisation. Some participants expressed a shift in perspective, realising the importance of regenerative concepts and the need for mindset changes away from profit-driven business models. Through the sessions, they recognised the interconnected nature of ecosystems and the role of organisations in supporting them. Others acknowledged the inspiration provided by examples like Patagonia, even if direct replication was not considered to be feasible for their specific organisation.

> *"It made me realise that we are part of the ecosystem and that other living beings need to be supported within their habitats." (Research participant)*

> *"I think Patagonia is definitely the way we should be taking, however, it comes with a mindset change. I think anyway that if every company was obliged to do this, things would get better sooner." (Research participant)*

> *"I feel like my perspective changed after the talk. A change of paradigm is required in my own mindset, too – to create acceptance and awareness of what we have and avoid consumerism as a mere form of entertainment." (Research participant)*

> *"The work you're doing is absolutely AMAZING! We are very lucky to have your guidance and orientation!!" (Research participant)*

> *"This session should live on our company SharePoint somewhere."... "I agree!"... "100%!" (Research participants)*

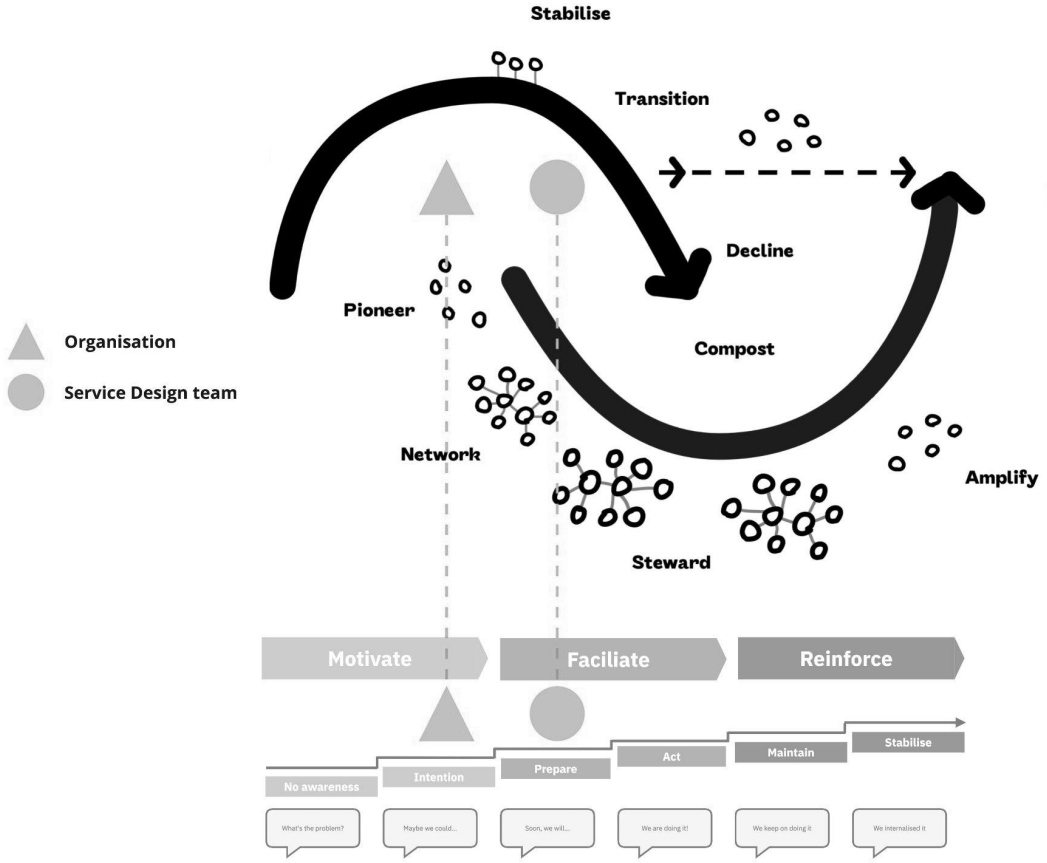
Feedback indicated that the sessions raised awareness for the need to increase planetary health and broadened perspectives, by creating a shared understanding and commitment to sustainability. Although participants were familiar with the overall narrative of climate change, they were unaware of scientific data relating to the profound shortcomings of current sustainability approaches such as green growth and decoupling (see Hickels, 2020). The presentation acted as a wake-up call to the prevailing business-as-usual mindset and generated excitement, emotion and engagement. However, a notable conflict arose between what participants felt *should* happen for a sustainable future, and what was perceived as *possible* based on the current economic models. Some participants were disheartened when they realised that they were still operating within the "old system". In contrast, others acknowledged the need for a paradigm shift towards a more sustainable and regenerative approach.

> *"We are still very much in the old paradigm. We try to speak to sustainability through material innovation. In reality, we still encourage our consumers to purchase and consume, which is contributing to the issue. Topics such as investing in the NFT world are going against our sustainability mission." (Workshop participant)*

> *"As an organisation, we are probably in between the dominant and emergent system. Although teams are trying to work with new materials and new sustainable logics, we are still behind in all the waste and pollution that we create." (Workshop participant)*

This realisation led to open discussions about where the company currently stood on a spectrum of change (based on Wheatley & Frieze, 2006), with participants reflecting on their company's position in the transition from the old to the new paradigm. Throughout the workshop, participants actively shared their views on where the company invested its energy, resources and attention. Based on the Berkana model of change (Wheatley & Frieze, 2006), research participants felt that their organisation and service design team were still primarily operating within the "dominant system" characterised by a growth and profit-based business model. There was notable recognition of initial attempts to transition towards sustainability, indicating a willingness to change and progress in the right direction.

Figure 41: From Dominant to Emerging System: Research participants mapping where their organisation and service design team currently stands on the Berkana Model of change; adapted from Wheatley & Frieze, 2006



While there were positive efforts in addressing environmental and social aspects, some acknowledged the need for more focus on governance and a shift away from a growth-driven sales mindset.

> *"There is so much to be done around governance. The way we do business reflects/follows the old world." (Workshop participant)*
>
> *"The idea that massive growth equals massive success cannot continue – we need to move faster into more sustainable products." (Workshop participant)*
>
> *"We need a new direction and then, as an organisation, adapt our areas and the way we work." (Workshop participant)*
>
> *"The old approach to business needs to die. We need to think that the expansive approach taken in the 20th and 21st centuries has to be rethought, and we need to think smartly about how to allocate our more limited resources." (Workshop participant)*

A key reflection from these first two sessions was the significance of using the term 'sustainability' – despite the varied connotations people associated with the term around its shortcomings and the need to embrace a fundamentally different mindset and business paradigm. While participants acknowledged that 'sustainability' faces criticism for its perceived limitations (see Reed, 2007), they argued that in the business world, where not everyone is familiar with sustainability jargon or practices,

adopting a step-by-step approach is essential to avoid alienation. It was found that embracing a more familiar term like 'sustainability' instead of planetary health or regeneration is helpful as it creates a framework enabling all staff to actively contribute to the organisation's journey towards a more sustainable future. Its broad meaning and accessibility can allow individuals from diverse backgrounds to engage in the process while also aiming to realise the urgent need for more regenerative practices. Participants also expressed the necessity to let go of the prevailing growth-centric mindset, mass consumption practices and a stakeholder-driven short-term approach to achieve sustainable futures. They recognised the urgency to rethink business models and allocate resources wisely for a more sustainable future.

Reflections on the working hypotheses, research questions and next steps
As an initial step in our action research, the Urgency Alignment sessions began to validate my hypotheses and address our research questions. For Working hypothesis 1 and RQ1, these sessions facilitated an insightful exchange of ideas and prompted participants to recognise the importance of adopting a systemic perspective, expanding beyond environmental aspects to encompass the social and governance pillars of sustainability. This recognition formed the foundation for subsequent activities to address knowledge gaps and foster the design for living systems. Concerning Hypothesis 2 and RQ2, the sessions highlighted the constraints imposed by a human-centric, neoliberal economic paradigm on designers' imagination. Participants acknowledged the need for a more relational and regenerative design practice for planetary health. They acknowledged the gaps and limitations in their current approach, while recognising the potential for a more holistic and sustainable design. The sessions allowed participants to envision themselves and their organisation within the transformation process using the Berkana model of change, fostering a systemic perspective as well as a practical and grounded understanding of what the team can currently achieve. This served as a strong starting point for the next activity, which aimed to build on this momentum and explore the concept of a 'clarity compass'. The goal was to expand the team's awareness of sustainability, encompassing environmental, social and governance aspects, while deepening their reflection on current practices, skills and capabilities.

6.3.1.2 Environmental, Social and Governance Wheel

The next activity aimed to lead participants on a transformative journey, enabling them to evaluate their sustainability and regeneration capabilities. Building upon the insights gained during the awareness session, which emphasised the significance of including social and governance aspects of sustainability, this interactive exercise served as a practical initial step in establishing a shared perspective regarding what requires prioritisation within the team and potentially within the organisation. By exploring a series of 'lenses' presented through statements related to best practices commonly found in environmental, social and governance aspects of sustainability, the commoning exercise was designed to empower participants to engage in discussions about envisioned future states and pinpoint areas for enhancement. The session cultivated a collective understanding of the team's current position through collaborative dialogues and interactive activities. It set the stage for aligning future priorities in service design and business transformation.

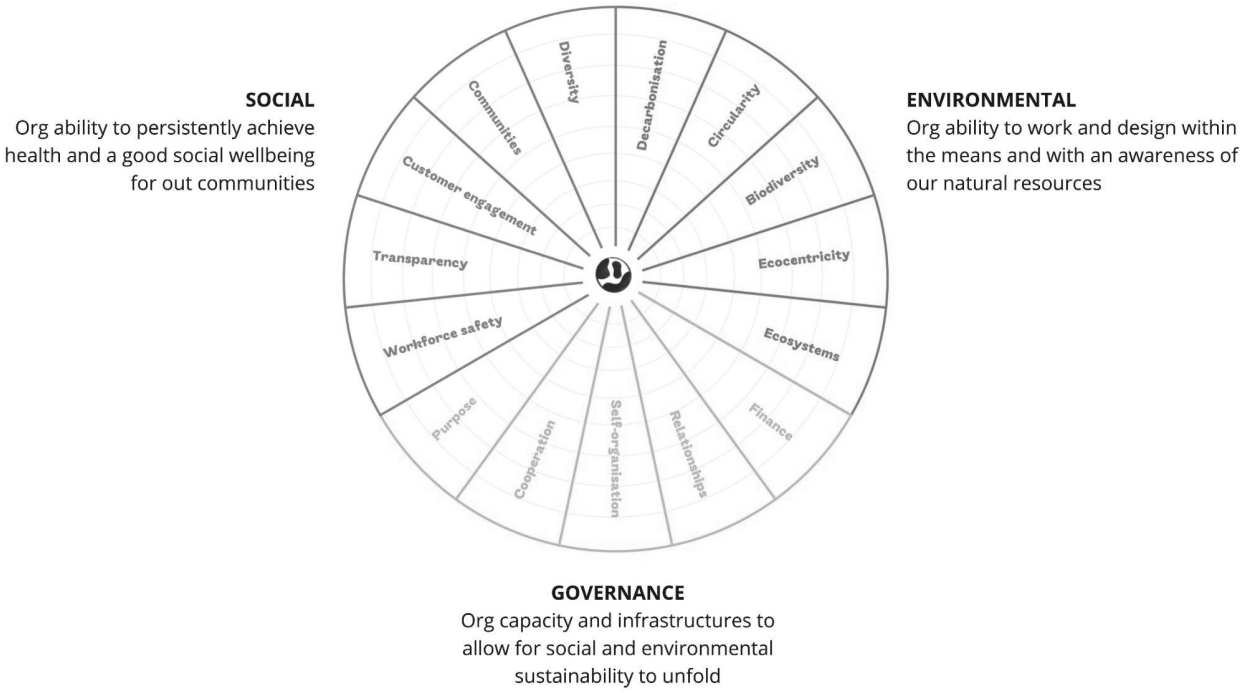
The workshop took place in September 2022, with six participants who were members of the service design and business transformation team. Senior leadership representatives at the Vice President level or higher could not attend the workshop. The participating group collectively engaged in a 120-minute interactive session. It was incorporated into a two-day off-site team event to ensure the workshop would be effective without adding additional demands to participants' already busy schedules. This arrangement allowed participants to have valuable, dedicated time for reflecting on their work processes and practices.

Aim and session design
The workshop was designed to be interactive, allowing participants from the service design and business transformation teams to collectively assess their team strengths and weaknesses related to sustainability and regeneration. The aim was to test an activity that might help embed Ostrom's first commoning principle around the need for shared identity and purpose relating to sustainability practices.

Drawing from the literature review and the theory of the commons, insights into ESG (UN, 2004), practices and characteristics of 'teal organisations' (Laloux, 2015) and living systems (Hutchins and Storm, 2019), a draft framework for an engaging assessment tool was developed. This commoning tool was intended to facilitate discussions and reflections on the current practices that could enhance planetary health, identifying where the teams excel and where improvements are needed. I leveraged the framing of 'sustainability' as an entry point, rather than directly addressing planetary health, recognising it as a lower barrier to resistance. This strategic choice was based on the resonance of sustainability within the organisation, serving as a door opener into the broader conversation, as previously discussed. The idea was to closely examine the team's understanding of knowledge and practices through Environmental, Social and Governance (ESG) principles. ESG is a widely recognised framework used to evaluate an organisation's sustainability practices (UN, 2004; Bose, 2020), which, despite facing some criticism, has gained significant traction in both business and investment circles as a valuable tool for assessing an organisation's impact on sustainability.

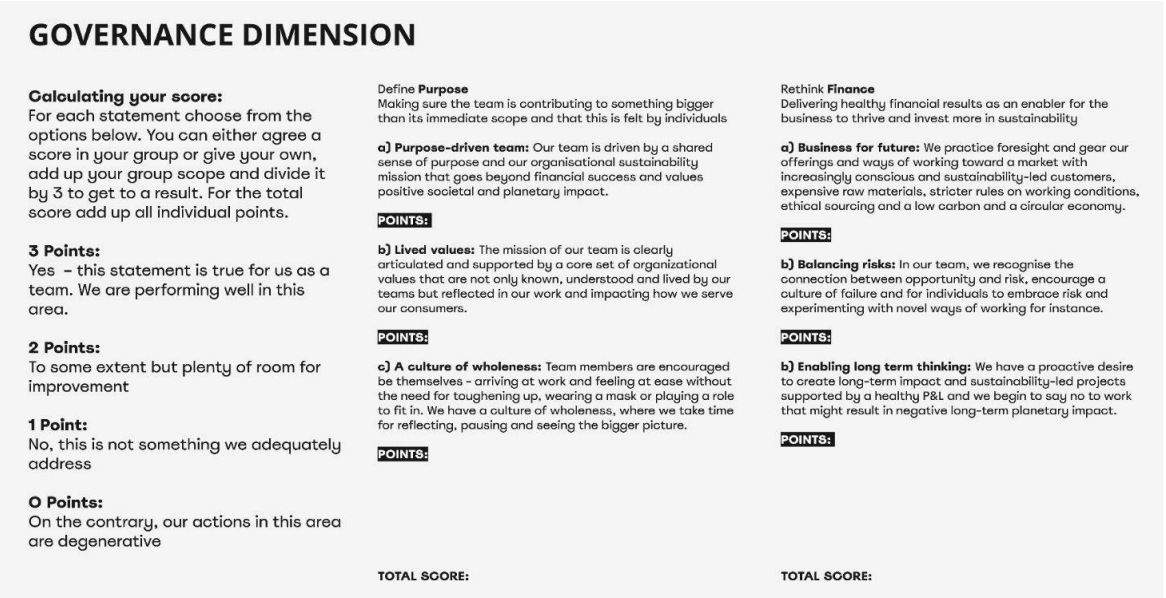
As Ostrom's commons principles emphasise collective governance and shared responsibility, they align with aspects of ESG as they both prioritise considering environmental impact, social responsibility and governance practices. ESG's established recognition within organisations made it a useful and practical starting point for testing commoning principles, providing a common language and framework to explore sustainability across the three pillars. The intention for the activity was not to replace existing ESG assessment frameworks but to use ESG as a door opener to foster team alignment and shared priorities among participants. As such, the tool was a valuable starting point, enabling individuals to gauge their capabilities and practices. Positioned as an awareness activity, it created an atmosphere of collaboration, alignment and collective decision-making around a core set of priorities rooted in regenerative commons-based practices.

Figure 42: The three pillars of sustainability and its 15 lenses



The design of the framework (see Appendix for details) followed a simple approach inspired by Hutchins and Storm (2019). Studying actual cases of commons and regenerative organisations (e.g., Bollier, 2021; Hutchins and Storm, 2019) led to the creation of five lenses for each sustainability pillar, 15 in total. These lenses describe key practices that support environmental, social and governance sustainability. Three statements were carefully researched and chosen for each lens based on literature findings (Wilson et al. 2020; Hutchins and Storm 2019; Laloux 2015; Ostrom 1990). Collaborating with two service designers from the case study organisation, we collectively ensured that the dimension statements were relevant and appropriately tailored to the organisation's context.

Figure 43: Excerpt of a sustainability dimension sheet, including a set of statements



GOVERNANCE DIMENSION

Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.

3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.

2 Points:
To some extent but plenty of room for improvement

1 Point:
No, this is not something we adequately address

0 Points:
On the contrary, our actions in this area are degenerative

Define **Purpose**
Making sure the team is contributing to something bigger than its immediate scope and that this is felt by individuals

a) Purpose-driven team: Our team is driven by a shared sense of purpose and our organisational sustainability mission that goes beyond financial success and values positive societal and planetary impact.

POINTS:

b) Lived values: The mission of our team is clearly articulated and supported by a core set of organizational values that are not only known, understood and lived by our teams but reflected in our work and impacting how we serve our consumers.

POINTS:

c) A culture of wholeness: Team members are encouraged be themselves - arriving at work and feeling at ease without the need for toughening up, wearing a mask or playing a role to fit in. We have a culture of wholeness, where we take time for reflecting, pausing and seeing the bigger picture.

POINTS:

TOTAL SCORE:

Rethink **Finance**
Delivering healthy financial results as an enabler for the business to thrive and invest more in sustainability

a) Business for future: We practice foresight and gear our offerings and ways of working toward a market with increasingly conscious and sustainability-led customers, expensive raw materials, stricter rules on working conditions, ethical sourcing and a low carbon and a circular economy.

POINTS:

b) Balancing risks: In our team, we recognise the connection between opportunity and risk, encourage a culture of failure and for individuals to embrace risk and experimenting with novel ways of working for instance.

POINTS:

b) Enabling long term thinking: We have a proactive desire to create long-term impact and sustainability-led projects supported by a healthy P&L and we begin to say no to work that might result in negative long-term planetary impact.

POINTS:

TOTAL SCORE:

Serving as the basis for evaluating the teams' performance in each area, the individual statements aimed to encourage teams to reflect on their practices, identify areas of strength and improvement, and align on a set of sustainability priorities that service design might be able to nurture through its practice. The workshop session was delivered through a carefully designed series of steps:

1. Meditation grounding practice (10 min)
The workshop commenced with a grounding meditation (see Appendix) to shift participants' mindset and encourage nature-based visualisations. Since completing mindfulness meditation teacher training in 2020, I have been incorporating mindfulness meditation approaches into design activities. I find them highly effective in grounding participants and encouraging them to explore new practices that are not typically part of their day-to-day work. Mindfulness refers to a diverse range of practices and processes (Van Dam et al. 2018), and its definition involves a two-component process: first, directing attention to the present moment, and second, maintaining an open-minded attitude towards reality (Kabat-Zinn 2017). Numerous studies over the past few decades, both in academic journals and popular media, have explored the various benefits of mindfulness meditation, including enhanced attention (Sedlmeier et al. 2012), improved mental wellbeing and impacts on creativity (Ding et al. 2014).

2. Introduction (20 min)
The session's goals were explained around piloting an assessment tool for sustainability conversations across various teams in the organisation. The workshop objectives were explained as to deepen discussions around sustainability within the service design and business transformation teams, assess team strengths and weaknesses for the next 6-12 months, and create a shared understanding of how these teams can support sustainability across their wider department in sales. A set of workshop ground rules was presented, and the assessment framework was introduced, focusing on the three pillars of sustainability – environmental, social and governance.

3. ESG scoring (50 min)
Participants were split into three sub-teams, each focusing on one of the sustainability pillars. Reading the definitions of each lens as a reminder, the teams worked through the topics in each dimension. They rated their team's or organisation's practice based on five statements per pillar as evaluation criteria. During the assessment, teams were encouraged to discuss each statement and scored themselves based on their performance in relation to the statement. The scoring system inspired by Hutchins and Storm (2019) allowed teams to rate each statement on a scale of 0 to 3, indicating the level of alignment with their actions in each area. For each lens, participants added up a total score in the end. During a coffee break, the total scores for the lenses were plotted by myself onto a wheel diagram to visualise the findings, providing an image of the team's overall performance across the sustainability dimensions. Participants then discussed their views about the importance of the proposed lenses. They shared their findings with the other groups, further reflecting on their strengths, weaknesses and priorities for moving forward.

4. Prioritisation and wrap-up (10 min)
Participants were prompted to consider the next six months and vote for the sustainability lenses they wanted to address. Prioritisation criteria, encompassing strategic company relevance, team relevance, team impact and effort, were provided to guide their decision-making. Based on the final reflection and ESG visualisation, the workshop findings were analysed to create a set of focus areas using the 'How might we…' format, sparking innovative thinking for the teams moving forward.

Observations and findings

During the workshop, several valuable observations and findings emerged. The engagement and conversations among participants were highly positive, indicating the tool's usefulness, and a genuine interest in sustainability and how to activate sustainability as part of future service design practice. The workshop's feedback was positive, with participants feeling a sense of urgency and empowerment to address sustainability challenges in service design and business transformation. Participants perceived the tool's value in providing a space for checking in with one another on priorities and values, a rare opportunity for the team as their usual focus is on completing tasks, leaving little time for alignment discussions.

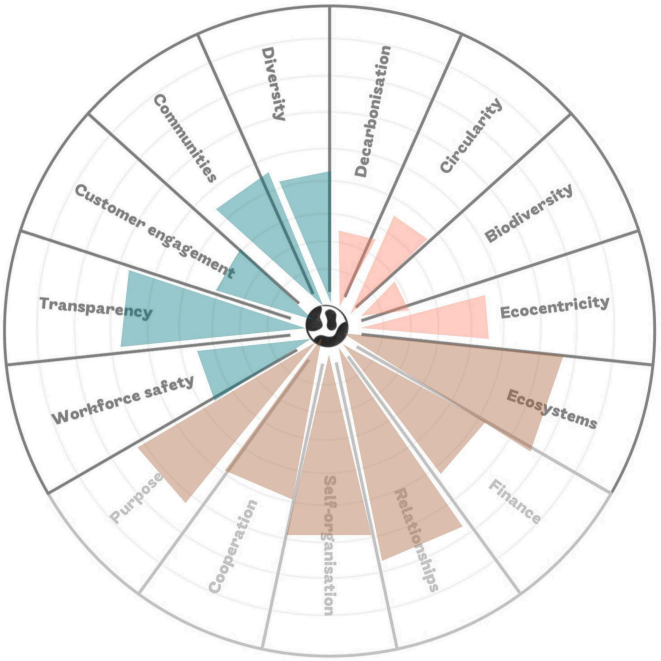
> *"I really liked that this framework opened up some unanswered questions and pushed us to reflect on all of the three lenses of sustainability, not just the environmental one — which is the most obvious and possibly the one that we have been playing a role in." (Workshop participant)*
>
> *"Instead of going straight into implementation/activation mode, this helps us go one step back and reflect on the bigger picture: where are we on the sustainability scale overall? What do we currently have in place? What is missing?" (Workshop participant)*
>
> *"This helps us to align as a team first and then create those ripple effects outwards. We are well positioned for that." (Workshop participant)*

Participants expressed how this commoning activity provided a moment to reflect on their shared values, especially those relating to sustainability, and share them across the team. However, participants felt a sense of frustration and heaviness, arising from a perceived lack of agency to drive the meaningful change needed within the organisation. The lack of overall leadership buy-in and the need for a broader perspective outside of business transformation for this exercise was noted. Participants expressed concern about raising excitement levels but being unable to deliver on promises, as driving change at the C-suite level was often beyond their reach and scope. The discussions also revolved around initiating bottom-up change in an environment where leadership might be resistant or unresponsive. Creating awareness of the three lenses of sustainability was pivotal in helping participants understand that maintaining business-as-usual was no longer viable, and that they needed to embrace the broader aspects of social and governance sustainability alongside environmental considerations.

> *"I realised that we are part of the ecosystem and that other living beings need to be supported within their habitats." (Workshop participant)*
>
> *"How should we 'push' leadership to bring this matter to the table and place sustainability (or now that I learned from you, I would use the word 'regeneration' and maybe also 'Tier 1/teal' org) at the core of our strategy? How can we convince the leadership that this should be a strategic priority? " (Workshop participant)*
>
> *"I like this bottom-up approach. My only concern is getting the team too excited, investing months of time and energy to go to leadership and be blocked because sustainability is not a key priority for the business…" (Workshop participant)*
>
> *"We should think about what is the one thing we have total control of and where we can start with this tomorrow?" (Workshop participant)*

During the workshop, the areas of governance and social sustainability emerged as needing the most attention moving forward and as areas where service design might have the greatest impact in. Within governance, the team discussed the need for a shared sustainability purpose, fostering cross-functional exchange and improved collaboration on sustainability topics, and creating infrastructures to enable teams to have more agency outside the service design and business transformation team. In the social aspect, discussions centred on the active shift towards conscious and sustainable consumer behaviour, supporting staff wellbeing, reducing stress factors, and promoting a more inclusive and culturally reflective work environment. Environmental sustainability also came under scrutiny, with the team acknowledging their detachment from these aspects. While they recognised the significance of biomimicry, material innovation and circularity, they faced challenges accessing relevant information from within the organisation and aligning their service design work with these company-wide KPIs. One of the main reasons for this detachment was that these topics were usually owned and managed by other company departments, making it difficult for the service and business transformation team to have direct influence or access to expertise in these areas.

Figure 44: ESG assessment scores from the team scoring



The workshop's voting results (see Appendix) showed that 'Defining purpose' received the most votes, emphasising the team's desire for a clear team-wide sustainability vision. 'Operating in ecosystems' and 'cultivating networks and relations' were also prioritised, highlighting the need for better cross-functional collaboration and breaking silos. Two key focus areas were identified for testing a commons-based approach. The first priority area involved strengthening team alignment regarding sustainability within future service design practice. This includes ensuring that sustainability becomes integral to the team's purpose, and aligning their values and goals towards achieving sustainability objectives. The second focus area revolved around understanding how the current ways of working hinder sustainability efforts, and how new tools and resources could be developed to improve working with networks and relationships. This improvement aims to foster collaboration and cooperation across different teams and departments to collectively work towards achieving planetary health and sustainability goals.

Reflections on the working hypotheses, research questions and next steps
During the workshop, several valuable findings emerged, aligning with my working hypotheses and questions. Participants engaged positively, indicating the usefulness of 'commoning' as an approach to evolving design practice and a genuine interest in sustainability's integration into future service design practice. This alignment supports Working hypothesis 1 and addresses RQ1 by illustrating how commoning principles can bridge knowledge gaps in contemporary design, aiding the development of strategies for designing living systems. Feedback from the workshop was encouraging, with participants expressing urgency and empowerment to tackle sustainability challenges in service design and business transformation. These findings resonated with Working hypothesis 2 and RQ2, demonstrating that commoning has the potential to facilitate a shift from a human and growth-centric paradigm towards a relational and regenerative design practice for planetary health. Participants recognised the value of using the ESG Wheel in providing a forum for discussing priorities and values, a rare opportunity given their usual task-focused approach. This relates to Working hypothesis 3 and RQ3, emphasising that commoning could inform contemporary design practice and support the creation of collaboration infrastructures.

One significant discovery from the workshop was the importance of involving senior leaders in the assessment process. While participants initially showed engagement and enthusiasm, they later realised that affecting necessary changes often requires higher organisational-level decisions. This underscores the significance of senior leadership involvement in addressing our research questions. While the commoning exercise fostered alignment, sustainability awareness, and valuable discussions about team priorities, it also highlighted the value of securing early buy-in from senior leaders to translate insights into actionable steps and strategies. This insight led to reflections on whether the application of commoning activities might need to be strategically positioned at different organisational levels which is discussed further in 7.2.4.

Following the initial awareness-building activities, the research transitioned into the next action research phase, focusing on prototyping a 'commoning' approach.

6.3.2 Prototyping commoning

Building upon key insights derived from the scoping research (5.2) where I had previously tested and refined 'commoning starter questions', I developed the Commoning Design workshop centred on commoning principles as the foundation. The primary objective of this workshop was to critically assess the team's current design process, identify existing gaps and to generate a series of ideas and improvements rooted in commoning principles. This activity sought to address my research questions, primarily exploring how a commoning approach could: 1) facilitate the creation of collaborative infrastructures to promote planetary health, 2) address knowledge gaps in designing for living systems, and 3) steer away from a human- and growth-centric paradigm towards a focus on relational and regenerative design.

6.3.2.1 Commoning Design

In the subsequent session (see Appendix for details), a commons perspective was applied to evaluate existing design approaches. Drawing inspiration from Ostrom's core design principles, adapted specifically for this audience (see 5.2), participants engaged in brainstorming sessions to generate new activities and approaches to improve their design processes for planetary health. Essentially, the workshop served as another test to understand whether Ostrom's adapted CDPs could serve as a framework for ideation in the context of 'redesigning design' (Akama and Yee 2016). The workshop involved the participation of the service design team, consisting of 12 individuals, including the service design director and the VP of business transformation. The workshop was conducted in the Netherlands in November 2022 and lasted for a total of 150 minutes. It resulted in numerous ideas for incorporating each of Ostrom's design principles into the design process. These brainstormed results highlighted practice gaps and generated novel ideas for new activities and pathways, offering valuable insights to address my three research questions.

Aim and session design
The workshop was part of a two-day off-site team event in the Netherlands, providing the service design team with an opportunity to reflect on their strategic outlook and ways of working. Building on the outcomes of the previous workshop, this session had two main objectives: to identify gaps in the current design process, and explore new opportunities for collaborative tools and resources rooted in practices of the commons. Common principles were introduced to redefine the team's service design practices, prioritising planetary health and improving current methods. The workshop was carefully structured to facilitate open and reflective conversations, while fostering a collective understanding of the team's current process and commitment to planetary health:

1. Welcome (5 min)
The workshop began with providing a brief overview of the session's objectives and context. A quick recap of the findings from the previous awareness session and the ESG alignment workshop was presented to refresh participants' memories. Ground rules for the workshop were established to ensure a safe and respectful environment for open discussions and idea-sharing.

2. Current practice gaps (25 min)
Participants were instructed to reflect on the current ways of practising service design within their organisation. To facilitate this, they were provided with playdough as a creative medium for expressing their experiences, feelings, thoughts and insights related to the existing practices. Next, participants were divided into pairs for a 15-minute discussion. I presented a set of five planetary health values (see Appendix) based on key findings from my literature review, which were considered essential in planet-centric practices. Each pair discussed these principles and identified gaps or shortcomings in their current service design practices, which were then captured on Post-it notes.

4. Commoning patterns for planet-centric service design practice (45 min)
The next step introduced Ostrom's commoning patterns, emphasising their significance in fostering cooperation and inclusive decision-making for sustainable practices. I explained how patterns shape systems and people, helping us navigate and respond to the world around us (The Yunus Centre Griffith and Auckland Co-Design Lab, 2022). Participants were provided with the refined set of eight commoning principles that resulted from the scoping review workshops (5.2):

1. **Values & Purpose:** Focusing on common beliefs and a sense of belonging that underpin the organisation's identity and experience.
2. **Balanced Interests**: Recognising and balancing the interests of individuals and the collective, including both human and non-human elements.
3. **Collective Choice:** Emphasising fair decision-making mechanisms that involve all stakeholders affected by the decisions.
4. **Practices:** Establishing ways, projects, and activities that align with the organisation's values and purpose while increasing accountability and transparency.
5. **Behaviours:** Shaping how individuals, teams and groups within the organisation behave in response to internal and external interactions.
6. **Differences**: Nurturing diversity through policies, processes, relationships and routines, even during times of friction and conflict.
7. **Self-Governance:** Promoting self-agency and providing an environment that supports self-management and self-organisation.
8. **Networks & Relations:** Recognising the organisation as part of a wider network of relationships and interactions.

The participants were split into four groups, and each group received an A4 sheet containing two commoning principles (see Appendix). They were instructed to brainstorm ideas for tools, activities, methods and approaches to enhance service design practices based on each principle.

5. Sharing and discussion (40 min)
After the group work, a sharing session commenced, during which each group presented their ideas to the entire workshop. The participants were encouraged to consider how each idea aligned with the five planetary health values introduced earlier. If they believed an idea had the potential for high impact based on the values, they could place a sticky dot next to the corresponding Post-it. The workshop concluded with a review of all the ideas, capturing them on the team's current service design framework and inspiring discussions about potential actions and improvements for planet-centric service design practices. The exercises throughout the workshop aimed to stimulate creativity, collaboration and a shared vision among participants for a more sustainable and regenerative approach to service design within the organisation.

Observations and findings
An essential takeaway from the workshop was recognising the importance of the systemic leverage moment created by such off-site events. Using the time set aside allowed the team to be introduced and test new approaches within their existing practices, avoiding the unnecessary burden on their already busy workloads. This approach proved effective in rethinking the service design process towards increasing planet-centricity.

"We don't usually have time to experiment like this and dive as deeply into the topics as we did today." (Workshop participant)

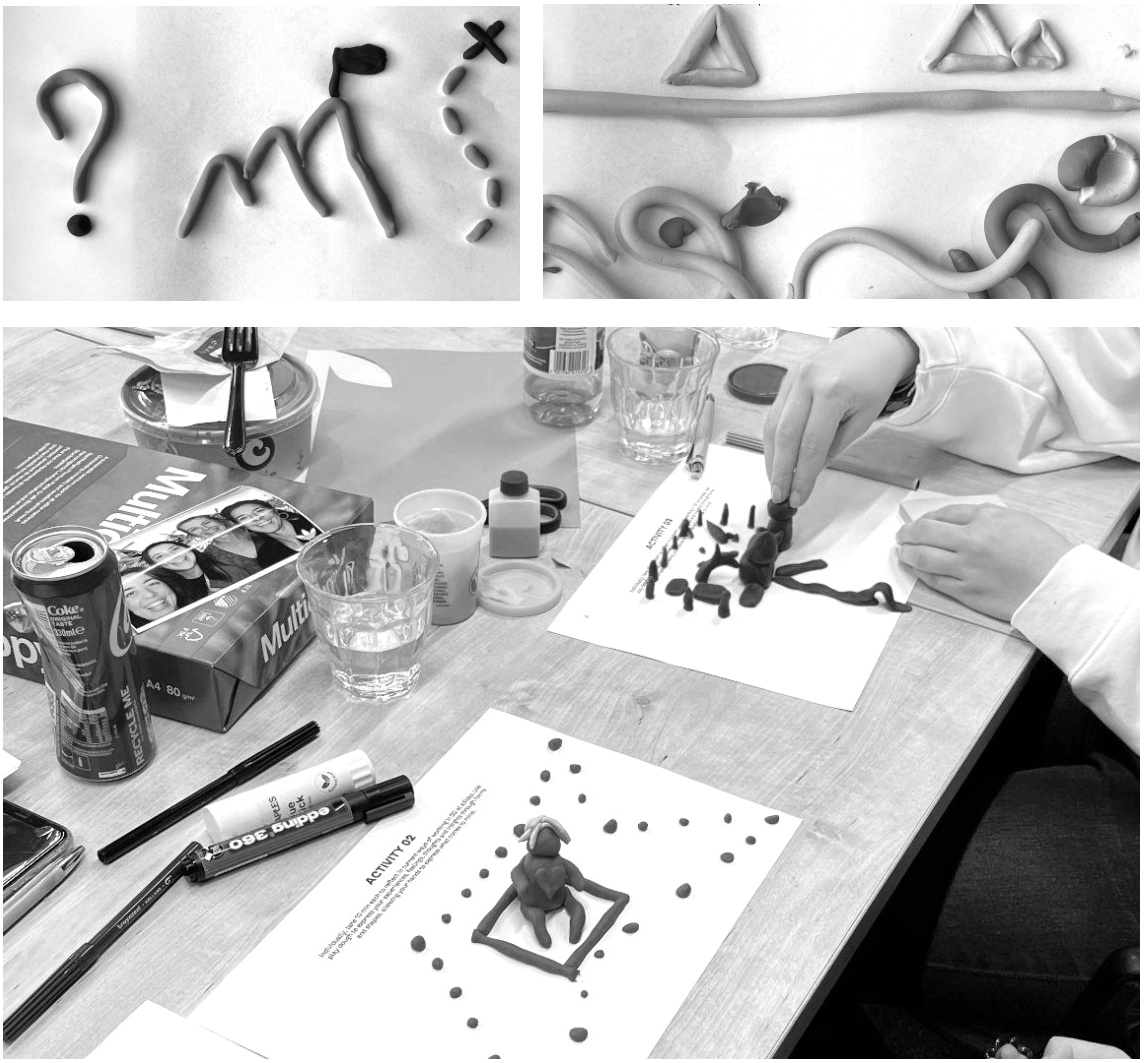
"It's so important we use these offsites to explore our strategic position on topics like this." (Workshop participant)

"It's like a piece of poetry. I can relate to it." (Workshop participant)

Overall, playdough offered a tactile way for participants to describe their feelings about current ways of working, sometimes easier expressed through shapes and colours than words. This hands-on approach helped participants share their emotions and experiences and encouraged storytelling, making the topic less abstract and more tangible. It was akin to an exhibition, showcasing everyone's work and fostering a deeper understanding among the participants. Participants identified several practice shortcomings that hindered their efforts to apply more sustainable approaches to service design, during the first activity focusing on practice gaps and future aspirations. These challenges often overlapped with the previously identified planetary health challenges related to information, imagination and governance (6.2). One significant issue was the absence of approaches that fostered a shared sense of purpose within projects, leading participants to recognise the necessity of transitioning from a profit-focused business approach to one driven by a greater sense of purpose. This realisation was further emphasised by participants' acknowledgement of the organisation's strong focus on profit, leading to a sense of disillusionment among the team members.

Participants again expressed a sense of helplessness in this context, feeling that challenging the current business model was beyond their control and that they could not bring about the changes they would like to see. They identified a pressing need to break away from the "same old" service design process, which they perceived as lacking planet-centricity altogether, but felt trapped to meaningfully do so, exposing another double bind.

Figure 45: Examples of playdough outputs presenting current service design practice and future aspirations



"We should move from a linear design-centred approach to a less linear, more organic practice building on different theories." (Workshop participant)

"Feeling stuck in a box. I want to move from being abandoned and unfinished to being nurtured and expanding." (Workshop participant)

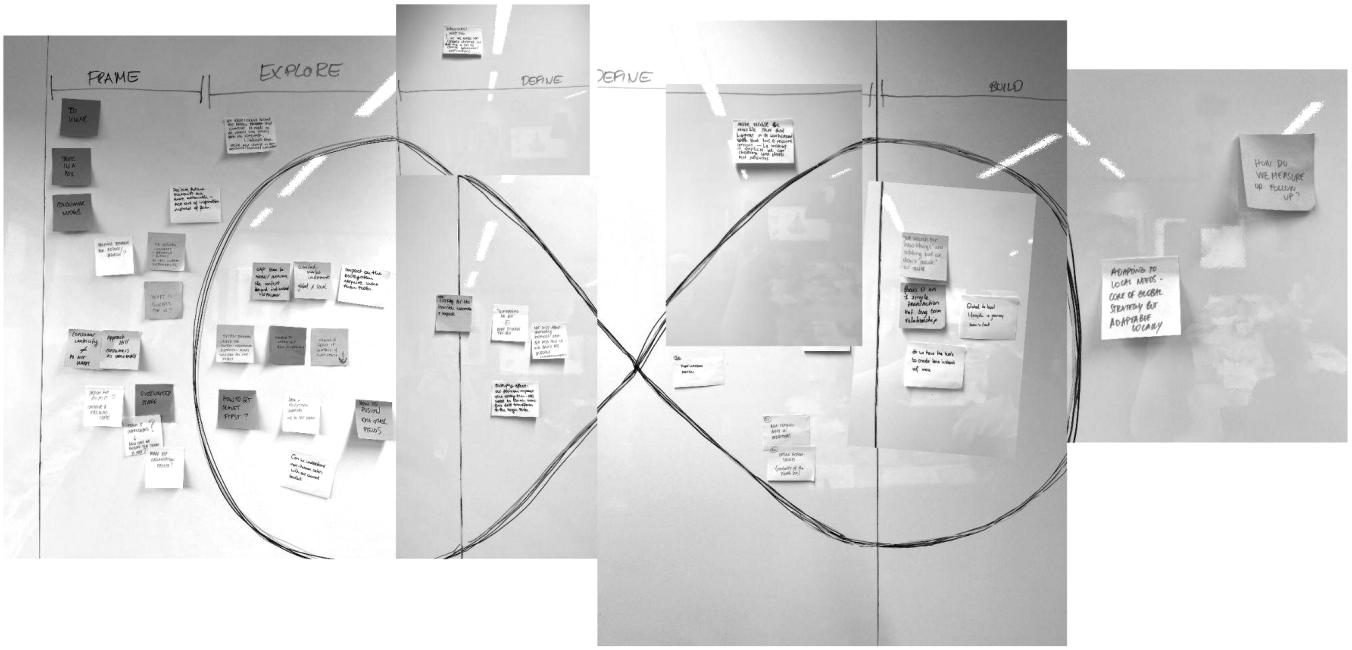
"This symbolises impact. It spreads. It sticks. It's visible. It adds texture. It can't be ignored." (Workshop participant)

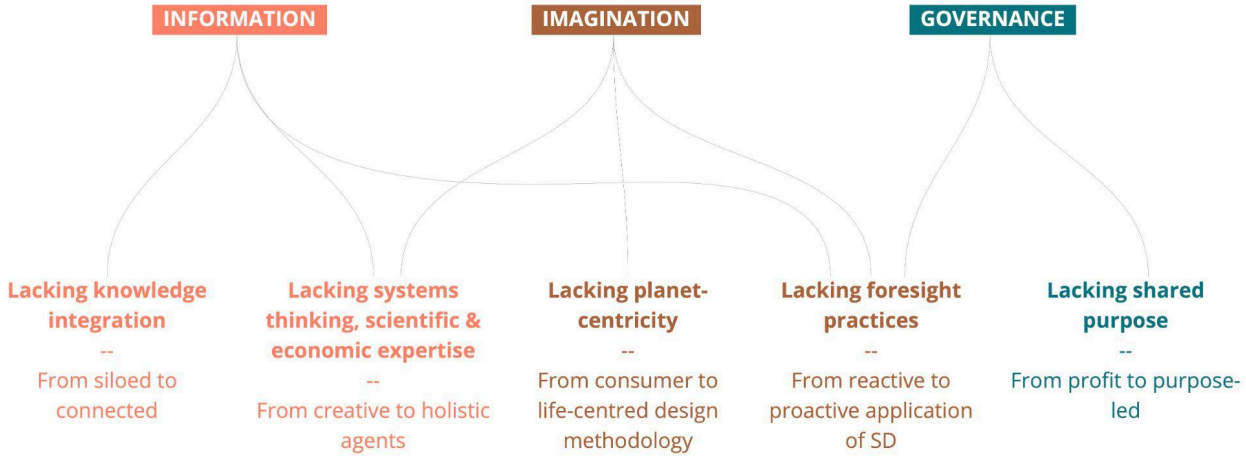
The team noted that their current approaches felt stagnant and confined within a box, leading to a desire for more organic and less linear practices. There was a deep desire to learn more from systems theory. Participants advocated for a shift from the current consumer-centricity to a more life-centred design methodology, where the wellbeing of the planet is a central consideration. Additionally, they expressed concerns about being overloaded and overworked, calling for better strategies to prevent burnout and enable self-organisation. Other identified gaps included the absence of a clear framework for reducing and embracing degrowth, and the inability to adequately consider non-human actors in their design toolkit. Participants highlighted a tendency to continuously add new workloads without eliminating outdated or ineffective practices, and they acknowledged the need to act out of inspiration rather than fear to drive positive change.

Participants also noted challenges in identifying invisible connections and impacts, limited involvement with the market, and a disconnect between global and local perspectives in the company. They sought better access to data and a means to create real changes in consumer behaviours and expectations. Furthermore, the team recognised that understanding ecosystem impacts required more than just tools; it necessitated systems thinking and integration of scientific, economic and ecological expertise. The participants identified the need to challenge traditional thinking and leave the confines of conventional practices to address these gaps and foster a more planet-centric approach. They stressed the importance of adopting a long-term and foresight-based view of design decisions and finding ways to engage people and collaborate effectively.

I captured people's stories, feelings and ideas on Post-its as they presented their artwork, and we collectively mapped these elements onto the wall. Through a simple drawing, we represented their current design process and engaged in discussions to determine the placement of each practice gap on this visual representation. This facilitated a shared understanding of the overall insights.

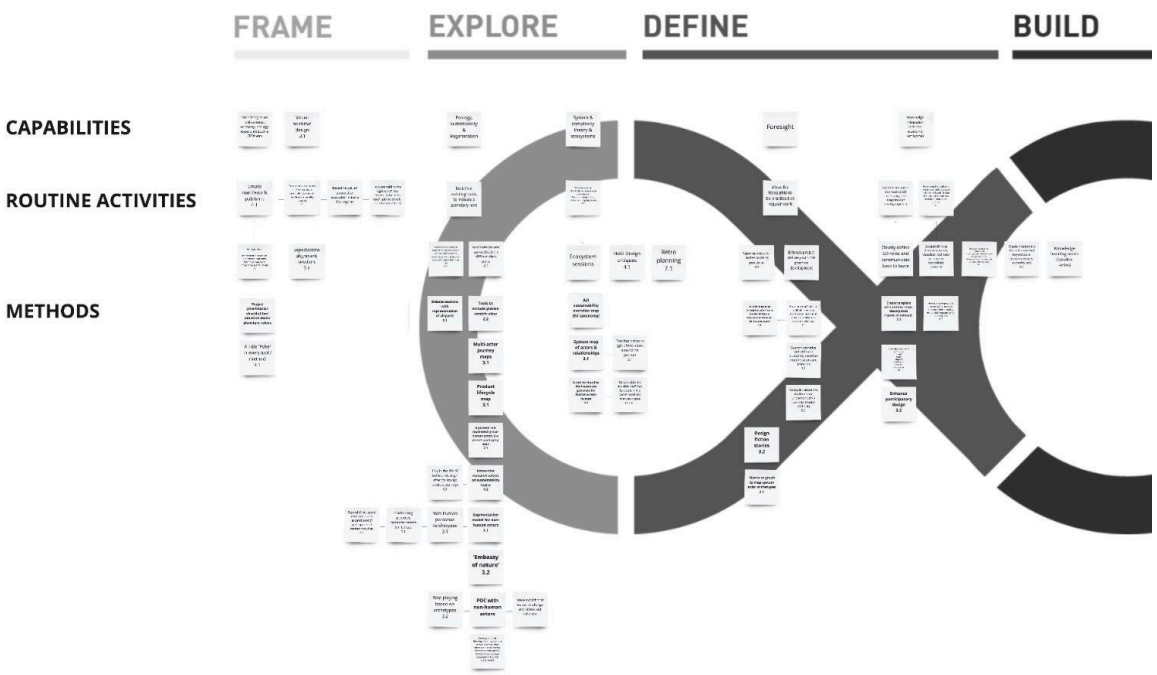
Figure 46: Practice gaps in Information, Imagination and Governance across the design process





Beginning the workshop with a reflection on practice gaps quickly paved the way for the ideation process facilitated by the commoning starter questions. Research participants readily embraced commoning principles, and found them relevant and useful for brainstorming ideas to address information, imagination and governance gaps. More than 60 ideas were generated during the session and mapped out within the current service design process. Upon synthesising the ideas, three distinct types of ideas became apparent. The first type revolved around acquiring new knowledge and capabilities. The second type involved proposing novel routine activities that could intentionally foster improved collaboration. The third type comprised practical methods to enhance creativity and imagination in future projects. I also noted that these ideas predominantly manifested in the early phases of the current service design process, particularly during the framing, exploration and definition of problem spaces. Only a few of these ideas extended into the later build phase. This observation suggests that commoning principles and the ideas generated through them may be especially relevant and applicable during the initial stages of contemporary design projects.

Figure 47: Ideation synthesis based on using the commoning principles

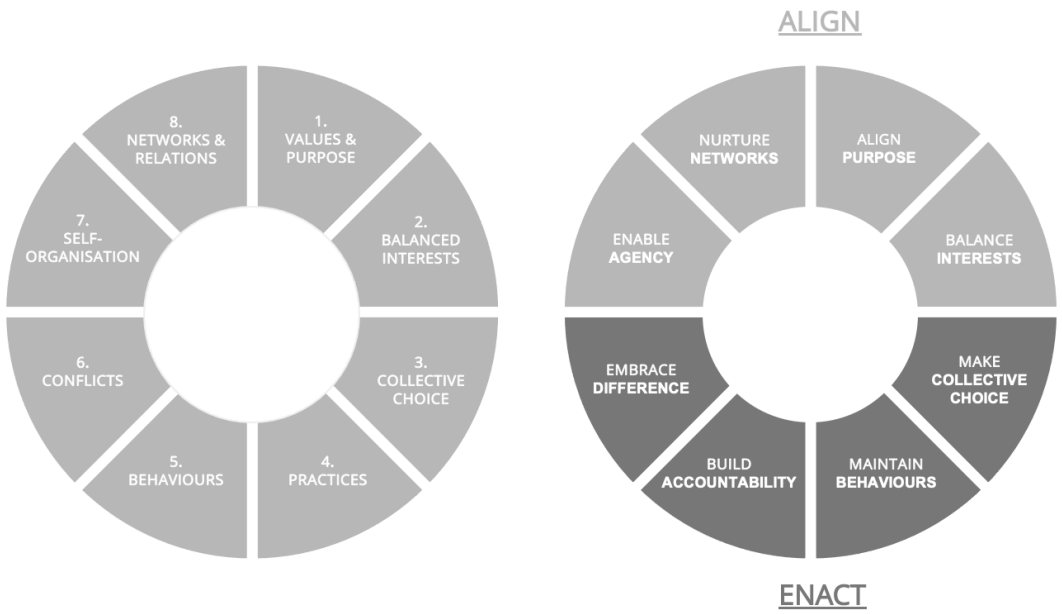


After analysing the feedback from the participants, I reorganised the eight commoning principles into two broader clusters. The reason behind this adjustment was that using numbers for the principles had caused confusion within the team. The feedback I received suggested that numbering implied a specific order in which the principles should be addressed, while, in reality, all principles were equally important and didn't necessarily require a linear sequence. The first cluster was designed to help the team *align* on definitions, goals and the identification of desired capabilities, behaviours and routines. This cluster aimed to create a shared understanding and purpose among the team, promoting a cohesive approach to their work. The second cluster focused on the crucial aspect of *enacting* agreements into actions through implementation. It underscored the significance of establishing an enabling infrastructure to bring the team's collective vision to life, ensuring their shared values and purpose translated into concrete strategies and actions. By organising the principles into these two clusters, participants can approach them holistically, addressing each aspect as needed and in a way that aligns with their unique organisational context. This restructuring allows teams to avoid feeling restricted by a predefined order. Instead, it empowers them to explore and incorporate each principle as they see fit on their journey towards a more sustainable and impactful design practice.

The participants raised concerns about the language used in certain principle starter questions, especially the term ‘conflict’. They preferred more positive and collaborative phrasing to address differences and diversity within their team. This preference emerged because using the term 'conflict' can sometimes make people feel uncomfortable, as if they were inviting conflict into the room even before it arises. This discomfort was seen to hinder open and constructive dialogue, causing team members to be cautious about expressing their opinions or differences. Participants also highlighted the importance of action-driven titles for the principles, as it would make it easier for people to understand each principle's value or benefits. When discussing the principles related to practices and behaviours, there was an acknowledgement that the original meaning of the fourth and fifth principles from Ostrom's work, which involved monitoring behaviours and accountability through sanctioning, had not been well understood in the previous iteration. Taking this feedback into account, I refined the

language of the commoning principles and tested the new titles again with the research participants. This involved clarifying their meaning and making them more practical for a design context (Practices became Maintain Behaviours and Behaviours became Build Accountabilities).

Figure 48: From numbers to clusters: Losing the numbers of the commoning principles and refining the language of the principles to create a commoning compass



Analysing the workshop results, a diverse set of commoning tools emerged, allowing me to consolidate ideas into key concepts on how each commoning principle could be applied in design practice. Mapping these concepts against each commoning principle allowed me to gain a better understanding of a practical framework. I could grasp how these principles might serve as guiding directions for designers and team members, much like points on a compass. As a metaphor, a compass seemed appropriate for reframing the original principles into directional points that can remind us about the importance of identifying shared goals, nurturing relationships, balancing interests, empowering agency, making collective decisions, agreeing on behaviours, establishing accountabilities and embracing differences within the design process. It invites re-orientating design practice alongside these compass points, without providing a prescriptive model for doing so.

Table 28: Towards a design compass: Iteration of commoning principles as 'compass points'

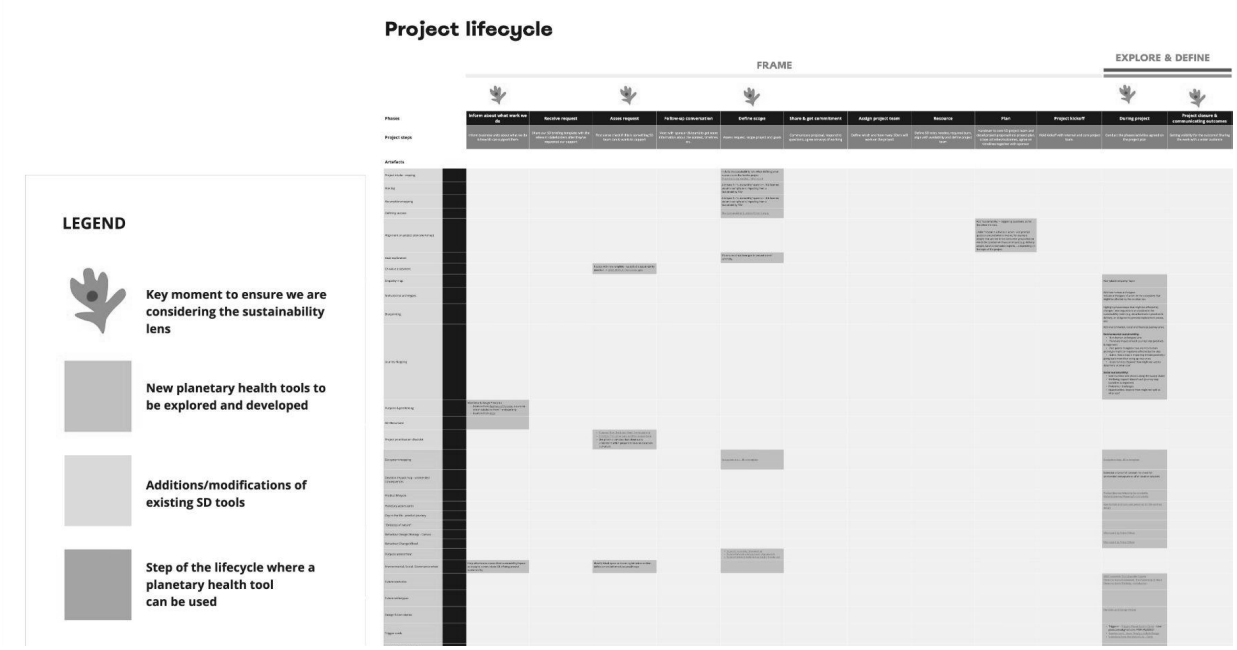
'Compass Point'	Cluster	Commoning activities	Cluster function
ALIGN PURPOSE	**ALIGN**	• **Call to action:** Sessions designed to reinforce a purpose-driven approach and align team members' actions with a broader purpose. These sessions lay the foundations for encouraging accountability and commitment to meaningful service design practices. • **Future forward recordings:** Participants envision their workplace in 2030 through guided meditation, incorporating sustainable and planet-centric practices. This exercise stimulates creativity and helps align service design projects with a future-forward perspective.	**This compass point helps you identify a shared endeavour and come together as a group.** Activities will support you to define shared goals, objectives and values, and to communicate them effectively within the group.

		• **Ikigai canvas:** Involving a series of reflective questions to help each team member discover their individual Ikigai (purpose). By aligning individual Ikigai, the team identifies shared values and goals, fostering cohesive collaboration and purpose-driven service design projects. • **Navigate together:** Facilitated team activity to collectively steer towards a common purpose and direction. Participants share perspectives, align goals, and create a unified vision for where their boat is headed. • **Summit visualisation**: An imaginative exercise to visualise future aspirations. Team members collectively explore the summit of their goals and journey together towards purposeful design outcomes.	
NURTURE NETWORKS		• **Ecosystem mapping:** A visual tool and method to identify key internal and external relationships within the ecosystem, helping the team understand and engage with actors in a more holistic context. • **Knowledge learning series (Speaker series):** A recurring series of expert talks and knowledge-sharing sessions to build ecosystem awareness and nurture relationships with relevant stakeholders. • **Cross-functional meetups:** (Coffee Chats, Meetings with 'Difficult Teams', Delegating Contact) Intentional interactions with various stakeholders, including difficult teams, to foster open communication and trust and strengthen relationships. • **Team steward:** Empower a dedicated team steward to enhance collaboration. This steward will navigate between teams, offering coaching, support and strategies to foster unity and deal with differences and team dynamics.	**This compass point helps you understand your system actors and position your initiative and its impact in a larger, more holistic context. By nurturing relationships with actors, you can work collaboratively towards shared goals.** Activities will support you in building ecosystem awareness and identify key internal and external relationships that need nurturing.
BALANCE INTERESTS		• **Planetary actors:** A tool to identify and understand the needs, interests and perspectives of non-human actors, ensuring their consideration in the decision-making process. • **ESG wheel:** A visual framework to assess and balance the impact of decisions on human wellbeing, environmental health, and economic prosperity. • **Planetary health SWOT:** A structured analysis to evaluate the strengths, weaknesses, opportunities and threats related to the initiative's impact on the planet's health, guiding the team towards a balanced approach.	**This compass point helps you identify how to reconcile the diverse needs and interests of all system actors in a fair and equitable way.** Activities will support you to consider human and non-human actors' contributions, interests, and needs and balance short-term and long-term goals.
ENABLE AGENCY		• **Scope of influence:** Fostering agency and momentum by encouraging small, manageable actions and focusing on what the team can control.	**This compass point helps you foster a sense of agency among system actors.**

		• **Common roles:** Engaging in constructive dialogues between leadership and teams to redefine roles according to commons principles. • **Autonomy infrastructures:** Creating frameworks and processes that enable team members to promote autonomy and decision-making authority.	Activities will support you to clarify capacities, roles and responsibilities and establish structures of self-organisation where possible.
MAKE COLLECTIVE DECISIONS	**ENACT**	• **Collaboration canvas:** A visual tool to facilitate collective decision-making, enabling teams to explore, align and enact key decisions. • **Embassy of nature:** An approach that involves seeking insights from nature representatives and integrating them into collective decision-making processes. • **Unintended consequences:** A set of values or criteria for integrating planetary health considerations into decision-making and ideation, fostering alignment with sustainable principles.	**This compass point helps you lay the foundations for collective decision-making.** Activities will support you to involve those likely to be affected by a decision.
AGREE BEHAVIOURS		• **Commoning compass:** A guiding tool to agree and maintain behaviours, aligning actions with ethical principles and shared values. • **Foresight sparks:** Regular practice for future-oriented decision-making, embracing long-term perspectives and helpful behaviours. • **Project standard:** Align actions with team and planetary values, ensuring team behaviours support sustainability goals.	**This compass point helps you align on shared rules and team behaviours.** Activities will support you to define shared approaches and ways to uphold them.
BUILD ACCOUNTABILITIES		• **Project standard checklist:** Regular sessions to assess projects based on principles and collective agreements, promoting accountability. • **Pledge bank:** A team commitment to uphold shared rules and behaviours, creating a sense of responsibility and accountability.	**This compass point helps you establish accountability mechanisms that ensure all actors remain responsible for their actions and contribute to the collaboration.** Activities will support you in recognising unhelpful behaviours and create ways to encourage cooperation.
EMBRACE DIFFERENCE		• **Empathy-based role play:** A tool to embrace diversity by exploring different perspectives and fostering empathy. • **Safe spaces:** Routine meetings that go beyond social presence, addressing biases and authority to create an inclusive and safe environment.	**This compass point helps you proactively address and deal with organisational and team differences.** Activities will support you in establishing conflict mechanisms and ways to encourage actors to uphold previously agreed-upon ground rules.

After presenting a long list of commoning concepts to the case study site, we prioritised the listed resources as activities to be included on a roadmap and in the team's project lifecycle. The project lifecycle is a structured framework used to outline how projects are conducted, managed and delivered, encompassing an overview of the commonly used tools and methods throughout the process. Team discussions about the resulting commoning activities led to three modifications in the team's project lifecycle: 1) adding new commoning concepts to the project lifecycle for the team to explore and develop, 2) flagging existing tools that require modification for planet-centricity based on the commoning starter questions, and 3) visualising possible leverage points or moments in the design process for implementing these new tools, making the 'enacting' part of the commoning principles a crucial step for anchoring the team's purpose discussions into everyday practice. Almost all existing tools were marked for review, showcasing the efficacy of the commoning framework in enhancing the service design process towards planet-centricity. To facilitate adoption, especially for team members unfamiliar with the concept of the commons, I refrained from directly labelling the principles as 'commoning tools'. Instead, I framed them in the language of sustainability and planetary health. This approach aimed to bridge the gap for those who had not previously encountered the commons discourse, making the principles more accessible and relatable within the context of planetary health and design practice.

Figure 49: Post-workshop modifications to project lifecycle



After visualising an updated project lifecycle, I created a roadmap for the team to prioritise and develop new planet-centric approaches throughout the year. The team reviewed this roadmap quarterly to ensure a systematic and continuous improvement approach. During these reviews, the goal was to select one to three additional tools from a long list, depending on resource availability, and test them in live projects, gradually incorporating them into their service design practice. Participants believed this approach would enable them to explore each tool's potential and experiment with its practical application in real projects.

Figure 50: Quarterly roadmap for new tool development inspired by the commoning compass

Reflections on the working hypotheses, research questions and next steps

The second application of the commoning principles and their set of ideation questions proved highly effective in enhancing design practice towards a planet-centric approach. The methodology generated numerous new ideas, activities and approaches to improve the design process. Importantly, the Commoning Design session refined the outputs from previous co-creation workshops (5.2) allowing me to synthesise a set of tangible ideas for more relational design practices, demonstrating how the commoning compass and its starter questions can effectively address RQ1, RQ2, and RQ3.

Regarding RQ1, the use of commoning principles effectively addressed knowledge gaps in contemporary design, facilitating the development of strategies for designing living systems. For RQ2, commoning principles led to generating ideas and pathways for relational and regenerative design activities, transcending the limitations of a human and growth-centric paradigm. Particularly for RQ3, the application of commoning principles and their subsequent alignment within the design process highlighted concrete ideas for new capabilities, routine activities and methods, effectively serving as infrastructures for improved collaboration. Infrastructures for improved collaboration refer to the practical and systematic components or structures that support and facilitate collaboration within an organisation or team. These components could include everyday processes, methods, routines or expertise that enhance how people work together towards common goals. These activities can be considered infrastructures for collaboration, because they provide a structured framework or set of guidelines that teams can follow to collaborate more effectively. For example, if one of the activities involves regular team meetings to align and review team purpose, this can be seen as an infrastructure for collaboration because it establishes a routine, time and space for team members to come together and work collectively on sustainability initiatives. The commoning compass and its resulting long list of ideas offered the team a practical starting point for gradually changing their operational approaches along the transitional path towards regeneration. Following this workshop, the next crucial step was to actively develop and test possible activities and formats for the roadmapped tools, including ecosystem

mapping, collaboration canvas and Planetary Actors cards. By engaging in practical experimentation and refinement, the next step of the research sought to gain valuable insights into the effectiveness and applicability of the prioritised commons-inspired planet-centric tools.

6.3.2.2 Shared Purpose

The next session was centred on building a collective vision and purpose for contemporary service design practice within the organisation. The idea was to create a transformative space for the service design team to foster a deep understanding of sustainability and its role in the future of their practice. The workshop was also part of the two-day off-site team event held in the Netherlands in November 2022. This event was a platform for the service design team to engage in reflective discussions regarding their strategic direction and work methodologies. The purpose workshop sought to guide participants on an imaginative journey towards a planet-centric future. Twelve participants from the service design team, among them key figures such as the service design director and VP of business transformation, engaged in an hour-long Purpose session, laying the groundwork for a planet-centric approach to service design

Aim and session design
The session was carefully designed to address the recurring issue of a lack of shared purpose within the service design team, as revealed in participant interviews and previous commoning prototype activities. Its main goal was to foster a collective exploration of sustainability and instil a sense of purpose among the participants. These interviews and awareness sessions revealed varying perspectives on sustainability, with some team members feeling disconnected from the company's approach or their colleagues' views. This disconnect often led to a sense of dissonance. Furthermore, the absence of clear ownership and participation guidelines for sustainability initiatives created ambiguity, leading to inefficiencies and hesitancy in collective action. In light of these challenges, the workshop aimed to create a space for collective exploration of sustainability's significance and to nurture shared purpose. The session was structured to encourage open and reflective conversations while placing a strong emphasis on experimentation by incorporating novel approaches:

1. Welcome (5 min)
The session began with a brief introduction, setting the stage by outlining the session's objectives and context.

2. Warm-up meditation (10 min)
To initiate a deep connection with the transformative potential of sustainability within their roles, the workshop started with a gentle meditation (10 min), inviting participants to visualise a future scenario in 2030 (see Appendix). During this guided meditation, participants were encouraged to imagine a world where their work directly contributed to the wellbeing of the planet, fostering a profound connection to the possibilities of sustainability in their professional lives.

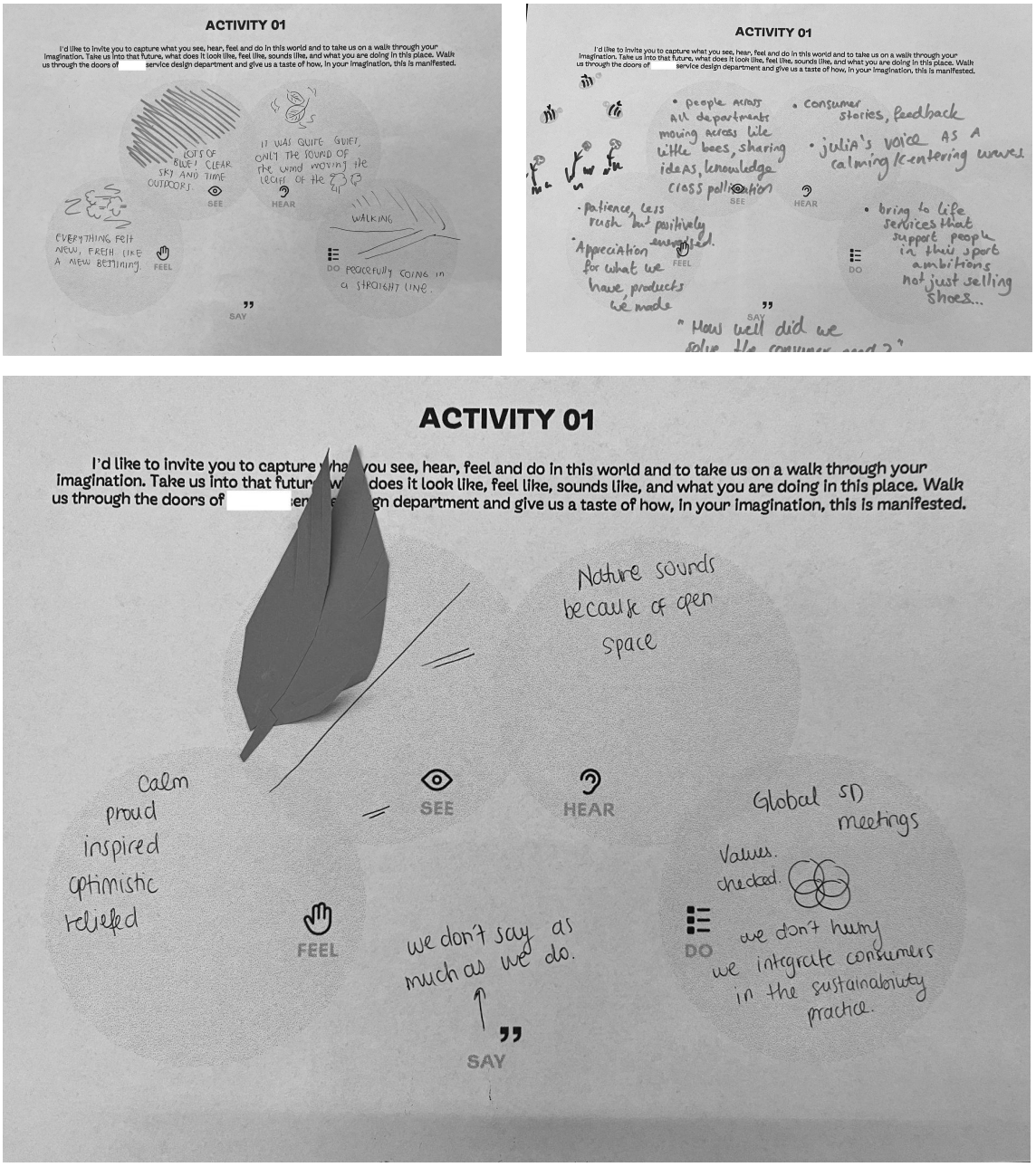
Beginning the workshop with a short meditation was as a deliberate choice, aligning with best practices for regenerative design (i.e. Storm and Hutchins, 2019). Meditation was again employed as a helpful vehicle to encourage mindfulness, emotional engagement and holistic thinking. By starting with this immersive and transformative experience, the session aimed to set a positive tone for the subsequent discussions and activities to foster a more purpose-driven approach to service design and sustainability. This approach also drew inspiration from recent research (Engel et al., 2019), which suggests that meditation practices can enhance sustainable decision-making among entrepreneurs.

3. Developing purpose through future field recordings: Journalling (30 min)
Following the meditation, the workshop progressed to the next phase (30 min), which involved participants journalling their thoughts, emotions, and actions within this envisioned future world. This reflective exercise allowed them to explore how service design could be a driving force for positive change. After completing their journals, participants shared their visions with the group during a collective discussion (15 min). Each participant presented their ideas, taking the entire workshop on a journey through their imaginative futures, emphasising the role of service design in these transformations.

4. Sharing and discussion (15 min)
Participants were encouraged to share their purpose maps with the group during this phase, offering a space for detailed descriptions of their visualisations and sensory experiences. This sharing process facilitated a deeper level of engagement and understanding among participants. By verbally articulating their visions and experiences, individuals had the opportunity to connect on a more personal level and discover common threads in their visualisations.

Observations and findings
During the session, several findings emerged, shedding light on the service design team's current state and their aspirations for the future. Beginning with a gentle meditation, intentionally taking the team out of their comfort zone, it deviated from typical meeting practices. While the meditation had to be conducted indoors in a small meeting room due to time constraints and unfavourable weather conditions, this less-than-ideal setting did not diminish its impact. It encouraged participants to visualise a future work environment that seamlessly integrated elements of nature while fostering highly collaborative working structures to facilitate cross-functional cooperation. The envisioned workspaces were characterised by balance, blurring the boundaries between work and personal life, which was particularly evident in the context of enabling parents to manage both their professional and personal responsibilities in a more balanced way.

Figure 51: Examples of the meditation journaling activity



The future work atmosphere described was optimistic, emphasising how work could contribute to values beyond conventional financial metrics. In this vision, commercial endeavours were driven by sustainable values, representing a significant departure from the relentless pursuit of growth in favour of prioritising the wellbeing of the planet and society. These insights underscore the team's profound aspiration for a future that aligns with sustainability principles and societal betterment, revealing a shared longing for such a future. However, the discussions also highlighted a frustration based on uncertainty about the practical steps required to realise this vision.

Overall, the experimental nature of the session offered a glimpse into a future where the service design team's work is intrinsically linked to broader values, emphasising the role of collaboration and nature connection in driving their endeavours. As a visioning exercise, this reflection was a catalyst for

inspiring the team's commitment to planetary health and strengthening a shared purpose of service design within and for the organisation. Another valuable insight emerged when the newly appointed service design director introduced an alternative purpose exercise immediately following my session. This exercise shifted the focus towards individual needs and personal purpose, employing the well-known Ikigai model. While my session concentrated on our planetary context, the Ikigai exercise encouraged participants to explore the personal and professional dimensions of their purpose. Guided by the Japanese concept depicted as a Venn diagram, participants contemplated what they excel at, what they are passionate about, what the world requires and what they can be financially rewarded for. While this exercise did not result in a carefully crafted shared purpose statement, it did bring the team closer to comprehending their shared vision and practice priorities. Importantly, it emphasised the importance of integrating sustainability into their work, even if the precise method remained elusive.

A shared-purpose document was subsequently created by the team, to provide clarity and guide the service design team's mission away from competitiveness. For instance, the team actively shifted their mindset from striving to "be the best" towards a more purpose-driven approach. Quarterly planning sessions were established to serve as practical bridges between the document's principles and day-to-day work, fostering consistency in connecting daily work with team purpose. However, the document faced challenges in implementation, as sustainability priorities that the team had agreed upon often remained unaddressed due to resource allocation issues and the necessity to align with profit-driven projects. Although the purpose document has acted as a guide, practical obstacles have hindered its potential to drive sustainability initiatives in the short term. Recognising these challenges, the team made plans to review and potentially revisit sustainability initiatives in the near future.

Reflections on the working hypotheses, research questions and next steps

The purpose-driven exercises created a valuable space for discussion and alignment regarding the team's future direction, which participants acknowledged as atypical in their usual routines. A significant lesson I gained from this experience is that there is no one-size-fits-all approach to conducting purpose-led activities. The reality is that numerous avenues exist for teams to explore, and it is essential to provide flexibility for each context and team to determine what works best for them. Adaptability and openness to various approaches are crucial to ensuring the team can genuinely connect with and embody their shared purpose. Insights from this exercise resonate with the overarching research questions and working hypotheses regarding understanding how common principles can potentially inform contemporary design practice.

Regarding the first research question (RQ1) about addressing knowledge gaps in contemporary design, the shared purpose sessions emerged as a practical alignment tool for the service design team. They brought clarity and direction, and steered the team from a competitive mindset and highlighted where knowledge gaps exist in the team and how to address them. This mirrors the central aim of my research, which is to bridge the knowledge gaps in contemporary design and facilitate the development of strategies for planetary health. As I examined the shift from a human-centric paradigm towards a relational and regenerative design practice (RQ2), the practical challenges encountered in implementing the shared-purpose document underscore the organisational complexities of enacting commoning principles.This suggests that a systematic approach and careful resource allocation are important to prioritise strategic initiatives that align with the team's purpose. In this case, resources were not allocated in line with the team's purpose, making it challenging to deliver on the sustainability promise. It seems easier to align on purpose, but organisational interdependencies can make it hard to enact. Commitment, routines and resources established for reviewing aligned values or visions are crucial. This was exemplified in the case study through quarterly reviews, where the team's purpose is consistently anchored as a focal point for evaluation. Considering how commoning can inform contemporary design practice to create collaboration infrastructures (RQ3), the insights emphasised

the importance of flexibility and adaptability in pursuing shared purpose within a team. While there may not be a single, fixed approach to answering the commoning starter questions, these observations pointed towards the wisdom of embracing a pluralistic approach to commoning activities. Such an approach can equip teams with starting points for exploration and collaboration, opening doors to more relational practices but allow them to adapt and tailor the activities to their unique contexts and objectives.

The next step in the action research involved continuing to test additional proposed tools within a commoning framework, with a particular focus on prototyping an ecosystem mapping tool.

6.3.2.3 SES Ecosystem

The fifth comprehensive action-research activity (see Appendix) addresses a crucial need derived from prior discussions — to adopt an ecosystem-oriented understanding in line with planetary requisites. The goal was to test an approach that can nurture networks and relationships, surpassing existing silos. Additionally, this activity delved deeper into the first working hypothesis, aiming to validate it regarding information challenges and knowledge gaps in contemporary design practices, while exploring how commoning can help to bridge these gaps from a systemic perspective (RQ1). Drawing from past research insights that emerged during the fourth workshop (6.1.3.3), the SES Ecosystem mapping activity strived to improve collaboration across diverse teams and departments. It simultaneously prototyped a systems perspective to consider planetary health and sustainability goals collectively. Through the development of an ecosystem mapping tool and its application in an organisational context, this part of the research aimed to gain vital insights into the effectiveness of tools rooted in a commons paradigm. From November 2022 to February 2023, I prototyped the tool with two key members of the service design team with a sustainability focus, alongside a group of eight internal sustainability experts within the company and myself from a research perspective.

Aim and session design
The objective of the ecosystem mapping initiative was to test an ecosystem approach guided by Ostrom's SES commons framework in the context of contemporary design practice. This process aimed to enable designers to grasp intricate systems and relationships, offering a better understanding of the contextual backdrop in which their projects operate. By visualising the constituents encompassing an ecosystem — ranging from actors and resources to flows — the working hypothesis was that designers could make more judicious decisions considering the multifaceted needs and perspectives of all stakeholders, and reveal opportunities accordingly. SES Ecosystem mapping was designed, grounded in Ostrom's Social-Ecological Systems framework (2009), to discern collaborative opportunities and systemic cooperation among diverse stakeholders. Encompassing Ostrom's lens of social-ecological systems, the approach visualised human and natural system interactions, positing that systems entail various interconnected elements such as individuals, institutions, physical environments, policies, structures and more. By mapping these elements and their interplays, the aim was to visualise networks and relationships, thereby identifying factors that drive system behaviour and potential points of intervention for change. The activity unfolded through several distinctive phases:

> **1. Articulation of the ecosystem and the purpose of the mapping (25 minutes)**
> The prototyping began with a phase to collectively frame the design problem or opportunity to be addressed by the ecosystem mapping process. This participatory phase engaged the service design sustainability leads in formulating questions around strategic alignment, risk management and innovative strategies in the face of pressing sustainability challenges.

Table 29: Purpose of ecosystem mapping

Ecosystem mapping purpose	Questions to address
Prototype ecosystem mapping as a way for the team to understand the bigger picture of the sustainability landscape and identify key strategies for positioning service design in the context of planet-centricity inside the org.	● How do we strategically align our activities with other stakeholders in the company, including relevant actors and initiatives? ● How can we identify or manage risks affecting our broader sustainability goals? ● How can we drive innovation by identifying gaps for new approaches or solutions to our sustainability challenges?

2. Mapping ecosystem components (over several hourly long sessions)
Applying Ostrom's Social-Ecological Systems (SES) framework, I initiated the process by simplifying the overarching categories of system components proposed by Ostrom. I developed a visual representation based on circular structures, allocating space for each component category. This visual prototype served as the initial tool prototype. Feedback received from service design sustainability leads highlighted the necessity of refining and clarifying the language used for the system categories. Recognising that certain distinctions were unclear to the participants in the case study, such as distinguishing between a 'resource system' and a 'resource unit' or differentiating 'resource' and 'governance' systems, we revised the categories to better align with the organisational context. We supplemented this with written definitions for each ecosystem component:

- **Actors**: Key stakeholders and participants influencing or impacted by the design challenge or opportunity. This encompasses individuals, communities, organisations and governmental entities.

- **Resources:** Natural and human-created assets essential for the ecosystem's functionality and the wellbeing of involved actors.

- **Governance:** Structures and procedures regulating the utilisation and administration of resources within the ecosystem.

- **Socio-Economic-Political Factors:** Social, economic and political attributes characterising a specific region or population.

- **Environmental Factors:** Other interconnected natural ecosystems that influence or are influenced by the focal ecosystem.

Maintaining a distinction between socio-economic-political and environmental factors remains crucial, aligning with Ostrom's rationale to avoid subordinating natural ecosystem factors to more prevalent economic aspects, often prioritised within organisational settings.

The prototyping activity began with identifying ecosystem components, during which participants turned to me for advice on how to do this. The need for explicit guidance in mapping ecosystem components became evident. We conducted a brief literature review on sustainability implementations within organisational contexts. Synthesising existing knowledge of systemic sustainability strategy implementation, we gained preliminary insight into ecosystem components — ranging from teams and departments to sustainability objectives, policies and management approaches relevant to the ecosystem under consideration.

Nevertheless, in the initial attempt to map sustainability as a dynamic organisational system, I recognised significant knowledge gaps among the service design participants. These gaps hindered accurate mapping. To ensure precision in the mapping process and following a review of company documentation on sustainability policies and strategic focal points, we found that expertise from internal sustainability experts was essential. The decision was made to engage with stakeholders possessing expertise in the sustainability domain within the company. Our approach involved engaging in stakeholder interviews, encompassing colleagues, community members, local leaders and resource managers. In addition, ongoing projects and initiatives offered opportunities for observation and data collection within the ecosystem, including aspects such as resource consumption, governance structures and decision-making processes.

3. Sustainability expert interview sessions (45 min each, plus analysis time)
The purpose of these interviews was to pilot and enhance our ecosystem mapping methodology. This aimed to offer a deep understanding of the organisational sustainability landscape and the role of service design within it, while also addressing gaps in the service design team's knowledge. Our objectives included aligning service design efforts with other stakeholders in the company, mitigating risks that could impact broader sustainability goals, and identifying unexplored areas. A service design sustainability lead initiated contact via the company's internal platforms, inviting sustainability experts to a 30 to 45-minute session. This involved introducing the tool, discussing knowledge gaps and seeking feedback on our mapping approach. These interviews involved experts from diverse departments:

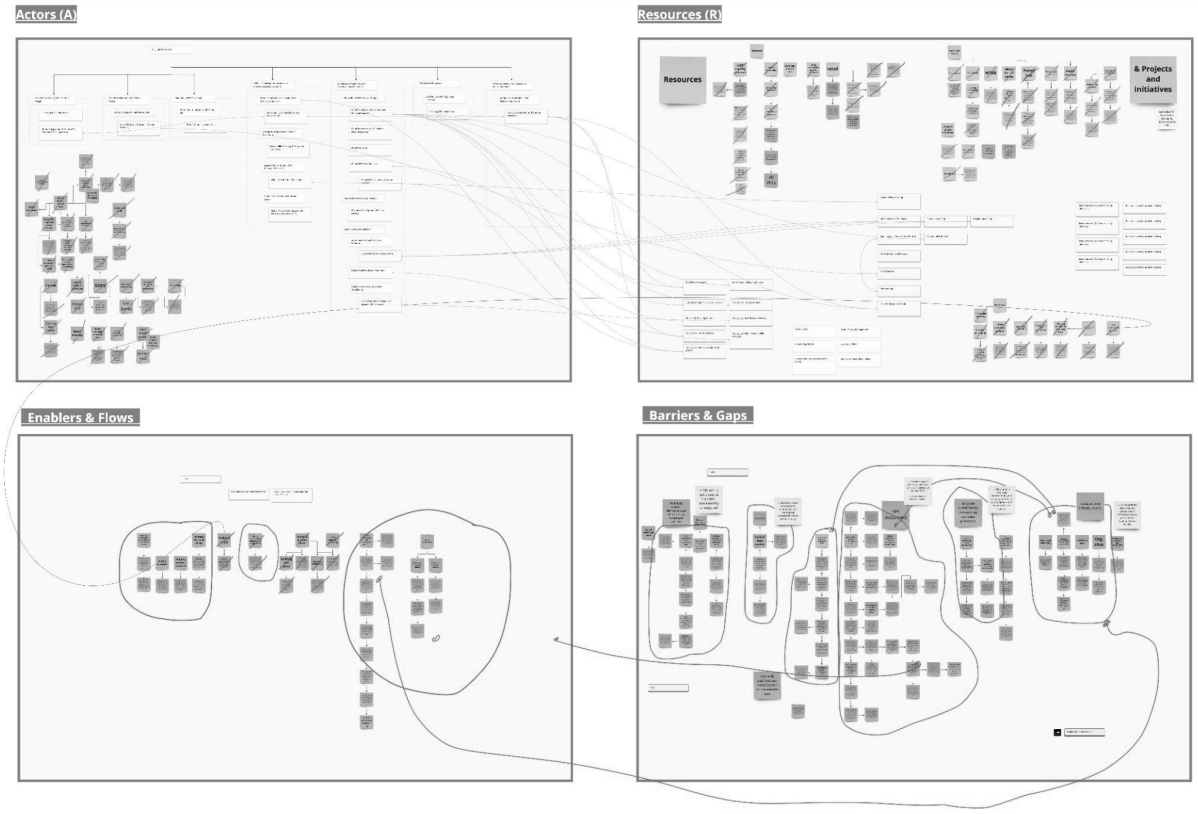
Table 30: Ecosystem mapping interview participants

Ecosystem mapping interview participants	
1	Senior Manager – Footprint Operations, Health & Safety, Environmental and Energy
2	Senior Manager – Sustainability in Retail, Retail Transformation & Channels
3	Director – Sustainability Global Operations, Global Operations
4	Director – Sustainability Strategy & Programs, Global Operations
5	Director – Retail Operations, Global Retail
6	Senior Manager – Brand Strategic Direction, Global Brand
7	Senior Digital Project Manager – Digital Activation, Global Sales
8	Senior Manager – Logistics & Packaging, Global Operations

Conducting eight loosely structured ethnographic interviews effectively pinpointed system components, relationships and barriers within the ecosystem, providing valuable insights for crafting a draft ecosystem map that depicted the intricate dynamics of the organisational sustainability landscape (see Appendix).

4. Developing visual ecosystem representation (Iterative after each interview, 15-30 min)
Following this, we proceeded to identify and chart the interrelationships among the recognised system components. This encompassed visual depictions of the physical and biophysical environment and diagrams of social and institutional elements. Our approach involved employing colours, arrows and lines to effectively illustrate these connections.

Figure 52: Extract of the thematic analysis of sustainability expert interviews (details cannot be shown due to NDA agreements)



5: Identifying drivers, leverage points and follow-up actions (Iterative during team analysis sessions, 30-60 minutes)

We focused on understanding the ecosystem map, aiming to spot drivers and potential leverage points. This analysis empowered the service design team to foster sustainable innovation by addressing gaps and sustainability challenges. This stage encompassed distilling six distinct opportunities showcasing key interactions and flows within the system. Additionally, we highlighted relationships among various actors and stakeholders that warrant enhancement. These highlighted opportunities serve as focal points for future action by the service design team. An important aspect of our approach included discussing the need to integrate monitoring and evaluation as intrinsic components. Team deliberations centred on the need to evaluate the ecosystem map periodically, ensuring its ongoing relevance. Determining ownership of the map for updates and considering seamless integration into existing work routines were equally important. Thus, a consensus emerged, designating one of the service design sustainability leads to spearhead this responsibility in their team moving forward.

Observations and findings

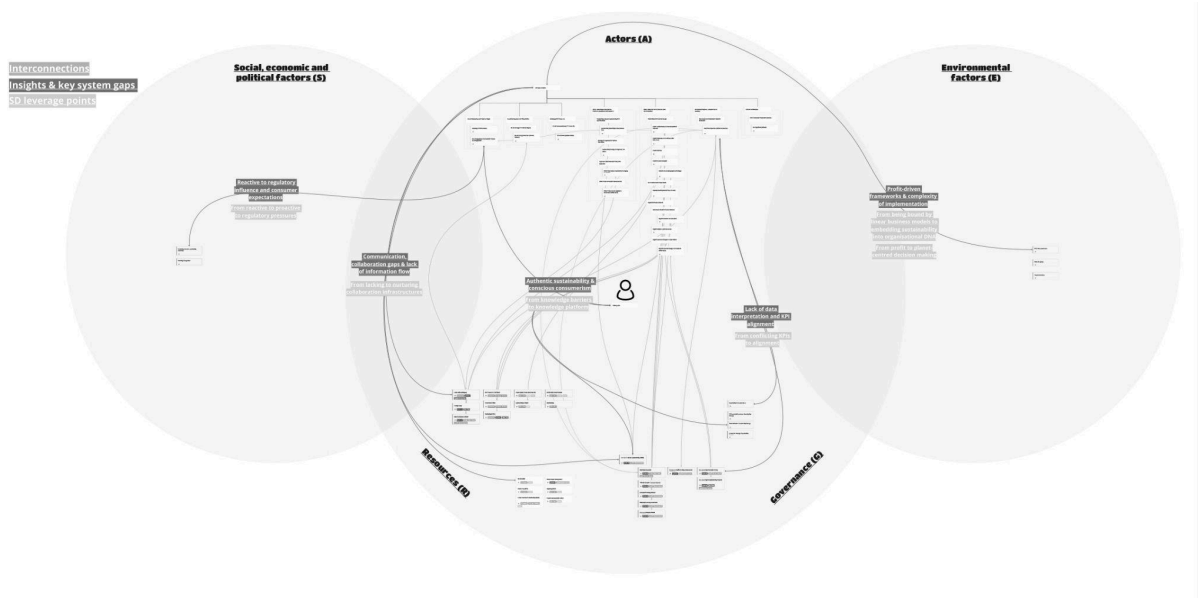
Applying ecosystem mapping through the commons-based lens of Social-Ecological Systems (SES) highlighted a series of interviews that emphasise the interconnectedness and interdependence between human and natural systems. The deliberate separation of environmental system components from social, economic and political factors prompted participants to bear in mind non-human perspectives, resisting the immediate pull of the usual economic and profit-driven considerations. Separating out environmental system components also encouraged participants to challenge their viewpoints to consider the consequences of their operational decision-making on planetary wellbeing.

Visualising ecosystems and interconnections allowed participants to recognise that social systems, including employee communities, are deeply influenced by the surrounding systems they are embedded in and vice versa. Adding two additional circles to map social, economic and political as well as environmental settings outside of the organisation as an ecosystem encouraged exploring planetary factors that are either impacting or impacted by specific business operations. Overall, adopting this commons-inspired approach facilitated a comprehensive review of the current sustainability landscape, including intricate relationships across the organisation.

The analysis of the interviews played a pivotal role in enhancing the content of the ecosystem map and provided valuable insights into several key aspects. Specifically, expert interviews were instrumental in bridging knowledge gaps by shedding light on ongoing sustainability initiatives, revealing the dedicated teams involved in these efforts, clarifying the overarching sustainability strategy and visualising its interconnectedness with various functional teams within the organisation. Here is an overview of specific insights that emerged from the expert interviews:

- **The need for expert knowledge to visualising the ecosystem**
  The eight expert interviews helped to identify the ecosystem components relating to how sustainability is embedded within the organisation. This encompassed actors, resources, governance, social, economic and environmental factors. Semi-structured conversations, each spanning 45 minutes, were followed by in-depth one-hour analyses with a service design sustainability lead. Several key findings emerged after mapping the interview insights onto the ecosystem map, which held relevance for the strategic implementation of sustainability initiatives and revealed potential areas for improvement.

  Figure 53: Mapping the organisational sustainability ecosystem (details cannot be shown due to NDA agreements)



- **Complexity of company wide implementation**
  The integration of sustainability within profit-driven frameworks emerged as a multifaceted challenge involving navigating decision-making processes to balance profitability with sustainable practices. Creative solutions and cross-functional collaboration are vital in addressing this complexity. One interviewee noted:

"The true challenge lies in theoretical alignment and in practically executing sustainability initiatives within a profit-oriented business model. Often, translating sustainability targets into our workstreams poses uncertainties."

Balancing sustainability initiatives with other business priorities and financial limitations emerged as a strategic challenge. Interviewees pointed out that demonstrating the long-term benefits of sustainable practices and alignment with brand reputation might secure a future budget allocation. A participant highlighted, *"Constructing a compelling business case for sustainability initiatives, especially in resistant markets, requires navigation between immediate financial constraints and long-term gains."*

- **Communication and collaboration challenges**
  As a large organisation with a matrix structure, communication gaps and silos were seen to hinder progress. Participants described how effective collaboration is imperative to ensure the synergy and alignment of sustainability efforts across diverse functions, which presents a challenge today. An interviewee emphasised how *"Breaking down barriers across teams and nurturing open communication channels is pivotal to making sustainability a transformative force."* Mapping interview insights also highlighted how traditional employee education methods (i.e. seminars or town hall meetings) fall short when it comes to retaining knowledge and driving action among employees. While initial discussions and presentations may captivate attention, the subsequent course of action often reverted to business-as-usual. Improvements in knowledge platforms and engagement methods were essential to educate and inspire employees beyond the immediate impact of presentations or seminars. One participant stressed, *"Empowering employees through accessible, engaging, and continuous education is fundamental to cultivating a sustainability-focused workforce."* Besides, striking a balance between tailoring efforts to market strengths and maintaining a unified sustainability narrative is pivotal in achieving global consistency in sustainability practices across operations. This level of collaboration is often hard to achieve where teams across time zones and cultures have to navigate cultural nuances and local priorities, while upholding a shared commitment to sustainability. As one participant emphasised, *"Efforts to attain global sustainability consistency involve a delicate equilibrium between preserving distinct market identities and reinforcing overarching values. This is not easy."*

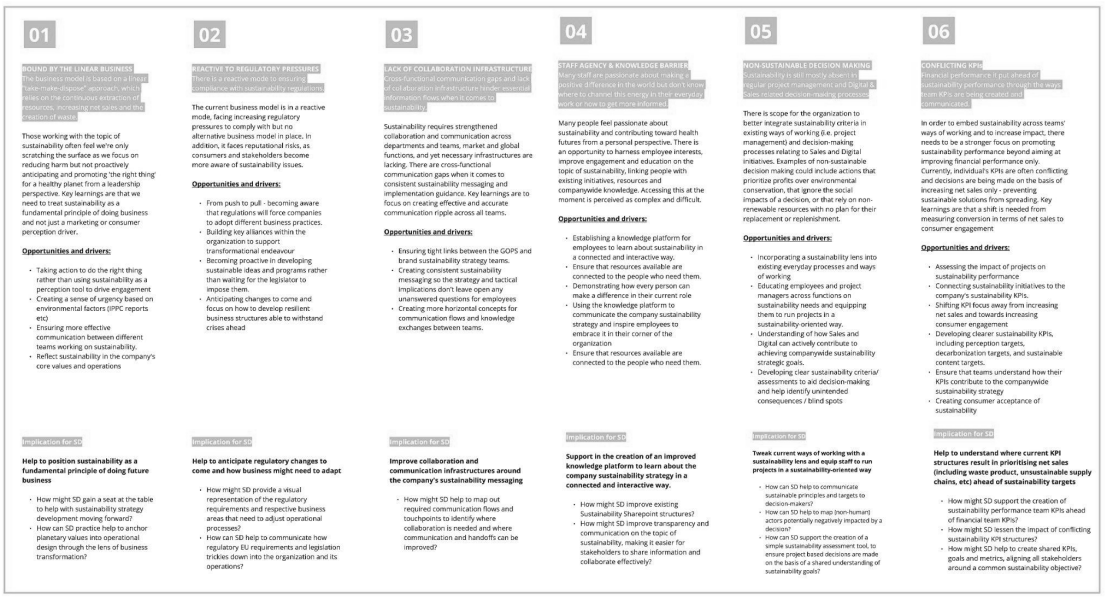
- **Authentic sustainability**
  Interview insights underscored the significance of embedding sustainability as an intrinsic value rather than a surface-level marketing strategy. There was scepticism among some interviewees that current sustainability practices genuinely extend beyond marketing efforts to avoid accusations of greenwashing. Participants found that by more deeply integrating sustainability as a business tenet, the organisation might be able to establish a genuine commitment that resonates with stakeholders while supporting planetary wellbeing. An interviewee stressed: *"It's not just about projecting an image; it's about living and breathing sustainability across every facet of the organisation."* Another participant remarked: *"Genuine actions and authenticity are the foundation for a credible sustainability narrative that we could build on."* Participants also emphasised that embedding sustainability into the organisational DNA necessitates a comprehensive reassessment of business processes, values and culture. By weaving sustainability more seamlessly into the operational fabric, organisations might be able to drive meaningful change and authenticity. One interviewee explained: *"Embedding sustainability is a journey that involves breaking down silos, reshaping mindsets and aligning every organisational level."*

- **Regulatory influence and consumer expectations**
  External regulations were highlighted as catalysts for adopting sustainable business practices. These regulations not only ensure compliance but also mould market norms. Additionally, a burgeoning consumer interest in sustainability reflects evolving expectations that organisations might be able to leverage strategically. A participant noted: *"Regulations act as catalysts that push organisations beyond their comfort zones, aligning practices with society's broader demand for sustainable choices."* As EU regulations shape the sustainability landscape, proactive adaptation could position organisations as industry frontrunners. Embracing such changes facilitates adept navigation of regulatory shifts and societal anticipations. An interviewee emphasised: *"By embracing trends and regulations, organisations can steer their sustainability journey towards relevance and innovation."*

- **Data interpretation and KPI alignment**
  Beyond presenting raw data, interpreting sustainability information to resonate with consumers and employees was seen to be pivotal. Participants expressed the need for crafting narratives that contextualise data and enable deeper engagement of employees. Moreover, aligning sustainability initiatives more closely with personal KPIs could ensure a more strategic approach permeating the organisation. An interviewee articulated: *"Data is the bedrock, but the story woven with that data shapes perceptions and propels action."* Interviewees stated how a well-defined and communicated sustainability strategy, strengthened by comprehensive metrics, could guide decision-making and gauge progress. One participant highlighted: *"A clearer strategy could serve as the guiding beacon, while clearer team metrics could provide tangible milestones for each of us along our sustainability journey."*

Once the interview insights were captured and mapped through relational diagrams between actors and system components, the next step involved analysing the resulting ecosystem map for the context of service design. The process entailed in-depth analysis and collaborative discussions with the service design sustainability leads, encompassing the review of the interview insights and a thematic analysis of the evolving ecosystem map. This approach helped identify crucial leverage points and opportunities in the realm of sustainability. The interview insights expanded the service design team's understanding of potential sustainability opportunities within the service design practice, while also highlighting essential implications that can steer the course of their future service design approach. On the following pages, I provide a summary of the synthesis of opportunities.

Figure 54: Synthesising leverage points and opportunities for service design practice (written contents see below)



01

BOUND BY THE LINEAR BUSINESS
The business model is based on a linear "take-make-dispose" approach, which relies on the continuous extraction of resources, increasing net sales and the creation of waste.

Those working with the topic of sustainability often feel we're only scratching the surface as we focus on reducing harm but not proactively anticipating and promoting 'the right thing' for a healthy planet from a leadership perspective. Key learnings are that we need to treat sustainability as a fundamental principle of doing business and not just a marketing or consumer perception driver.

Opportunities and drivers:

- Taking action to do the right thing rather than using sustainability as a perception tool to drive engagement
- Creating a sense of urgency based on environmental factors (IPPC reports etc)
- Ensuring more effective communication between different teams working on sustainability.
- Reflect sustainability in the company's core values and operations

Implication for SD

Help to position sustainability as a fundamental principle of doing future business

- How might SD gain a seat at the table to help with sustainability strategy development moving forward?
- How can SD practice help to anchor planetary values into operational design through the lens of business transformation?

02

REACTIVE TO REGULATORY PRESSURES
There is a reactive mode to ensuring compliance with sustainability regulations.

The current business model is in a reactive mode, facing increasing regulatory pressures to comply with but no alternative business model in place. In addition, it faces reputational risks, as consumers and stakeholders become more aware of sustainability issues.

Opportunities and drivers:

- From push to pull - becoming aware that regulations will force companies to adopt different business practices.
- Building key alliances within the organization to support transformational endeavour
- Becoming proactive in developing sustainable ideas and programs rather than waiting for the legislator to impose them.
- Anticipating changes to come and focus on how to develop resilient business structures able to withstand crises ahead

Implication for SD

Help to anticipate regulatory changes to come and how business might need to adapt

- How might SD provide a visual representation of the regulatory requirements and respective business areas that need to adjust operational processes?
- How can SD help to communicate how regulatory EU requirements and legislation trickles down into the organization and its operations?

03

LACK OF COLLABORATION INFRASTRUCTURE
Cross-functional communication gaps and lack of collaboration infrastructure hinder essential information flows when it comes to sustainability.

Sustainability requires strengthened collaboration and communication across departments and teams, market and global functions, and yet necessary infrastructures are lacking. There are cross-functional communication gaps when it comes to consistent sustainability messaging and implementation guidance. Key learnings are to focus on creating effective and accurate communication ripple across all teams.

Opportunities and drivers:

- Ensuring tight links between the GOPS and brand sustainability strategy teams.
- Creating consistent sustainability messaging so the strategy and tactical implications don't leave open any unanswered questions for employees
- Creating more horizontal concepts for communication flows and knowledge exchanges between teams.

Implication for SD

Improve collaboration and communication infrastructures around the company's sustainability messaging

- How might SD help to map out required communication flows and touchpoints to identify where collaboration is needed and where communication and handoffs can be improved?

04

STAFF AGENCY & KNOWLEDGE BARRIER
Many staff are passionate about making a positive difference in the world but don't know where to channel this energy in their everyday work or how to get more informed.

Many people feel passionate about sustainability and contributing toward health futures from a personal perspective. There is an opportunity to harness employee interests, improve engagement and education on the topic of sustainability, linking people with existing initiatives, resources and companywide knowledge. Accessing this at the moment is perceived as complex and difficult.

Opportunities and drivers:

- Establishing a knowledge platform for employees to learn about sustainability in a connected and interactive way.
- Ensure that resources available are connected to the people who need them.
- Demonstrating how every person can make a difference in their current role
- Using the knowledge platform to communicate the company sustainability strategy and inspire employees to embrace it in their corner of the organization
- Ensure that resources available are connected to the people who need them.

Implication for SD

Support in the creation of an improved knowledge platform to learn about the company sustainability strategy in a connected and interactive way.

- How might SD improve existing Sustainability Sharepoint structures?
- How might SD improve transparency and communication on the topic of sustainability, making it easier for stakeholders to share information and collaborate effectively?

05

NON-SUSTAINABLE DECISION MAKING
Sustainability is still mostly absent in regular project management and Digital & Sales related decision-making processes.

There is scope for the organization to better integrate sustainability criteria in existing ways of working (i.e. project management) and decision-making processes relating to Sales and Digital initiatives. Examples of non-sustainable decision making could include actions that prioritize profits over environmental conservation, that ignore the social impacts of a decision, or that rely on non-renewable resources with no plan for their replacement or replenishment.

Opportunities and drivers:

- Incorporating a sustainability lens into existing everyday processes and ways of working
- Educating employees and project managers across functions on sustainability needs and equipping them to run projects in a sustainability-oriented way.
- Understanding of how Sales and Digital can actively contribute to achieving companywide sustainability strategic goals.
- Developing clear sustainability criteria/ assessments to aid decision-making and help identify unintended consequences / blind spots

Implication for SD

Tweak current ways of working with a sustainability lens and equip staff to run projects in a sustainability-oriented way

- How can SD help to communicate sustainable principles and targets to decision-makers?
- How can SD help to map (non-human) actors potentially negatively impacted by a decision?
- How can SD support the creation of a simple sustainability assessment tool, to ensure project based decisions are made on the basis of a shared understanding of sustainability goals?

06

CONFLICTING KPIs
Financial performance is put ahead of sustainability performance through the ways team KPIs are being created and communicated.

In order to embed sustainability across teams' ways of working and to increase impact, there needs to be a stronger focus on promoting sustainability performance beyond aiming at improving financial performance only. Currently, individual's KPIs are often conflicting and decisions are being made on the basis of increasing net sales only - preventing sustainable solutions from spreading. Key learnings are that a shift is needed from measuring conversion in terms of net sales to consumer engagement

Opportunities and drivers:

- Assessing the impact of projects on sustainability performance
- Connecting sustainability initiatives to the company's sustainability KPIs.
- Shifting KPI focus away from increasing net sales and towards increasing consumer engagement
- Developing clearer sustainability KPIs, including perception targets, decarbonization targets, and sustainable content targets.
- Ensure that teams understand how their KPIs contribute to the companywide sustainability strategy
- Creating consumer acceptance of sustainability

Implication for SD

Help to understand where current KPI structures result in prioritising net sales (including waste product, unsustainable supply chains, etc) ahead of sustainability targets

- How might SD support the creation of sustainability performance team KPIs ahead of financial team KPIs?
- How might SD lessen the impact of conflicting sustainability KPI structures?
- How might SD help to create shared KPIs, goals and metrics, aligning all stakeholders around a common sustainability objective?

1. From being bound by linear business models to embedding sustainability into organisational DNA

Ecosystem mapping has made it very clear to the team how the organisation's predominant business model still adheres to a linear 'take-make-dispose' approach despite the existence of a company-wide sustainability strategy. While this model thrives on the perpetual extraction of resources, increasing net sales and generating waste, participants found it fails to consider the larger impact on the planet proactively. Expert interviewees on sustainability recognised that prevailing efforts often address only surface-level reductions in harm, failing to anticipate and champion ecologically beneficial initiatives crucial for planetary wellbeing, especially from a leadership perspective. Evident from ecosystem mapping insights is the imperative to redefine sustainability as an innate business tenet, transcending the realm of marketing or consumer perception tactics.

Analysis of these insights revealed a set of significant opportunities for the company's internal service design practice. First, a shift towards principled actions that intrinsically align with sustainability targets is needed instead of employing sustainability as a tool for consumer engagement. Second, it is imperative to cultivate a heightened sense of urgency predicated on environmental indicators, such as IPCC reports, to accelerate transformation. Third, the task of improving seamless cross-functional communication among teams engaged in sustainability pursuits is essential. Last, integrating sustainability into the team's fundamental service design values and operational framework, signalling a commitment to sustainability, is key.

From the service design-practice perspective, ecosystem mapping revealed that an evident implication is establishing sustainability as a more foundational element in shaping the future landscape of their work. Essential future questions arose for the team, such as: *How can service design secure a meaningful role in shaping sustainability strategy, and how can service design navigate the nexus of business transformation, effectively integrating planetary considerations into operational paradigms?*

SES Ecosystem mapping underscored the need to enhance service design's presence in high-level sustainability strategy discussions and more carefully navigate the intersection of ecological mindfulness and business growth.

2. From reactive to proactive to regulatory pressures

Discussions following the ecosystem mapping highlighted how the organisation's existing operational model is primarily reactive to ensuring compliance with sustainability regulations. This reactive mode of operation not only risks the company's reputation due to the heightened concern among consumers for sustainability issues, but also undermines the establishment of robust long-term foundations for the business that must acknowledge sustainability concerns. The service design practice was presented with a range of paths to explore. Moving from a reactive approach to a more proactive one – indicated by the awareness that changing regulations will require new ways of doing things – becomes important. Alongside this shift, there is a chance to build strong partnerships within the organisation to act as a solid base for making transformative changes. Encouraging a proactive mindset in creating sustainable ideas and projects emerges as a key motivator, avoiding a passive stance tied only to rules set by lawmakers.

Additionally, the ability to foresee changes and focus on developing resilient business structures that can handle future challenges is an important priority. Overall, these opportunities enhance the role of service design, making it a dynamic influence in helping

organisations adapt to changing regulations and strengthen their commitment to sustainability. The implications for the service design practice emerging from the ecosystem mapping are twofold: first, supporting anticipating forthcoming regulatory changes and the required business adaptations, and second, assisting in the visualisation and communication of regulatory shifts. In the former, service design can facilitate the projection of impending regulatory alterations and their potential effects on business strategies. Future questions arise for the team: *How might service design visually represent the regulatory requirements and respective business areas that need to adjust operational processes? And how can service design help communicate internally to the company the ways in which regulatory EU requirements and legislation trickle down into the organisation and its operations?*

3. From lacking to nurturing collaboration infrastructures
Challenges arose from communication gaps across functions and inadequate collaborative infrastructure, impeding the seamless flow of critical information in the realm of sustainability. Addressing sustainability imperatives requires enhanced collaboration and communication across departments, teams and global functions. However, the needed infrastructures to facilitate such interactions are currently missing. Inconsistencies in sustainability messaging and guidance for implementation manifest as communication gaps across functions. The process of ecosystem mapping presented an infrastructure in its own right to address existing gaps. The need for information compelled us to extend our reach within the organisation, creating new relationships with key individuals in the sustainability field. Through interviews, the team not only formed new connections but also gained insights from others' expertise and effectively conveyed the value of service design across various organisational domains. This, in essence, emerged as a significant benefit and outcome of the ecosystem mapping activity – a method to identify and foster collaboration infrastructures.

Key learnings highlighted the need to create effective and accurate communication ripple effects across all teams. The opportunities for the service design practice could be outlined in several ways. First, there is a chance to strengthen the connection between global operations and brand sustainability strategy teams, making collaboration more effective. Second, creating clear and consistent sustainability messaging by design could help employees better understand the current sustainability strategy and its practical implications for their work remit. Last, designing communication flows and knowledge sharing between teams can become more streamlined, promoting better teamwork.

The ecosystem mapping exercise revealed these opportunities, underlining how service design could play a key role in improving coordination and communication, ultimately advancing the organisation's sustainability goals. The implications for service design centre on enhancing collaboration and communication infrastructures related to the company's sustainability messaging. A key question emerging for the internal service design team to continue working within this context was: *How might service design help map out required communication flows and touchpoints to identify where collaboration is needed, and where communication and handoffs can be improved?*

4. From knowledge barriers to knowledge platform
Many employees want to make a positive impact but do not know how to do it in their daily work or where to get more information. There is an opportunity to use this interest to boost employee engagement and educate them about sustainability. This means connecting people with existing initiatives, resources and company-wide knowledge. However, right now, accessing these resources can feel difficult and confusing. To make the most of this

opportunity, it is important to simplify the process so employees can easily get involved and contribute to sustainability efforts. Opportunities for the service design practice unfold in various ways. First, there is a chance to create a knowledge platform that connects employees to learn about sustainability interactively. This can ensure that the right resources reach the right people. Second, there is an opportunity to show each person how they can contribute to their role. Third, the knowledge platform can be used to share the company's sustainability strategy and motivate employees to embrace it in their own areas. In all these, the focus is on making sure resources connect with the people who can benefit from them to encourage a shared commitment to sustainability within the organisation. The implications for service design involve supporting the creation of a knowledge platform for understanding the company's sustainability strategy in a more connected and interactive way, raising some important questions for future service design practice: *First, how can service design enhance the current sustainability knowledge-sharing infrastructures (i.e. on Sharepoint), and second, how might service design improve transparency and communication on the topic of sustainability, making it easier for stakeholders to share information and collaborate effectively in the longer run?*

5. From profit to planet-centred decision-making

Currently, sustainability considerations are largely absent from routine project management and the decision-making procedures of the digital and sales domains. Examples of non-sustainable decision-making currently include actions that prioritise profits over environmental conservation, ignore the social impacts of an economic decision, or rely on non-renewable resources with no plan for their replacement or replenishment. An opportunity arises for the organisation to better integrate sustainability criteria within established operational frameworks, such as project management and decision-making processes. Specific opportunities for service design practice include integrating sustainability perspectives into current routine processes and educating employees and project managers across diverse functions about sustainability requirements, enabling them to steer projects towards the company's sustainability goals. The development of explicit sustainability criteria and simple assessments stood out as a means to facilitate decision-making and uncover potential unintended repercussions and unaddressed aspects. The implications for service design were significant, revolving around adapting current operational approaches through a sustainability perspective, while empowering staff to execute projects in alignment with sustainability principles. This raised pertinent questions about the company's future service design practice: *How can service design help communicate sustainable principles and targets to decision-makers? How can service design help to map (non-human) actors impacted by a decision? And last, how can service design support create a simple sustainability assessment tool to ensure project-based decisions are made on the basis of a shared understanding of sustainability goals?*

6. From conflicting KPIs to alignment

The focus on financial performance overshadows sustainability performance due to how team KPIs are formulated and communicated. To make sustainability an integral part of how teams work and to have a bigger impact, there is a need to prioritise sustainability performance beyond just aiming for better financial results. Currently, individual KPIs often clash with company-wide sustainability targets and decisions are based mainly on increasing net sales, which hinders the adoption of sustainable solutions. The key takeaway was that there needs to be a transition from measuring success based on net sales to highlighting consumer brand engagement, which can also encompass rental or circular propositions. There were a few opportunities for the service design practice relating to this insight. First, there is a chance to

evaluate how current projects impact sustainability performance, shifting KPI focus from just raising net sales to crafting clear sustainability KPIs, covering perception goals and decarbonisation targets. Ensuring teams understand how their KPIs contribute to the company's sustainability strategy is also key. Service design practice could support the organisation in understanding where current KPI structures result in prioritising net sales (including waste products, unsustainable supply chains, etc.) ahead of sustainability targets, raising a couple of questions that the internal service design practice may want to address: *How might service design help to lessen the impact of conflicting internal sustainability KPI structures? By doing so, how might service design help to create shared KPIs, goals and metrics, aligning all stakeholders around a common sustainability objective?*

Reflections on the working hypotheses, research questions and next steps

Upon reflection, the team was surprised by the depth of insights and opportunities revealed through the ecosystem mapping approach. Their response to this method was notably positive as they appreciated its ability to bring clarity to the different components of the system, their interconnections and the evident gaps within it. Some participants even believed that endeavours like this could serve as a catalyst for impactful sustainability actions by aligning various initiatives.

The ecosystem mapping exercise marked a departure from traditional approaches, like stakeholder mapping, in contemporary design practice. It introduced a more holistic and systemic perspective incorporating social and governance aspects of sustainability practices, which fostered a profound analysis of relationships among various system components, shedding light on critical communication and information gaps. This commoning activity offered unique insights into the complex web of interactions and dependencies relating to the principle of 'Nurturing Networks.

The ecosystem mapping exercise played a pivotal role in addressing the first research question (RQ1). By systematically mapping the sustainability ecosystem within the organisation through a commons-inspired lens, it unveiled evident knowledge gaps, especially in areas where communication proved ineffective. The outcome of this mapping effort wasn't merely a visual representation of the organisation's sustainability ecosystem, encompassing diverse teams, departments, initiatives, policies and strategic documents. More significantly, it acted as a catalyst for fostering meaningful cross-functional discussions about the prevailing shortcomings in current practices. The visualisation of the system components and their interactions vividly revealed these deficiencies, prompting important conversations on rectifying them.

The analysis of expert interviews resulted in a comprehensive visualisation of the company-wide sustainability landscape, showcasing the interrelated components and identifying six potential opportunity areas for future service design engagement to advance the sustainability agenda. Nevertheless, it's essential to note that the team's capacity to address these opportunities depended on internal hierarchies, power structures and the agency to effectuate strategic changes. Certain opportunities identified through the ecosystem mapping exercise, such as aligning sustainability KPIs across the organisation, necessitated senior leadership to prioritise them, a process that, as the team experienced, could be challenging and potentially disempowering. Despite these challenges, the exercise significantly contributed to creating awareness, pinpointing knowledge gaps, and fostering discussions and strategic dialogues within the team. It laid the groundwork for potential transformative changes. Recognising the intricate web of relationships within the ecosystem made it evident that a shared, collaborative approach could facilitate the design of systems that are more harmonious with living systems.

Regarding the second research question (RQ2), ecosystem mapping underscored the significance of recognising deeper human-nature interconnections through the two outer circles designed to prompt reflections on engaging with nonhuman actors, and considering the unintended consequences of current relationships and decisions. Including planetary factors was not an optional aspect but a fundamental element of this mapping exercise. It unveiled a series of knowledge gaps within the design team, inspiring the team to identify experts within the organisation and engage with them to gain a better understanding of the context, organisational strategy, and implementation in relation to EU regulations and planetary challenges.

When considering how commoning can inform contemporary design practice in the context of creating collaboration infrastructures (RQ3), insights from the ecosystem mapping exercise revealed a lack of functioning infrastructures altogether. Interviewing, mapping and discussing insights, in themselves, were activities that facilitated the establishment of new relationships and the dismantling of siloed working practices, ultimately fostering stronger interconnections and exchanges about sustainability within the organisation. The identification of insights and opportunities raised a central question about the role of ecosystem mapping in shaping organisational strategy and the individuals responsible for overseeing its execution. The precise definition of this role and the accountable parties within the organisation remained uncertain, particularly among leaders responsible for global sustainability strategies, who asserted their authority in this domain when seeing the ecosystem map results. They expressed the view that service designers should not interfere in what they perceive as strategic decisions beyond their purview.

While ecosystem mapping revealed power discrepancies that may initially appear challenging to address, creating awareness marked the initial step in the process. It empowered the service design team to contemplate more strategic approaches for creating and nurturing vital relationships with key decision-makers. Research participants emphasised the importance of effectively communicating the value and relevance of ecosystem mapping across diverse functional areas for wider adoption of this approach. A participant reflected, *"Ecosystem mapping could help bridge essential communication gaps, but integrating it into our established framework needs careful thought and strategic alignment."*

In addition, the ecosystem analysis defined four potential use cases for using this commoning activity in contemporary design practice:

1. **Innovation opportunity identification**
   Ecosystem mapping emerges as a powerful tool for recognising system components, including key actors within specific industries or markets. It can facilitate the identification of prospective collaborators for innovative endeavours and product development. In essence, this supersedes the conventional method of stakeholder mapping. Through ecosystem mapping, teams can swiftly pinpoint entities to understand how their technological proficiencies, capabilities or expertise could more seamlessly integrate into ongoing projects or the broader corporate fabric. This process can reveal new opportunities for tackling sustainability challenges through service design practice, highlighting a set of key questions for service design to address.

2. **Enhancing relations, partnerships and collaborations**
   Ecosystem mapping can serve as a conduit for identifying potential partners with whom collaboration or alliances can be forged. This transcends immediate networks, enhancing current modes of operation. The process unveils complementarities in capabilities and resources, stimulating partnerships that mutually enrich all involved parties.

3. **Strategic planning**
   Ecosystem mapping can enhance the development of more effective strategies by better understanding the ecosystem in which organisations and teams operate. It can help identify new business models or areas of opportunity for growth, replacing traditional methods of strategic planning with more accurate and detailed insights. By mapping out the ecosystem, teams can develop strategies that are more closely aligned with the planetary needs as well as more immediate project partners.

4. **Anticipate risks and dependencies**
   Ecosystem mapping offers a way to identify risks and dependencies within an ecosystem, which can inform risk management and mitigation strategies. This can replace traditional risk analyses by providing a more comprehensive view of potential risks across the ecosystem. By understanding the interdependencies between entities within an ecosystem, teams can better prepare for and respond to potential events and uncertainties.

The prototype of the SES Ecosystem mapping revealed significant gaps and potential opportunities, especially in terms of relationships, communication breakdowns and information sharing. While the participants recognised the value and significance of visualising a system, achieving integration and alignment with existing methods demands further clarification. In response, I developed an ecosystem template with comprehensive instructions for further refinement across contexts and case studies.

Through the analysis of interactions among system components and the visual representation of their interdependencies, participants discerned potential pathways for the service design team. These pathways showed promise in fostering outcomes that are not only more sustainable and resilient, but also equitable for all stakeholders involved. The service design team acknowledged the importance of carefully considering these aspects in the future, regardless of the team entrusted with implementation, be it the global sustainability operations team or the service design and business transformation team.

The next phase of the action research involved testing more proposed commoning activities for improving cross-functional collaboration through the Collaboration Canvas.

6.3.2.4 Collaboration Canvas

The sixth action research activity (see Appendix) was designed to address a set of planetary health challenges (6.1.2). These relate to the need for better collaboration across functions and other governance barriers, including proprietary behaviours, conflicting priorities, a lack of shared purpose and challenges tied to political dynamics – such as conflict management and differences in terminology and language. I addressed this challenge proactively in response to challenges arising from a lack of collaboration infrastructures, particularly the issue of cross-functional teams losing sight of their shared purpose and experiencing conflicts, due to differences in working methods and change-management approaches, as previously shared in interviews.

Recognising the need for enhanced cooperation structures, I initiated the development of the 'Collaboration Canvas' tool to facilitate collaborative efforts that align with Ostrom's insights on how to improve cooperation. Research participants included a service designer from the internal service design core team, alongside other service designers who shared their experiences regarding situations demanding enhanced collaboration structures across functions and teams. Additionally, a cross-functional team comprising service designers and digital experts participated when prototyping the tool in a project context led by the service designer from the service design team. The canvas was iterated over three sessions that were 30 min each.

Aim and session design

The objective behind creating the Collaboration Canvas was to use it as a bridge between theory and action, simplifying the application of Ostrom's principles to real-world situations. At its core was the idea to enable groups to create collaborative projects that adhere to these principles effectively. The prototyping experiment took place in the context of a cross-functional project focused on implementing 'TheyDo' software[8] as a journey-management tool for the organisation to use internally. The objective was to assess whether the principles embedded in the Collaboration Canvas could proactively address conflicts, promote alignment of working methods and integrate shared visions into daily practices. The Collaboration Canvas was introduced during the project kick-off phase, a crucial stage in project initiation that typically involves project introductions, goal discussions, defining scope and deliverables, clarifying roles and responsibilities, and planning for risk identification and mitigation. However, to streamline the process and address time constraints, I delegated the facilitation of the canvas to an internal service designer who co-led the project. This decision aimed to assess the tool's effectiveness as a standalone method for enhancing collaboration within the organisation, with a specific focus on the service design team. Prototyping occurred in three distinct phases:

1. Designing the Collaboration Canvas

The Collaboration Canvas was designed based on Ostrom's core design principles during this initial phase. Group discussions and input from an internal service design team member, who co-led the TheyDo implementation initiative, contributed to its refinement.

2. Refining the Collaboration Canvas

The second phase involved refining the canvas based on feedback from the service design team on the first prototype to ensure it was suitable for testing within the TheyDo context.

3. Testing the Collaboration Canvas in context

The third iteration of the Collaboration Canvas emerged from feedback provided by the lead service design team member responsible for the TheyDo initiative, resulting in a refined version of the canvas tool.

Observations and findings

During the initial design phase, the Collaboration Canvas was created as a user-friendly and practical tool that aligns with Ostrom's principles while accommodating the dynamic nature of collaborative efforts. The initial structure of the Collaboration Canvas, referred to as 'Collaboration Canvas Iteration 1' (see Appendix) comprised the following elements:

Purpose: The canvas began by outlining a field for identifying the shared purpose or objective of the collaborative effort, aligning with Ostrom's principle of defining clear group boundaries and objectives.

Resources and Interests: This section sought to allow teams to identify shared interests and resources critical to the collaboration, reflecting Ostrom's principle of defining rules for resource use.

[8] TheyDo is a software tool designed for collaborative mapping and visualising of customer experiences, processes and services. It helps teams document and understand how customers interact with products or services, enabling them to identify areas for improvement and innovation. The software facilitates a visual representation of user journeys and touchpoints, promoting cross-functional collaboration in designing better customer experiences.

Decisions: A space was provided to allow teams to allocate specific roles and responsibilities to participants, ensuring those affected by a decision could impact it, aligning with Ostrom's principle of recognising individuals' decision rights.

Practices: The canvas provided a section detailing approaches and practices that the team would follow, including a communication plan for effective information exchange among participants, addressing Ostrom's principle of effective monitoring.

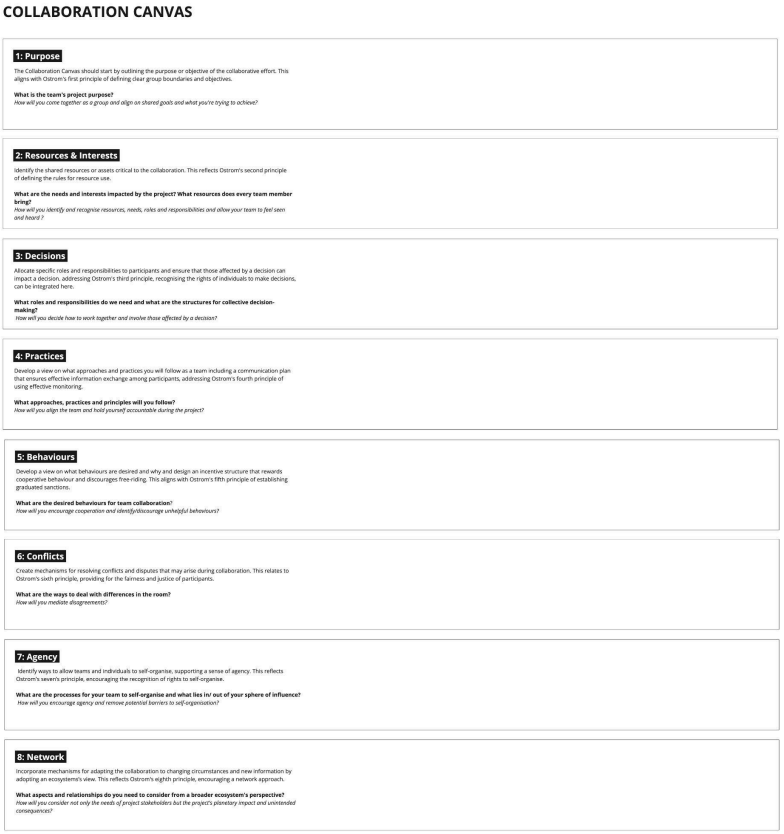
Behaviours: Desired behaviours for team collaboration were outlined, along with an incentive structure rewarding cooperation and discouraging free-riding, in line with Ostrom's principle of graduated sanctions.

Conflicts: Space was made for teams to align on mechanisms for resolving conflicts and disputes and mediate disagreements, relating to Ostrom's principle of fairness and justice.

Agency: The canvas provided space for the team to identify methods for teams and individuals to self-organise, promoting a sense of agency in line with Ostrom's principle of recognising rights to self-organise.

Networks: The canvas included space to incorporate mechanisms for adapting collaboration to changing circumstances and new information, adopting an ecosystem's view, reflecting Ostrom's principle of encouraging a network approach.

Figure 55: Collaboration Canvas: Iteration 1



COLLABORATION CANVAS

1: Purpose

The Collaboration Canvas should start by outlining the purpose or objective of the collaborative effort. This aligns with Ostrom's first principle of defining clear group boundaries and objectives.

What is the team's project purpose?
How will you come together as a group and align on shared goals and what you're trying to achieve?

2: Resources & Interests

Identify the shared resources or assets critical to the collaboration. This reflects Ostrom's second principle of defining the rules for resource use.

What are the needs and interests impacted by the project? What resources does every team member bring?
How will you identify and recognise resources, needs, roles and responsibilities and allow your team to feel seen and heard ?

3: Decisions

Allocate specific roles and responsibilities to participants and ensure that those affected by a decision can impact a decision, addressing Ostrom's third principle, recognising the rights of individuals to make decisions, can be integrated here.

What roles and responsibilities do we need and what are the structures for collective decision-making?
How will you decide how to work together and involve those affected by a decision?

4: Practices

Develop a view on what approaches and practices you will follow as a team including a communication plan that ensures effective information exchange among participants, addressing Ostrom's fourth principle of using effective monitoring.

What approaches, practices and principles will you follow?
How will you align the team and hold yourself accountable during the project?

5: Behaviours

Develop a view on what behaviours are desired and why and design an incentive structure that rewards cooperative behaviour and discourages free-riding. This aligns with Ostrom's fifth principle of establishing graduated sanctions.

What are the desired behaviours for team collaboration?
How will you encourage cooperation and identify/discourage unhelpful behaviours?

6: Conflicts

Create mechanisms for resolving conflicts and disputes that may arise during collaboration. This relates to Ostrom's sixth principle, providing for the fairness and justice of participants.

What are the ways to deal with differences in the room?
How will you mediate disagreements?

7: Agency

Identify ways to allow teams and individuals to self-organise, supporting a sense of agency. This reflects Ostrom's seven's principle, encouraging the recognition of rights to self-organise.

What are the processes for your team to self-organise and what lies in/ out of your sphere of influence?
How will you encourage agency and remove potential barriers to self-organisation?

8: Network

Incorporate mechanisms for adapting the collaboration to changing circumstances and new information by adopting an ecosystem's view. This reflects Ostrom's eighth principle, encouraging a network approach.

What aspects and relationships do you need to consider from a broader ecosystem's perspective?
How will you consider not only the needs of project stakeholders but the project's planetary impact and unintended consequences?

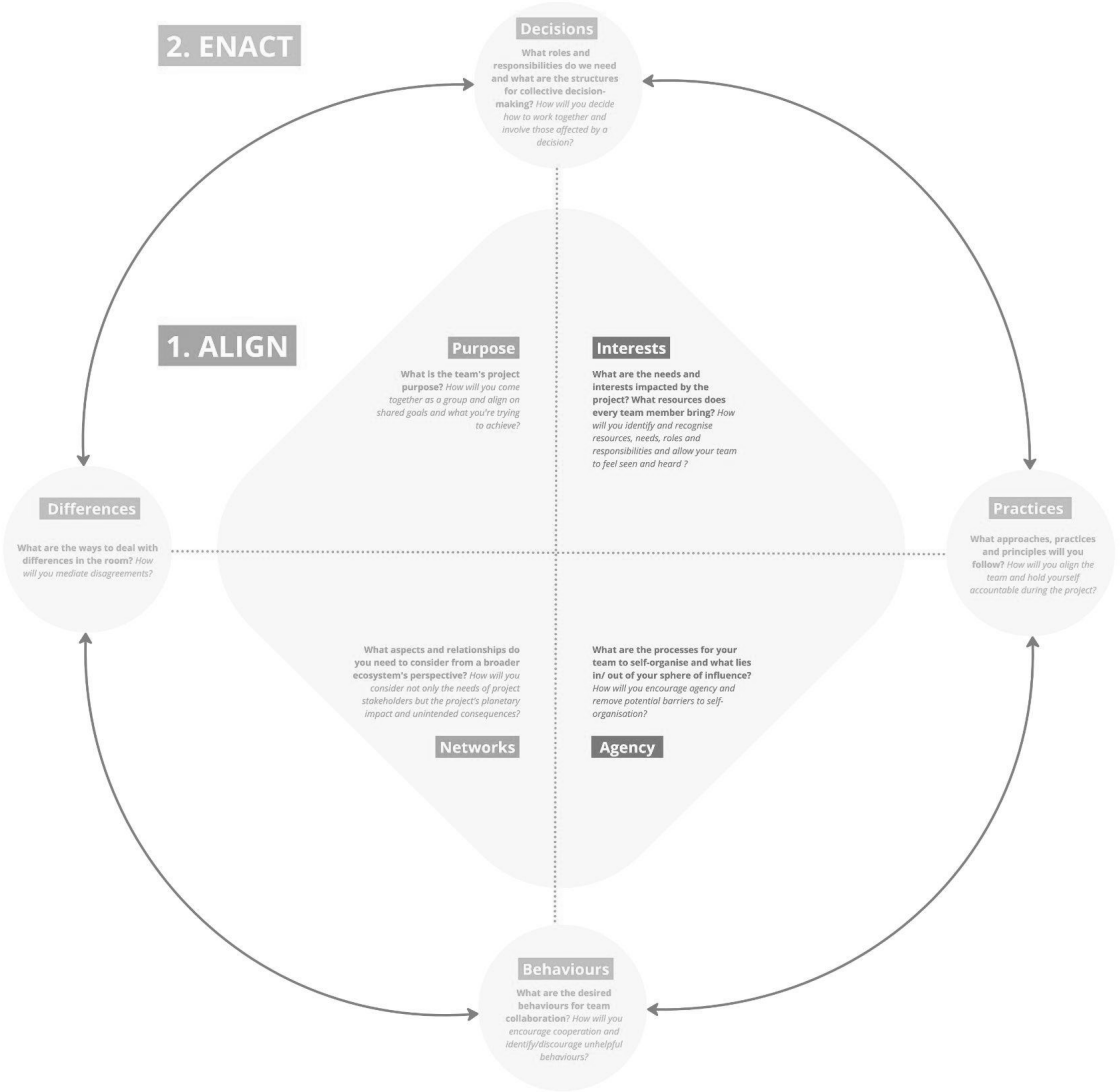
The service design team was motivated to embrace this tool, because it offered an opportunity to improve understanding of team preferences and working methods, addressing previous experiences of conflicts that hindered collaboration. The feedback received from discussions on the initial iteration of the Collaboration Canvas led to significant refinements for the next iteration. Key points of feedback and improvements during the second refinement phase included:

- **Principle numbering**
  Participants found the numbering of principles confusing and felt it didn't align with their natural thought process. They often jumped between principles without following a strict chronological order. This was in line with the findings from the Commoning Design workshop (6.3.2.1). As a response, the second iteration removed these numbers to allow for a more intuitive alignment with the principles.

- **Two activity buckets**
  The second iteration divided the commoning principles into two distinct activity categories: 'Align' and 'Enact' based on the outcomes from the Commoning Design workshop (6.3.2.1). This change aimed to better reflect the roles of the principles. 'Align' focused on establishing a shared purpose, identifying shared resources and fostering a network perspective. 'Enact' concentrated on implementing decisions, practices, behaviours and conflict-resolution mechanisms.

This feedback resulted in a refined version of the Collaboration Canvas, referred to as 'Collaboration Canvas Iteration 2' (see Appendix)

Figure 56: Refining the Collaboration Canvas: Iteration 2



During the third prototyping stage, the service design co-lead tested the second iteration of the canvas during their project kick-off. They proactively went through the fields to anticipate potential answers and challenges. Introducing the Collaboration Canvas at this stage allowed the team to dive deeper into essential project kick-off aspects, particularly roles and responsibilities, risks and mitigations and communications.

However, feedback from the contextual testing highlighted several areas for improvement including:

- **Time Constraints**
  Initial observations revealed a prevailing challenge within teams – an excessive number of meetings and activities that substantially diminish their productive work time. Consequently, introducing the Collaboration Canvas in its complete form during the project kick-off was viewed as potentially extending the meeting duration, further contributing to an excessive meeting culture. In this context, various typical kick-off agenda items, such as risk

identification, conflict mitigation strategies and communication planning, all of which could serve as entry points for the Collaboration Canvas, were relegated to the category of 'nice-to-have' activities due to limited available time for in-depth discussions. During the kick-off, time constraints prevented comprehensive exploration of all areas of the canvas. It highlighted the significance of adopting time-efficient approaches while allocating dedicated time slots to map essential collaboration infrastructures. A proposed approach forward identified by the research participants, involved customising the canvas to concentrate on the most pertinent areas aligned with the project's specific requirements and timeline. Subsequently, other sections could be delegated to the project lead for completion, with later reviews involving the broader team.

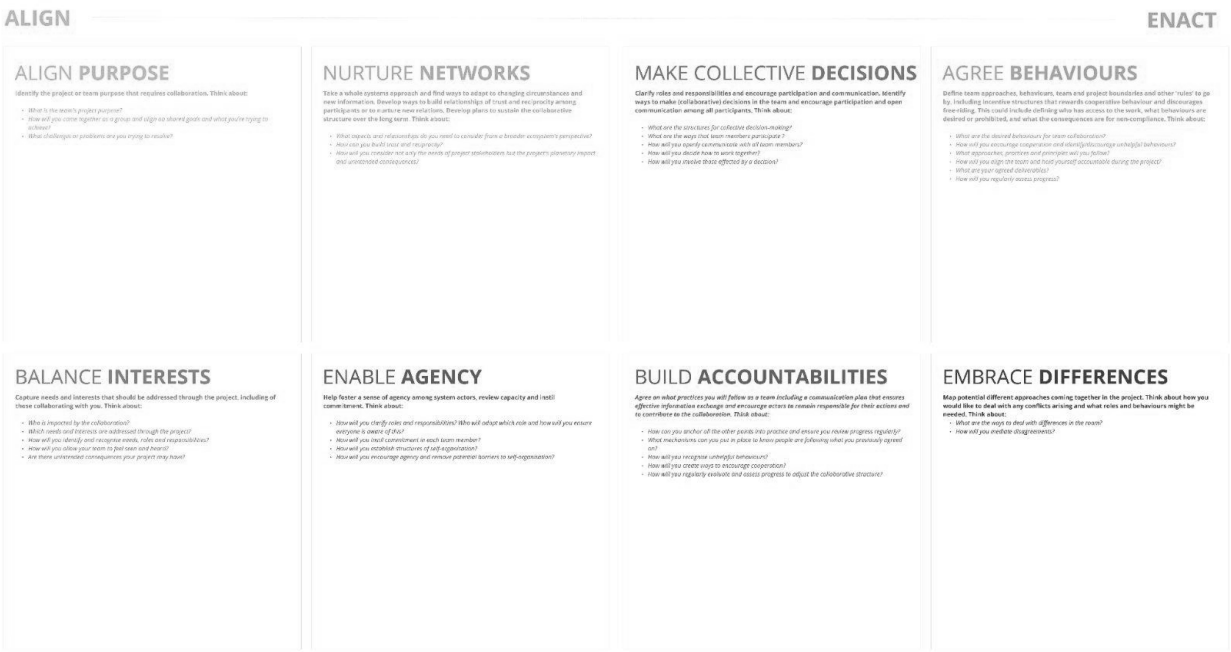
- **Language**
  Participants found the term 'conflict' problematic. It was replaced with the term 'differences' to create a more constructive and less confrontational tone. This linguistic adjustment aimed to foster a more positive and collaborative atmosphere within teams.

- **Starter questions**
  Feedback indicated a need for more specific prompts to stimulate more ideas and discussions. To address this, the third iteration included additional and more detailed starter questions tailored to each section of the canvas. These questions served as conversation catalysts to encourage in-depth exploration. Participants observed that all eight principles positively influenced relationships, with a particular focus on the network aspect, prompting the adjustment of one of the titles to Nurture Networks.

- **Graphic layout**
  The graphic layout of the canvas was considered too complicated and restrictive, preventing the team from mapping sufficient content. This led to visual simplification. The third iteration featured a revised calmer graphic layout that allowed for more flexibility and space. This enabled teams to capture and visualise a broader range of information and insights.

The third iteration of the Collaboration Canvas (see Appendix) integrated suggested refinements from the testing phase. Furthermore, we discussed potential avenues for enhancing the canvas's overall usability especially when time is tight. One idea was to have project managers fill in the Collaboration Canvas first to capture kick-off outputs and invite others to add any missing information due to time constraints. Another proposal was to prototype the canvas in-depth within an internal team health initiative, focusing on enhancing collaboration and alignment within the service design team. This initiative will look at improving team wellbeing proactively. The canvas was seen to be an effective way to identify better ways to manage future conflict scenarios, building on past negative experiences in which the absence of upfront agreements on acceptable behaviours led to conflicts and communication barriers later in projects.

Figure 57: Testing the Collaboration Canvas in context: Iteration 3



Reflections on the working hypotheses, research questions and next steps

The Collaboration Canvas was developed in response to the need for improved collaboration to address issues such as proprietary behaviours, conflicting team priorities and ways of working, a lack of shared purpose, and challenges tied to political dynamics, including conflict management and differences in terminology and language. It presented an opportunity to test the application of commoning principles within a cross-functional team project where collaboration was typically expected to occur organically rather than being intentionally 'designed'. This allowed for an exploration of how commoning principles could influence the creation of collaboration infrastructures early in a project.

The prototyping spanned four months, involving activities aimed at translating commoning principles into a practical canvas format. This process entailed defining core principles, refining language and iterating on the canvas design. In relation to the first research question (RQ1), the canvas helped identify and address knowledge gaps relating to other teams and their ways of working, especially if these are coming from other areas of expertise. By sharing assumptions around work approaches and identifying core strategies for dealing with potential conflict scenarios, it was seen to contribute to a deeper understanding of how to improve project collaboration. A participant reflected, *"I think integrating these questions early on during a kick-off, for instance, can really help us create better foundations for a project collaboration and avoid unnecessary conflicts"*. In this way, it addressed team-related knowledge gaps within cross-functional teams. Examining the activity through the lens of transitioning from a human-centric paradigm to a relational one (RQ2), the use of the Collaboration Canvas, with a specific focus on the 'Align Purpose' and 'Balance Interests' components, prompted team members to reflect on non-human factors and the consequences of their project and design choices. This pragmatic approach helped the team in transcending the constraints of a human-centred perspective and encouraged them to contemplate the value their project creates for the planet. By promoting transparency and establishing clear expectations for behaviour and decision-making, the canvas can serve as a guide for shifting towards a more interconnected and sustainable design practice. It can make us consider the broader connections between human activities and the environment, aligning with the objectives of planetary health.

Regarding the last research question (RQ3), it became evident that the canvas and its commoning principles can play a central role in foreseeing and pinpointing the necessary collaboration infrastructures, often absent in current practices. Nevertheless, significant challenges arose due to time constraints. Team members encountered difficulties in delving deeply into the canvas's questions because of their busy schedules. Despite these time-related challenges, feedback underscored the canvas's potential value. It was acknowledged as a valuable tool for cross-functional teams, fostering transparent communication, defining expected behaviours and proactively managing conflicts. The canvas was seen to be particularly beneficial during project kick-offs, supporting teams in establishing their purpose, interests and problem-solving approaches from the very beginning. The analysis revealed four practical use cases for the Collaboration Canvas:

1. **Cross-functional team projects and project kick-offs:** The canvas can be valuable for initiating early communication, defining roles, and resolving conflicts among teams from various organisational functions. Emphasising language that accommodates differences is essential for eliciting positive responses from team members.

2. **Research collaborations:** The Collaboration Canvas can be instrumental in research projects that involve multiple institutions or disciplines. It helps clarify roles, facilitates data sharing and prevents conflicts.

3. **Community development:** Communities of practice can use the canvas to plan shared resources, promoting coordinated management and equitable conflict resolution.

4. **Strategic initiatives:** Organisations can employ the canvas to align stakeholders, define roles and encourage collaborative efforts in strategic initiatives.

Early findings from the analysis highlight the importance of recognising collaboration as an ongoing, context-specific process that requires a deliberate design approach and maintenance throughout a project. Serving as a guiding framework, the Collaboration Canvas displayed the potential to foster more intentionally designed collaborative efforts, ensure foundations for fair conflict resolution and align shared objectives among team members. However, it was acknowledged that further refinement was needed to integrate the canvas seamlessly without extending project timelines and reducing the dependence on external facilitation. This highlighted the need for more prototyping and a longitudinal study extending beyond the four months. Consequently, the third iteration of the canvas was undergoing further testing led by the internal service design team of the case study site at the time of writing. The objective of the internal service design team is to continue to employ the canvas to develop enhanced infrastructures for team health.

My next research efforts concentrated on experimenting with one more proposed commoning activity, with a specific emphasis on creating a representation for planetary actors.

6.3.2.5 Planetary Actors

The seventh action research activity focused on effectively moving beyond a human-centric design approach to address planetary health challenges (see 6.2.2). The primary objective was to prototype and evaluate the potential of non-human archetypes (see commoning activities in 6.3.2.1) as a practical tool for gaining deeper insights into the environmental context surrounding target audiences and products/services, both in the present and the future. This exploration aimed to determine whether these non-human archetypes could empower designers to identify design opportunities that meet the

'needs' and 'concerns' of planetary actors. The participants in this activity consisted of myself and a core service design team member with sustainability experience. The activity spanned three distinct sessions held between August and September 2023, utilising a remote video-calls format that allowed for productive conversations, with each session lasting approximately 40 minutes.

Aim and session design

The exploration aimed to test a structured approach to enable individuals and organisations to shift away from human-centricity and actively encourage team members to consider non-human needs and interests as integral components of their regular project delivery. Drawing from insights uncovered in previous research activities, the team aimed to address several challenges. These included an evident oversight of long-term purpose within design processes, necessitating enhanced cross-functional collaboration and a shared long-term vision aligned with the needs of all planetary actors. Additionally, an emphasis on human-centric approaches posed a significant impediment to shifting focus towards considering non-human needs and perspectives, primarily due to the deeply entrenched consumer-centric mindset. The co-creation sessions occurred in four distinct phases:

1. Review the purpose of Planetary Actors cards

This initial phase aimed to review the shortcomings in current design practices, as revealed through the mapping of planetary health challenges and the previous Commoning Design activity, to conceptualise new approaches to representing planetary actors as part of the design process.

2. Defining contents

We continued to map planetary actors, identifying who these actors are and where humans fit into the broader planetary context. The central focus during this phase was the shift towards a more planet-centric perspective. A key element of this phase was the conceptualisation and development of non-human archetypes, designed to accommodate the diverse needs of stakeholders often overlooked in design processes, including the environment, animals and other planetary entities affected by product life cycles and business ecosystems. The aim was to provide these frequently voiceless entities with representation in the design process, giving them a platform to have their needs considered.

A key component of the defining phase was the research conducted through secondary data analysis. We gathered information on planetary actors by examining visual documentation, pollution statistics, and reports from reputable organisations. This data was integral in understanding the fundamental parameters associated with each planetary element, laying a solid foundation for the subsequent stages of the activity.

3. Creating Planetary Actors representations

Subsequently, I synthesised a set of planetary archetypes, akin to how designers typically craft personas for target audiences.

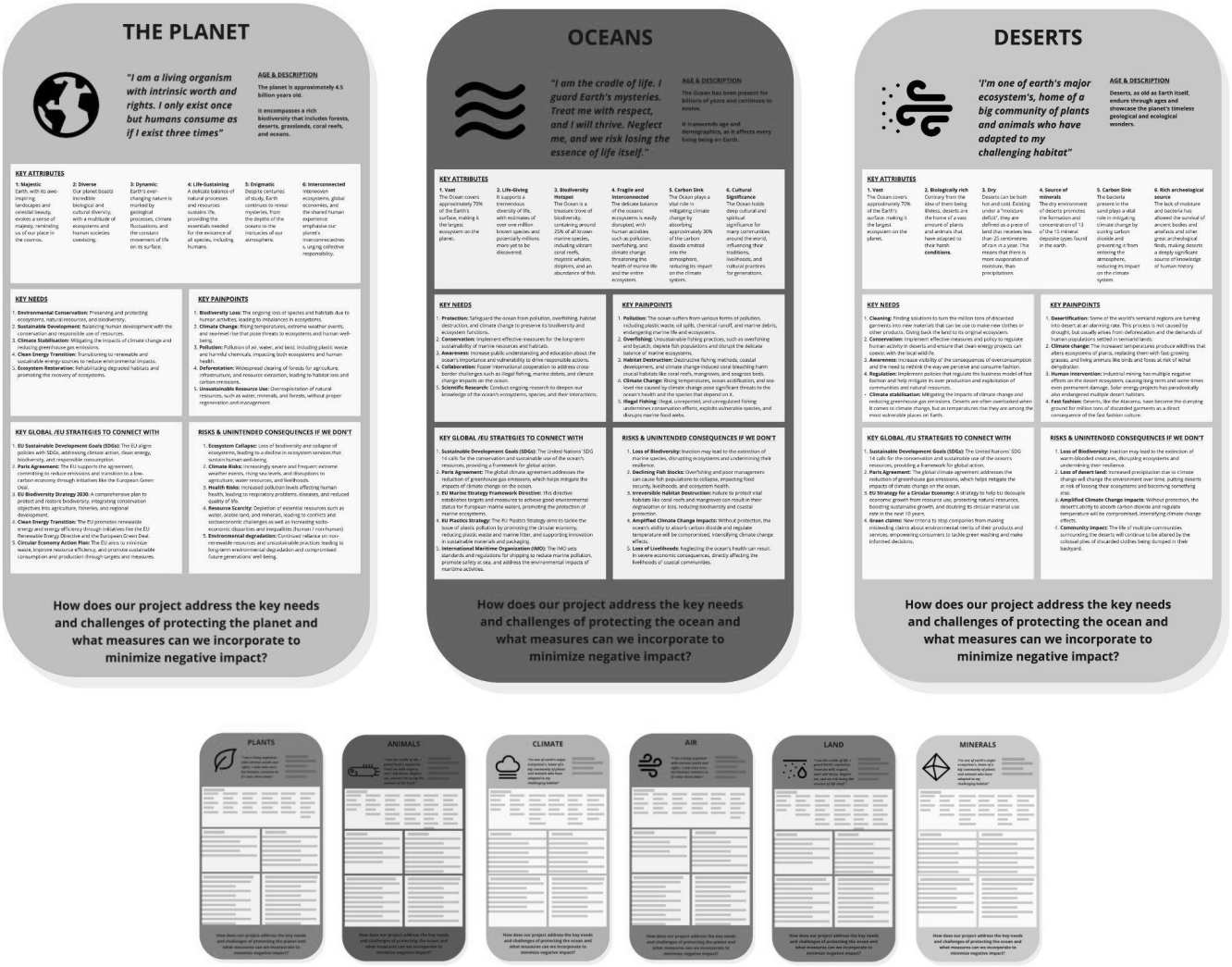
4. Iterating the model

The final phase revolved around making non-human personas usable within the team's existing design processes. We discussed when and how to use these archetypes, resulting in further iterative improvements to the archetype cards. The discussions also encompassed strategies for further prototyping and integration into real projects.

Observations and findings

The Planetary Actors cards offered an approach to move beyond human-centred design to encompass the needs of a broader spectrum of planetary actors. They acted as a visual reminder that humans are just one part of the intricate web of life on our planet. Feedback and iterations revealed that their utility could extend to guiding project framing, shaping business strategies, sparking brainstorming sessions, facilitating teaching, and promoting holistic thinking with nature as a central consideration.

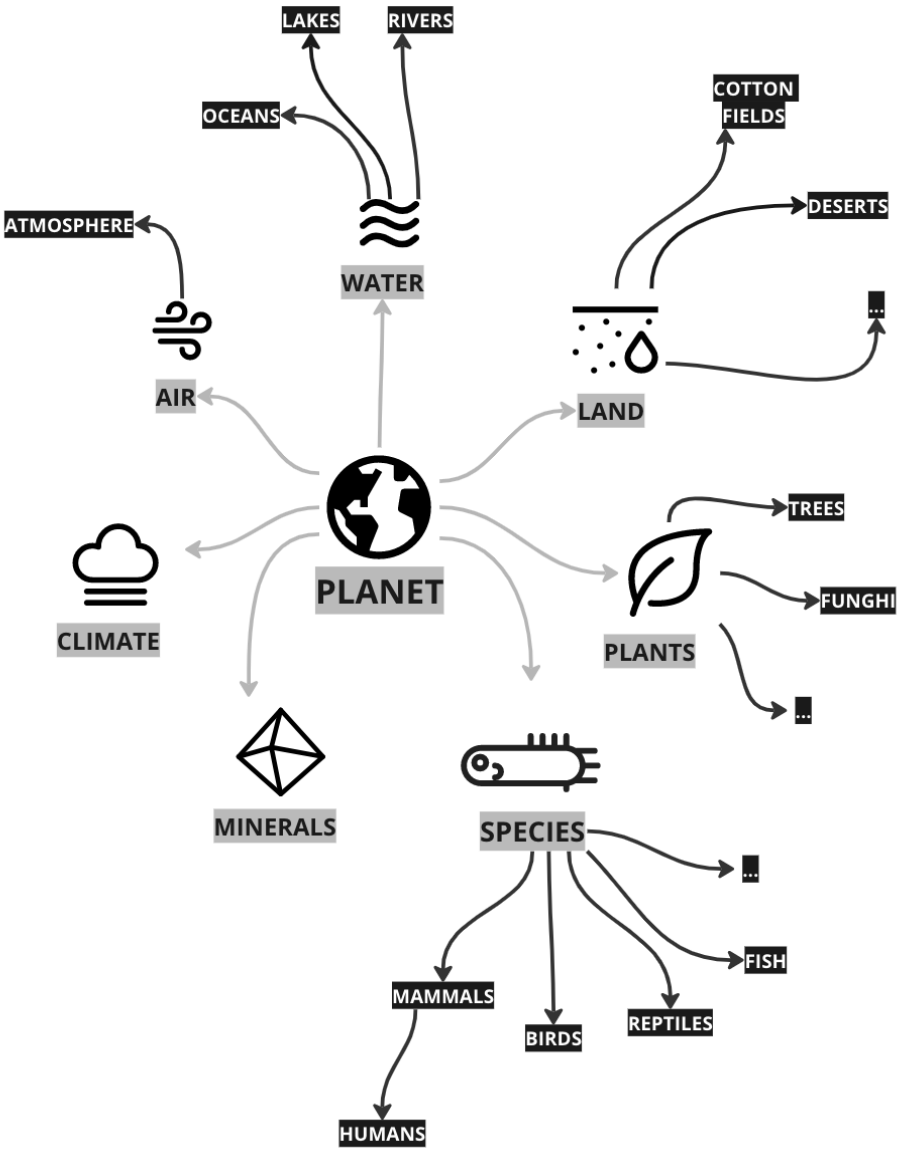
Figure 58: Planetary Actors cards: Iteration 2



The process of mapping planetary actors and shifting the human perspective away from the core of design was a moment of revelation for the internal service design team. It led them to reevaluate the prevailing focus on human-centred design, which had long been based on the unquestioned assumption that humans were at the core of all design activities. Repositioning humans below mammals on the map was a stark reminder of the necessity to consider the broader context within which any project operates. Without such consideration, there was a risk of designing exclusively for human benefit, potentially overlooking unintended consequences for the planet and other non-human stakeholders. This mapping activity challenged conventional human-centred design and encouraged a broader perspective that considers the interconnectedness of all planetary actors. Mapping all

planetary actors revealed the importance of actually decentering humans, allowing us to keep an eye on the larger holistic context and understand our role within the intricate web of life on our planet. It prompted discussions among service designers about the need to reframe challenges and adapt their approaches to align with broader environmental and societal impacts, inspiring creative solutions.

Figure 59: Mapping planetary actors decentering the human perspective



While the potential use cases for these cards were promising, they also came with substantial challenges. Introducing non-human archetypes on cards through human interpretation, compelled research participants to explore the challenge of genuinely representing non-human interests without introducing human bias. Reflections extended to looking at alternative methods of sensing and representing non-human identities in the design process. Although definitive solutions to eliminate human bias were not reached, discussing the shortcomings of a cards-based approach that represented nature's actors almost as 'personas' raised awareness about human bias itself. This

prompted questions about the appropriateness of personifying planetary actors through archetypal cards. When discussing the issue of human bias, we found that stepping away from a solely human-centred approach by introducing non-human representations, like personifying the planet, oceans, or land, could be a valuable initial step in changing how we think about including non-human elements in the design process. However, it's important to be aware of bias and approach this topic with caution. One participant noted: *"I can see how we don't solve the root cause of the issue and will always have a human bias involved, being human ourselves. It is still a huge step from how we currently work."* We should keep exploring alternative methods to represent non-human perspectives within a design process created by humans. This thoughtful approach could lead to a more inclusive and holistic design that truly reflects the interconnectedness of all elements on our planet. A participant said: *"The main aim of cards should be to bring them into the conversation to prompt new thinking and inspire brainstorms, especially when developing new solutions."*

After developing the concept of Planetary Actors cards, the main obstacle we encountered was the lack of appropriate project contexts in which to timely integrate the prototype cards and gain practical insights. This limitation has confined my efforts to conceptual exploration and further collaborative development. Concerns have also arisen regarding the format of the cards, particularly their heavy text, which may hinder ease of use. Valuable feedback from the research site has emphasised the need to enhance the actionability of the cards, making them more concise and providing concrete examples of actions related to each card. Although the Planetary Actors cards have not yet been prototyped in actual projects due to the absence of suitable contexts during the research, the conceptual exploration and feedback have laid the groundwork for future iterations, which the service design team is eager to pursue. The focus on making the cards more concise, actionable and enriched, with concrete examples of actions related to each card, underscores their potential to serve as catalysts for positive change and inspire action in the service of harmonious coexistence with our planet and all its inhabitants.

Analysing the Planetary Actors cards found that as they were, they represented an extension of conventional practices for creating personas and archetypes, albeit through the lens of a broader, planetary context. What became evident was that these tools maintained a predominantly human bias, with the central focus remaining on the planetary actor, rather than the interplay and relationships between these actors. Although discussions did eventually gravitate towards exploring these relationships, a substantial reflection regarding the tool's effectiveness emerged during my analysis. It became clear that relying solely on planetary actors might in fact not be the most effective approach. There was a distinct risk of perpetuating and continuing existing mindsets and methodologies, potentially overlooking what is fundamentally vital — the intricate web of relationships between system actors. Tools like the ecosystem map demonstrated more success in accentuating these relationships. This raised fundamental questions about the utility of planetary personas as a concept. Nevertheless, acknowledging the current absence of planetary representation in ways of working at the case study site was crucial. In that context, the introduction of planetary personas can still serve as a stepping stone for initiating discourse in the right direction. A cautious approach might still be necessary to avoid replicating an undue personification of natural elements and, instead, to perhaps explore alternative avenues – such as nature-based immersions and consultation with ecological experts, to infuse a genuine planetary perspective into our design practices.

Reflections on the working hypotheses, research questions and next steps

The prototyping of planetary actor archetypes has offered a practical approach to assessing the working hypotheses and addressing the research questions posed in this study. First, using Planetary Actors cards provides service design teams with a tool that expands their perspective beyond human-centred design, aligning with the broader spectrum of planetary actors. These cards are a visual reminder of the intricate interplay among various elements in our ecosystem, reinforcing the idea that

humans are just one component within this complex web of life. This activity demonstrated how collaborative efforts, guided by commoning principles, have the potential to address the inherent knowledge gaps in contemporary design practices, thereby directly linking with Working hypothesis 1 and the first research question (RQ1). The process of mapping planetary actors and deliberately shifting the human perspective represents a significant departure from the deeply ingrained human-centric design paradigm. This transformative approach, while not flawless and bearing an innate human bias, serves as a noteworthy initial step in utilising Planetary Actors cards to address the second working hypothesis and research question (RQ2). It exemplifies how commoning principles can facilitate a departure from the human-centric paradigm, moving towards a more relational practice that prioritises planetary needs over or next to human desires. In addressing the third research question (RQ3), Plateray Actors cards have highlighted the potential effectiveness of alternative approaches, such as ecosystem mapping, in comprehending relational design and suggested a need for a cautious exploration of alternative avenues for a genuine planetary perspective in design practices.

Conclusion

This section concludes an extensive ethnographic case study of a global sportswear manufacturer and their business transformation and service design team. It explores the integration of commoning principles into design practices through interviews and action research, with a dual focus on understanding planetary health challenges in the case study context and the design of commoning itself. A catalogue of commoning activities was developed and some were tested through on-site and remote co-creation workshops.

By analysing the case study through a combination of interviews, participant observations and secondary research, I confirmed the existence of numerous challenges related to information, imagination and governance within the case study context. This validation extended to the specific challenges outlined in the working hypotheses: the case study research revealed a lack of understanding and knowledge in contemporary design practice to support sustainable and collaborative governance **(Working hypothesis 3)**, not only with regard to commoning principles but in a broader context as well. Governance proved to be the most prominent challenge, marked by many collaboration barriers, a profit-centric leadership mindset and a dependence on external forces for change. While overcoming political dynamics and resolving conflicts were essential for advancing sustainability efforts within the service design practice, the design team appeared to lack awareness of, or had not implemented, specific approaches to address these challenges. The research also affirmed that designers' creativity is partially constrained by the human-centric, neoliberal economic paradigm (**Working hypothesis 2)**. This is primarily because design practice often does not challenge anthropocentrism enough and is deeply entrenched in the company's existing business model. Consequently, limited imagination was the second significant challenge due to alignment with growth-focused business structures and a lack of regenerative thinking. Finally, the case study research confirmed the existence of intrinsic information and knowledge gaps concerning the operation, constitution and reproduction of systems within contemporary design practice **(Working hypothesis 1)**. Information challenges stemmed mainly from a lack of expertise and insight in various cross-functional areas and a breakdown in information flow.

Importantly, the analysis revealed that these challenge categories are not isolated. They are intricately interdependent, with overlaps and mutual influences at multiple levels, which underscores the importance of recognising their systemic nature. For instance, information challenges, including the lack of knowledge about the company-wide sustainability 'North Star' and disrupted information flows that prevent the information from trickling down, were direct results of governance challenges and collaboration barriers. These governance issues were rooted in long-established siloed work practices

and a lack of methods that promote the definition of a shared purpose among cross-functional teams. The analysis highlighted the inherent transcontextual characteristics of planetary health challenges. Bateson's (2023) concept of transcontextuality becomes relevant when analysing the case study, underscoring the importance of acknowledging the interconnectedness of systems and their pain-points in diverse contexts. The analysis emphasises the significance of the concept of double binds (Bateson, 2021) as no-win situations with contradictory expectations. The research reveals numerous instances of conflicting messages and demands within the case study organisation, creating dilemmas for individuals and teams characterised by inherent paradoxes. For instance, a double bind is manifested in conflicting key performance indicators (KPIs), where personal ambitions to support planetary health are in conflict with broader KPIs that should be achieved and are usually tied to an increase in sales. The question arises of how to navigate these binds, with Bateson suggesting a shift in consciousness and awareness as a crucial step in breaking free.

As a result, the case study analysis suggests that commoning-based interventions may not singularly address individual challenges within specific planetary health categories but have the potential to simultaneously impact multiple challenges. The analysis not only identified but also visually represented conflicting demands within double binds, shedding light on the interconnectedness and deep entanglement of the issues at hand (6.2.4). This visual representation serves as an initial step towards applying Bateson's theory of addressing double binds by increasing consciousness and awareness. Showcasing the intricate connections between conflicting demands offers a potential avenue for addressing contradictions and fostering the development of more collaborative systems.

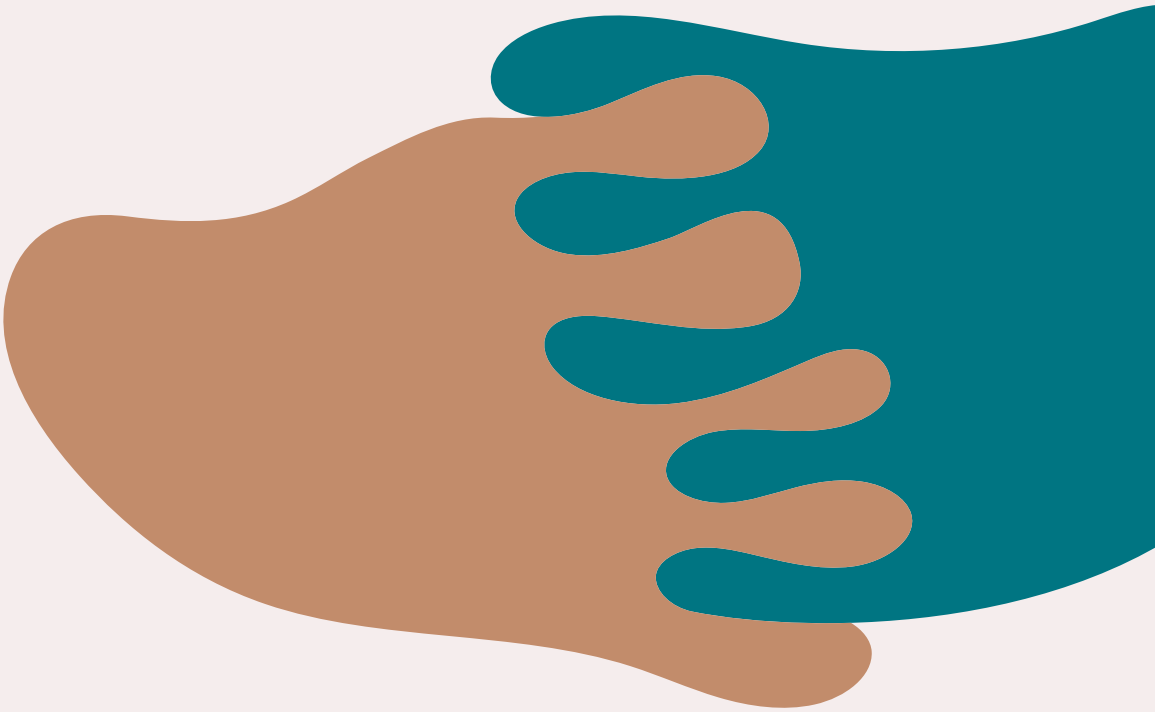
The case study action research provided insights into the practical implementation of commoning principles in contemporary design practices within an organisational context. It sought to explore the research questions and investigate how commoning could bridge knowledge gaps in design practice to facilitate the design of living systems **(RQ1)**, shift design towards a more relational and regenerative practice **(RQ2)** and create collaboration infrastructures **(RQ3)** (see 7.2 for detailed discussion of findings). This resulted in a deeper understanding of how commoning principles could be applied in practice. The ethnographic case study research generated a catalogue of potential commoning activities, synthesised with concepts that had emerged from earlier scoping research. In the time available within the case study, a focused effort was directed towards in-depth prototyping of seven specific commoning activities. These efforts encompassed not only testing various formats but also the design of commoning artefacts and resources that designers could potentially integrate. The selection of these activities was a collaborative process, involving research participants who made their choices based on feasibility within the context of ongoing projects and other cross-functional initiatives.

A key finding emerging from the case study action research is the realisation that commoning itself necessitates a deliberate design approach. This encompasses the conception of commoning activities, which serve as guides for implementing each of the Commoning Design principles, as well as the creation of commoning artefacts and resources. During the action research activities, it became evident that there is no one-size-fits-all commoning process that dictates how to apply commons principles effectively (see 6.3.2.2 or 6.3.2.3). Instead, teams may develop their own customised versions of commoning, tailored to suit the local context and circumstances. As a result, the forthcoming chapter will begin with this vital insight, serving as the foundation for the development of a flexible 'Commoning by Design' approach. As a framework, it draws together the literature, scoping research and case study insights to facilitate commoning efforts but allows for adaptation and development to meet specific needs.

CHAPTER 7

Designing commoning, commoning design

Findings & discussion



Introduction

This chapter discusses the research findings, closely examining their alignment with the working hypotheses and questions. It unfolds in two distinct yet interconnected parts, each contributing to a comprehensive understanding of the role of commoning in addressing planetary health challenges. The first part, 'Designing Commoning', introduces the idea that commoning needs intentional design. It discusses the creation of the 'Commoning by Design' framework, emphasising the importance of designing collaborative spaces and supporting cooperative behaviours. As a framework, 'Commoning by Design' is presented as a flexible and inspirational approach to design practice. It not only emphasises what contemporary design practice can learn from the commons but also, in attempting to design a commons-based framework, explores what the commons discourse can learn from design. The second part, 'Commoning Design', explores how commoning approaches can shape future design practices. The section discusses three key design insights that emerge from this research. It also looks at how commoning can address planetary health challenges related to information, imagination and governance and discusses the impact, outcomes and risks of applying commoning at micro, meso and macro levels. The concluding remarks position Commoning by Design as more than a theoretical construct, but as a pluralistic and transcontextual practice. Discussing its viability within contemporary economic structures, this chapter considers the transformative power of commoning approaches and argues for its deliberate integration into the broader discourse on collaborative practices in design and beyond.

7.1 Designing Commoning

The findings from the case study not only deepened an understanding of the seven prototyped commoning activities but also underscored the necessity of designing commoning itself. This entails identifying activities to address each commoning principle and subsequently designing these activities, along with creating commoning artefacts and tool templates. The seven prototyped commoning tools (6.3) served as a starting point within the specific scope and timeframe of the action research. To provide a more comprehensive yet adaptable approach to using commons as a relational design framework for other designers to explore and experiment with, I synthesised a catalogue of commoning activities (combining activities from 5.2.2, Table 25, and 6.3.2.1, Table 27) into a set of commoning artefacts, forming the basis of the Commoning by Design framework. The forthcoming section discusses the intricacies of the framework and resource design, while also addressing the fundamental question of why artefacts are essential, which is especially relevant in the context of emphasising the need for flexibility and adaptability in the overall approach. I will begin with the latter.

7.1.1 The need for artefacts

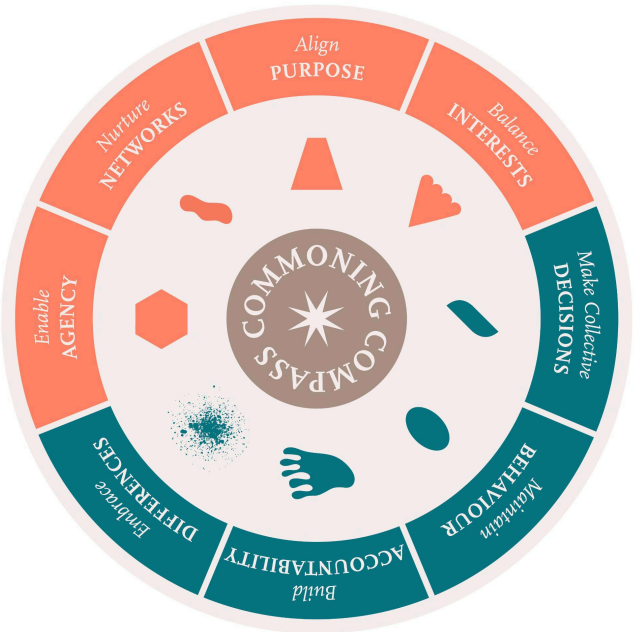
A key insight drawn from the experience of running prototyping commoning activities was the consistent request from research participants for tool templates and examples to guide their engagement in these activities. Participants found it challenging to embark on these activities with a completely blank canvas, preferring a starting point with some preliminary content or structure. This observation led to the creation of templates for each activity in advance, which, interestingly, often underwent substantial revisions and iterations from their initial designs. This phenomenon sheds light on the human inclination to seek a sense of certainty, especially when confronted with discomforting uncertainty. The concept of certainty artefacts (Snow, 2021), which serve to provide predictability and control in a complex and uncertain world, emerged as a significant theme in the context of these activities. The delicate balance between offering clarity through such artefacts and the risk of

participants mistaking them for an absolute reality became a point of analysis, prompted a thought-provoking reflection on my part on whether, in the pursuit of more effective commoning, a shift towards including "uncertainty artefacts" (Snow, 2021) might be warranted. These artefacts, while offering a sense of structure and guidance, could challenge existing rigidity and create space for open exploration. They would also underline the significance of navigating the interplay between certainty and uncertainty in the design and implementation of commoning activities and their resources. This reflection led me to consolidate the various outcomes and concepts derived from the Commoning Design co-creation workshops (5.2 and 6.3.2.1). I aimed to integrate ideas, concepts and feedback from research participants, resulting in an attempt to create a comprehensive but flexible framework for Commoning by Design. The outcome of this effort produced three main resources: the Commoning compass, the Commoning canvas and a set of Commoning cards, all designed to facilitate and enhance the practice of commoning in contemporary design.

7.1.2 Commoning by Design framework: Commoning compass, canvas and cards

Drawing inspiration from Elinor Ostrom's core design principles, the first resource created was the **Commoning compass**. The compass is rooted in a series of interrelated commoning principles that can collectively guide the design process. It revolves around a reimagined adaptation of Ostrom's eight principles, specifically tailored to an organisational context and design practice and based on the case study insights. A key adaptation involved refining the language to make it more accessible to designers and individuals within organisations. For example, "Equivalence between benefits and costs" became "Balancing interests", "Graduated sanctions" transformed into "Building accountabilities", and "Conflict-resolution mechanisms" was replaced with "Embracing differences" based on the findings from the action research. Each principle is accompanied by an extra question to ensure that the original meaning was preserved, allowing participants to brainstorm ways of upholding Ostrom's intended commoning characteristics. Rather than using numbers, the principles were categorised into two groups: one focused on alignment activities, guiding collective intentions and working relationships within systems, and the other centred on enacting shared values and approaches in practice. The commoning compass was designed to translate commoning principles into a set of directional guidelines that can offer designers and change-makers practical perspectives and some tools and techniques to inspire more collaborative ways of working and, at best, the development of future commons for a regenerative economy.

Figure 60: Illustration of the Commoning compass (see Appendix for close-up)



As a commoning artefact, the purpose of the commoning compass is to orient design teams in transitioning from traditional problem-solving to a more collaborative, planet-centric and commons-based approach. It should encourage them to commit to a shared purpose and consider whether each compass point is reflected in their work and, if not, to think about how this could be done. The compass points can provide direction for evolving design practice in the following ways:

COMPASS POINTS TO ALIGN TEAMS

Align **PURPOSE**
How might we build a sense of shared purpose that prioritises the well-being of our planet?

Develop a commitment to identify a collective endeavour and facilitate group coercion.
This compass point can guide designers to identify a shared endeavour and unite as a group. It directs them to a set of commoning activities that can help to define common goals, objectives and values, while fostering effective communication within teams. It sets the course for a design practice centred on shared purpose and values and encourages starting projects in this way.

Balance **INTEREST**
How might we ensure all actors, human and non-human, feel acknowledged and valued?

Develop a commitment to reconcile diverse needs and interests, human and non-human.
This compass point encourages designers to fairly and equitably reconcile the diverse needs and interests of all system actors. It directs them to consider the contributions, interests and needs of both human and non-human actors, while striking a balance between short-term and long-term goals. It nurtures a commitment to a design practice that seeks harmony among system actors and emphasises sustainability and inclusivity.

Nurture **NETWORKS**
How might we cultivate and foster relationships within the broader project context?

Develop a commitment to foster the entire ecosystem and cultivate relationships.
This compass point reminds designers to consider all of their system actors and position their initiatives in a larger, more holistic context. It guides on building ecosystem awareness and identifying key internal and external relationships that need nurturing. As such, it steers design practice towards a more interconnected and relationship-driven approach, ensuring that designers invest time to consider the broader context in their work.

Enable **AGENCY**
How might we empower all system actors and facilitate self-organisation?

Develop a commitment to foster a sense of agency among system actors.
This compass point encourages designers to foster a sense of agency among system actors. It directs them to clarify capabilities, roles and responsibilities, while promoting structures of self-organisation where possible. This guidance steers design practice towards greater autonomy and self-determination among stakeholders, empowering individuals and teams to take ownership of their contributions to the design process.

COMPASS POINTS TO ENACT AGREEMENTS

Make Collective **DECISIONS**
How might we integrate all system actor perspectives into our decision-making?

Develop a commitment to establish and maintain collective decision-making.
This compass point encourages teams to establish the groundwork for collective decision-making in design practice. It guides designers to involve those likely to be affected by a decision, promoting inclusivity and shared responsibility. It encourages taking time to facilitate discussions and decision-making processes that engage all relevant actors, steering design practice towards a more democratic and participatory approach.

Maintain **BEHAVIOURS**
How might we establish and sustain agreed practices and behaviours?

Develop a commitment to establish and uphold shared rules and behaviours.
This compass point guides designers in agreeing and then preserving shared rules and team behaviours. It directs them to establish shared approaches and ways to uphold them over time, fostering a framework for consistent and ethical behaviour within the design process that is in line with the team's purpose and values.

Build **ACCOUNTABILITY**
How might we nurture responsibility and discourage unhelpful behaviours?

Develop a commitment to foster responsibility and active contribution.
This compass point emphasises the importance of establishing accountability mechanisms to ensure that all participants remain responsible for their actions and contribute to a positive collaboration. It encourages the identification of unhelpful behaviours and the creation of strategies to promote cooperation and responsibility within the design process. It also ensures that unhelpful behaviours are addressed through appropriate measures.

Embrace **DIFFERENCES**
How might we welcome differences and manage conflicts?

Develop a commitment to proactively address internal and external differences.
This compass point guides designers in actively addressing and managing organisational and team differences. It encourages them to welcome differences and take time to establish conflict mechanisms, thinking about how actors can uphold previously agreed-upon ground rules. This principle ensures that differences are effectively handled and that necessary infrastructures are created for them. As such, it encourages effectively navigating diversity within the design process.

The accompanying questions for each principle aim to help designers identify current practice gaps and ways to address them, which can be captured through a brainstorming and mapping exercise using the **Commoning canvas**. The canvas is crafted as an extension of the commoning compass, with the 'How might we' questions serving as brainstorming prompts. Its design mirrors that of a compass, emphasising that there is no fixed order for using the canvas but directions to explore. Participants can rally around it, initiating reflections on any principle that captures their interest. Positioned as "uncertainty artefacts", it was crucial not to present yet another rigid framework that claims to provide all the answers, but rather to offer a more pluralistic approach to commoning itself. As a result, the canvas was created to allow practitioners to develop their own solutions for commoning activities tailored to their unique contexts.

Figure 61: Illustration of the Commoning canvas and instructions on the next page (see Appendix for close-ups)

Commoning by Design Instructions

The Commoning by Design framework guides design teams in transforming their approaches towards a collaborative, planet-centric and commons-based practice. It empowers teams to reimagine design, foster collaboration, align with ecological values and enhance cooperative behaviours. Teams can adapt the process to their unique needs, using the framework as a guide to foster collaboration and enact commoning principles.

1: Setup and Compass exploration

- Form a team and place the Commoning Canvas in a visible, central space. Cut out the canvas.
- Individually or collectively, explore each compass point and its description card

2: Brainstorm and prompt integration

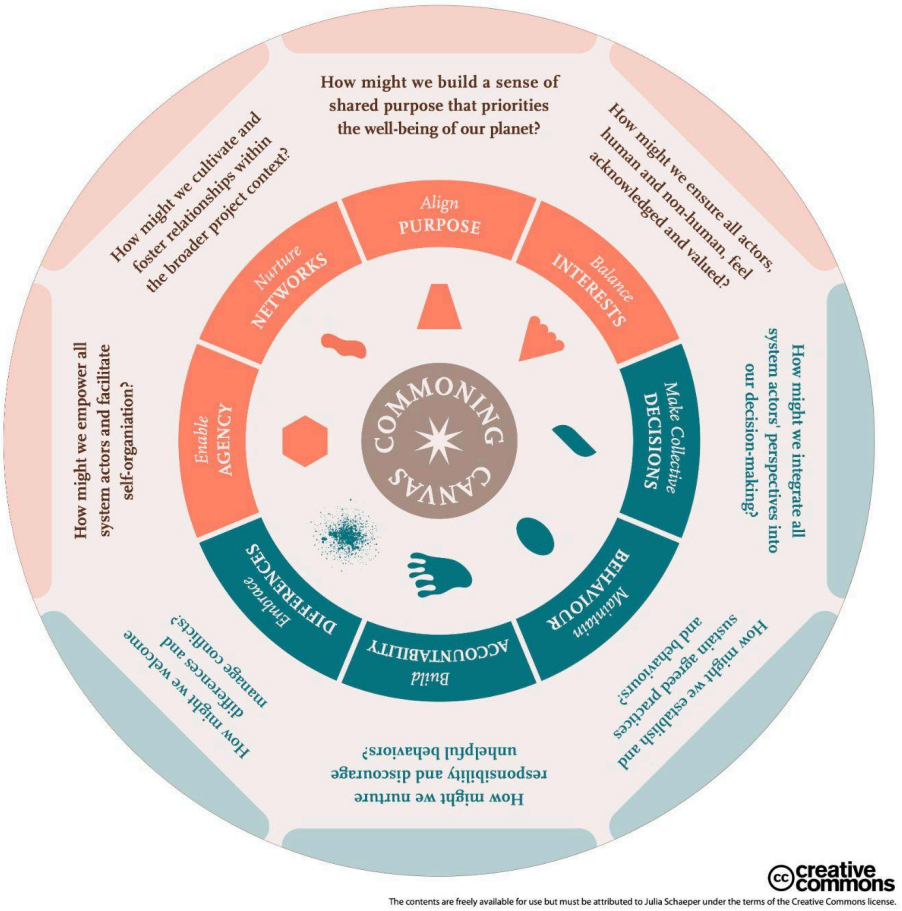
- Begin at any compass point, collectively exploring the associated 'How might we' question.
- Use Commoning Prompt Cards to spark discussions and generate ideas for commoning activities.
- Encourage teams to generate their own commoning activity ideas aligned with the 'How might we' questions and fill in blank cards

3: Collaborative decision-making and implementation

- Discuss and decide on commoning activities where your project is currently lacking and that could enhance collaboration.
- Use compass points to guide design work, prioritising collaborative infrastructures for planetary health.

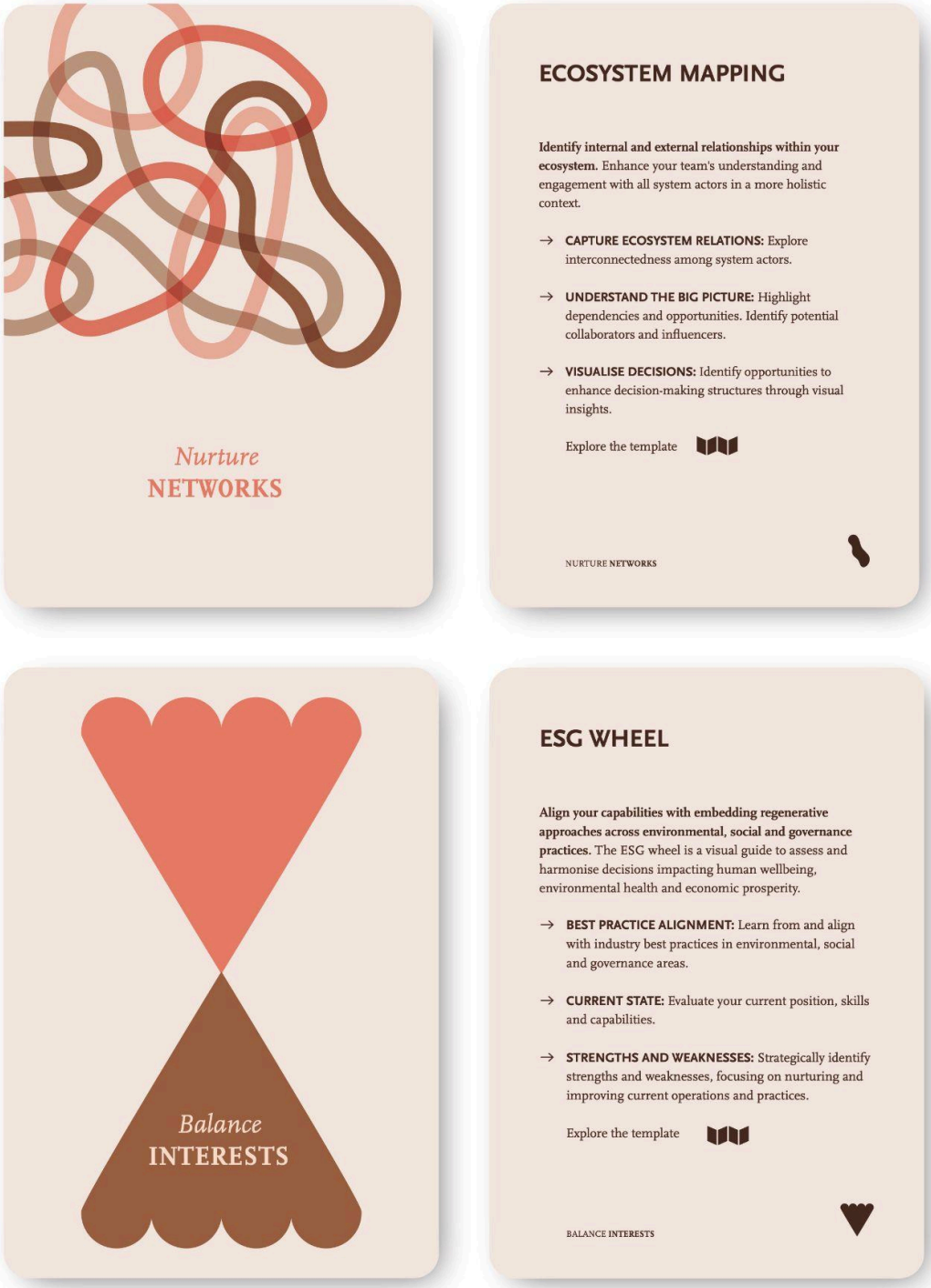
4: Review and refine

- Keep track of decisions, chosen commoning activities and new ideas..
- Establish a feedback loop to regularly assess progress, implementation of agreed activities
- Identify improvement within the Commoning by Design framework and add commoning activities to the creative commons commoning by design website ***www.commoningbydesign.com***



However, recognising participants' preference to start with tested activities that provide suggested tools and templates, all the ideas for commoning activities stemming from this research were also synthesised into a set of **Commoning cards**, each corresponding to a principle (See Appendix for a full set of cards). So the idea is that after teams have addressed a commoning question and mapped their own ideas and approaches, they can also draw from the pool of cards, which suggest further commoning activities and add these to their canvas (or use the cards first and then expand with their own ideas). The Commoning cards are intended as prompts to explore the conditions and infrastructures necessary for fostering deep collaboration within groups. Each card presents a suggested activity and a description of its purpose. Additionally, there are a few suggestions on how to carry out the activity based on the research synthesis. Some cards also feature an icon, linking to corresponding templates, which resulted from the action research. These templates are also accessible on the online collaborative whiteboard platform Miro, under a Creative Commons licence (see Appendix for the link). The cards also contain a large number of commoning activities for which specific templates have not been developed yet, with the intention of inspiring individuals to devise their own approaches. The intention is to showcase the wide range of ideas stemming from the commoning principles to encourage others to evolve the framework and develop their own "uncertainty artefacts".

Figure 62: Illustration of two Commoning cards, front and back



Overall, the cards are intended to serve as catalysts for change, prompting designers and change-makers to engage with the fundamental principles of the commons. By challenging established norms and inspiring fresh perspectives, the activities on the cards are intended to foster the development of infrastructures that not only facilitate successful collaboration but also, at their best, promote the development of commons-based structures.

Figure 63: Illustration of Commoning cards (see Appendix for full set)

The synthesis of all creative outputs from the case study research brought to light a possible application of commoning as a relational design framework. Central to this approach is not to prescribe a single, mandatory method for people to adopt commoning but to offer many potential ways in which designers could redesign their design practices by drawing on insights from the commons and their deeply collaborative arrangements. Collectively, the compass, the canvas and the cards constitute a set of commons-inspired tools to re-orientate contemporary design to planetary health. Importantly, this framework is intended to be neither rigid nor prescriptive. Instead, it is intended to be used as a flexible directional approach that can be tailored to unique requirements and specific contexts.

7.1.3 Use cases for commoning artefacts

The insights gained from the action research activity, especially when considered within the framework of Geels' multi-level perspective (2006), suggest that commoning activities can be applied across different organisational levels (see also 7.2.4.3). However, the impact and outcomes of those activities can vary based on where they are deployed (see the ESG Wheel exercise). Geels' multi-level model provides a helpful frame to remind us that in order to create new c common-based systems, commoning approaches may be most effective when implemented at higher macro levels within the organisation. For instance, the research suggested that conducting the ESG Wheel exercise with board members at the macro level could lead to more significant shifts in strategic priorities, fundamentally reshaping the organisation's direction. Conversely, when applied to specific teams or meso/micro-level groups, the primary impact may be an increased awareness of the need for change within those teams. This, in turn, directs change efforts towards areas that can be controlled, such as refining the way service design is conducted within the company. As a result, commoning resources are not confined to a specific organisational level; rather, I find that they hold the potential to be applied across various levels within an organisation, encompassing both macro and meso/micro levels. This adaptability, rooted in the insightful feedback received from research participants, uncovered a number of potential use cases within an organisation:

Macro organisational level

- **Strategic alignment:** At the macro level, commoning activities may be used as an approach for fostering strategic alignment and shaping an organisation's overall direction. For instance, conducting the ESG Wheel exercise with senior leaders and the board was seen to potentially lead to substantial shifts in strategic priorities. This, in turn, can reshape the organisation's focus, ensuring a strong commitment to sustainability and ethical practices.

- **Governance redesign and 'new commons':** By implementing the Commoning canvas and activities like the ESG Wheel or Shared Purpose workshops with board members, organisations can use commoning approaches to explore novel governance models and collaborative decision-making processes. As discussions with research participants have shown, this could lead to the development of more democratic, collaborative and effective governance systems. In its most successful implementation, it may even pave the way for the conceptualisation of new commons.

- **Cultural transformation:** Commoning activities could be used to drive cultural shifts within an organisation. For instance, introducing commons principles at the macro level can help establish the infrastructures for fostering a culture of collaboration, sustainability and shared responsibility.

Meso/Micro organisational level

- **Team collaboration:** The research highlighted that commoning activities are equally impactful when applied to specific teams or meso/micro-level groups. For teams working on projects or initiatives, activities such as the Shared purpose map or the Commoning canvas can encourage a better understanding of shared values and approaches and foster cooperative collaboration. This could help to create a cohesive and synergistic team environment.

- **Project-specific commoning:** Teams can employ commoning activities to promote planet-centric thinking on a project-specific basis. For instance, the commoning cards can be used to ideate and implement a non-human focus on projects. Commoning activities can encourage a stronger sense of planetary needs and collective purpose, and potentially help micro-level teams to work harmoniously towards those shared goals.

- **Cross-functional initiatives:** In meso-level contexts involving cross-functional teams, commoning activities can provide a bridge for departments to collaborate more effectively. The Commoning compass and Commoning canvas can be used to align different functional areas with shared ecological values, ensuring that projects and initiatives are developed with a collective commitment to successful collaboration and planetary health.

By recognising the broad spectrum of use cases for commoning activities across macro, meso and micro levels , organisations can harness their transformative potential at various organisational levels. Whether at the macro level to redefine strategic priorities or at the meso/micro level to foster cross-functional collaboration, commoning can offer a multifaceted approach to designing for a regenerative and sustainable future.

The choice of where to implement commoning activities might need to be considered as a strategic decision, as it significantly influences the potential impact they can create. Alignment with the organisation's specific goals and desired level of organisational change seems to be crucial in harnessing the full potential of commoning practices. The case study analysis revealed that commoning needs its own design, rooted in the fact that Ostrom's original commoning principles, while valuable as analytical lenses, lack guidance for practical application. To leverage these principles as creative means for shaping organisational structures towards planetary health, I designed the Commoning by Design framework as a starting point for commons-inspired design work.

In the forthcoming section, I discuss the implications of applying a commoning framework within contemporary design practices and to what extent commoning could help to re-orientate design practices to embrace planetary health. This exploration connects back to the core research questions of this thesis, shedding light on how commoning has the potential to address prevalent information, imagination and governance gaps in the realm of contemporary design.

7.2 Commoning Design

The next section discusses how commoning could address shortcomings in information, imagination and governance, thus reflecting on the overarching research questions: RQ1, exploring how commoning can bridge knowledge gaps in contemporary design for the facilitation of systems-oriented design; RQ2, investigating how commoning can facilitate a shift from a growth-centric to relational and regenerative design practice in service of planetary health; and RQ3, understanding how commoning can inform contemporary design practice to foster the development of collaboration infrastructures. Additionally, this reflection incorporates additional theoretical insights from the field of system and complexity theory to enhance my research findings.

The section also explores how commoning may impact the achievement of planetary health objectives within organisations and discusses the risks of co-optation. Ultimately, this leads to the concluding point in the discussion, which explores the versatility of applying commoning at various tiers or levels to achieve diverse economic outcomes and deepen the discussion on commoning use cases (7.1.3).

7.2.1 Commoning to make the unseen visible (Information challenge)

The research question 1 (RQ1) in this study focuses on how commoning can address knowledge gaps in contemporary design to facilitate the design for living systems. The analysis and findings from the commoning sessions (6.3) – including the Urgency Alignment, Environmental, Social and Governance (ESG) Clarity Wheel, the Shared Purpose map, the SES Ecosystem map and the use of Planetary Actors cards provide valuable insights into how commoning principles can be effectively used to achieve these goals.

The Urgency Alignment and ESG Wheel session played a crucial role in addressing RQ1. The sessions facilitated an exchange of knowledge and ideas among participants, emphasising the importance of adopting a systemic perspective that encompasses not only environmental aspects but also the social and governance pillars of sustainability. Participants engaged positively and showed genuine interest in integrating sustainability into future service design practice. This recognition laid the foundation for aligning future priorities in the service and business transformation practice, addressing knowledge gaps to improve designing for living systems. The Shared Purpose session emerged as a tool for the service design team, providing clarity and direction while steering them away from a competitive mindset. It resulted in meaningful team discussions, allowing the team to openly address desired future design practices and, based on these visions, identify expertise gaps that required attention and inform professional development plans for individuals. This aligns with RQ1, as the commoning activity effectively addressed knowledge gaps in contemporary design and facilitated the development of strategies for designing living systems.

The SES Ecosystem mapping exercise was also pivotal in addressing RQ1. By systematically mapping the sustainability ecosystem within the organisation through a commons-inspired lens, it revealed knowledge and relationship gaps, particularly in areas where communication had been ineffective. The outcome of this mapping effort was not just a visual representation but it acted as a catalyst for initiating cross-functional discussions about the shortcomings in current design and sustainability practices. Visualising the system components and their interactions vividly revealed a number of deficiencies, prompting important conversations on rectifying them by building key relationships. The mapping tool empowered the service design team to identify systemic leverage points, enabling a deeper understanding of how to strengthen connections with the company's global sustainability function in the future and address information barriers. This process led to the identification of six strategic opportunities for service design practice to enhance their organisation-wide sustainability impact, which the team agreed to strategically revise on a quarterly basis throughout the duration of the empirical research.

Prototyping Planetary Actor archetypes offered a practical approach to address RQ1 as well. However, the approach's effectiveness was constrained by a persistent focus on individual actors, their needs and interests, rather than emphasising their intricate interrelationships. Additionally, there was a tendency to personify natural actors, akin to the manner in which we create personas, which was seen to be problematic.

Overall, the case study engagement has underscored the potential of applying commoning principles to effectively address knowledge gaps in contemporary design. The commoning action research activities also brought to the forefront significant gaps in expertise within the service design team, particularly in areas related to ecology, sustainability, systems theory and economic factors. This exposure to previously unrecognised areas of expertise has sparked a newfound curiosity, motivating the team to explore and develop their capabilities in these domains. The action research activities, serving as initial

prototypes of commoning in practice, not only identified areas for improvement but also demonstrated the adaptability of commoning to diverse contexts.

The research analysis revealed how commoning activities can reveal the unseen, visualise ecosystem complexity and foster cross-functional dialogues, thus connecting individuals who had minimal prior interaction. This finding is corroborated by the work of Botero et al. (2020), who discuss how commoning serves as a tool for unveiling complex societal and environmental interactions by promoting participatory design practices. According to their findings, commoning practices aim not only to reveal underlying structures but also to create a collaborative environment where multiple stakeholders can engage in dialogue and contribute to sustainable solutions. Moreover, the action research activities in the thesis contributed to promoting systemic awareness, laying the groundwork for transformative changes. Through the analysis, it became evident that commoning activities can create liminal spaces, essential for designers to break free from conventional thinking patterns and explore new ways of designing. These spaces act as transitional stages, facilitating the development of planetary awareness and fostering alignment within teams. They also provide a platform for experimentation, allowing designers to see the previously unseen with greater clarity. The concept of liminal spaces is further supported by Poderi et al. (2022), who found that these spaces allow for a relational understanding of community dynamics and resources, encouraging designers to explore innovative approaches outside conventional frameworks.

Prompted by this analysis, I revisited my theoretical framework, integrating additional elements into the previously discussed theory, particularly drawing inspiration from Nora Bateson's work. The concepts of making visible the invisible and emphasising the importance of relationships and transitional spaces resonate seamlessly with Bateson's idea of 'warm data' (Bateson, 2017). Warm data, in the context of creating regenerative system change, refers to the interconnected, context-dependent and relational information that exists beyond traditional, compartmentalised data sets. Bateson describes it as transcontextual information that captures qualitative dynamics, providing an additional dimension of understanding beyond what quantitative data (cold data) can offer (2017). Warm Data emphasises the importance of considering the full scope of interrelationality in a system to avoid misguided decision-making, especially in the face of complex and interconnected challenges. It does not aim to replace or diminish other data but rather to keep certain types of data 'warm' by preserving a nest of relations intact. Warm data dives into the intricate interrelationships and qualitative dynamics within complex systems. It encapsulates the contextual richness, emotional nuances and dynamic interplay of factors that are often hidden in conventional data, much like many of the insights revealed through the action research. Aligned with the principles of warm data, the ecosystem mapping exercise played a key role in bringing these usually invisible aspects to light in the case study context. It provided a structured approach for the team to discover and discuss these nuanced elements, making visible the often-overlooked dimensions of the interconnected web of relationships within the system. My analysis, therefore, led me to conclude that commoning activities can be helpful in revealing the unseen aspects within complex systems, aligning with Bateson's warm-data theory. Through the intentional design of collaborative infrastructures, commoning may help us unearth the richness of contextual details and dynamic interrelationships within complex systems and offer a pathway towards a more relational and interconnected approach to systemic change.

7.2.2 Commoning to design for human/non-human relations (Imagination challenge)

The research question 2 (RQ2) in this study focuses on how commoning can enable a shift from a human and growth-centric paradigm towards a relational and regenerative design practice for planetary health. The analysis from the commoning sessions (6.3), such as the Urgency Alignments, the Commoning Design workshop, the SES Ecosystem map, the Collaboration Canvas and Planetary Actors

cards, offers valuable insights into the effective application of commoning principles to attain these objectives.

Commoning activities, as prompted by the inquiries in section 6.3.2.1, demonstrate the potential to engage the full spectrum of actors within an ecosystem. These activities encourage a shift beyond traditional human-centric design approaches, adopting a more relational perspective that integrates social and governance aspects with environmental sustainability. This is supported by Poderi et al. (2022), who highlighted how commoning fosters a relational ontology, shifting the focus from human-centric to more-than-human interactions. This perspective aligns with my research findings, which emphasise the importance of transcending human-centric designs to encompass broader ecosystemic relationships. The action research sessions carried out during the study unveiled the limitations that a human-centric, neoliberal economic paradigm places on the imaginative capacities of designers. These constraints were so pronounced that they hindered designers and team members from envisioning alternatives, primarily because of the entrenched design of current business structures. The participants acknowledged the necessity for a design practice focused more on relationships and regeneration, considering the planet's wellbeing. The commoning prototypes played a role in establishing important spaces, where participants could experiment with approaches that took non-human actors and relationships with the natural world into account – even while operating within the confines of the existing business structure. This was accomplished not by increasing the workload with additional tasks but by gently encouraging research participants to pose different questions, drawing inspiration from commoning principles, throughout meetings that were already underway.

The Urgency Alignment session effectively addressed RQ2 by raising awareness of what needs to change and why. During the workshops, we used the Berkana model of change to help participants contextualise themselves, their teams and their organisation within the transformation process. The systemic perspective sparked creativity and offered a more tangible understanding of their current position in comparison to their desired destination. The exercise also enabled participants to grasp the urgent need to transcend human-centricity and cultivate a critical perspective towards human bias.

The ESG Wheel session deepened participants' understanding of sustainability by addressing environmental, social and governance dimensions. This prompted team discussions about the necessity to move beyond the growth paradigm, though it also revealed a certain frustration that true impact would require the active involvement of senior C-suite leadership in the process which is hard to achieve. The feedback from the workshop was encouraging, however, with participants expressing a sense of urgency and empowerment to tackle sustainability challenges in service design and business transformation. The ESG wheel provided a space for reimagining the usual operational processes by acknowledging nature and non-human actors. Commoning principles played an important role in generating ideas and pathways for relational design activities during the Commoning Design session. The analysis revealed that commoning can prompt designers to move beyond traditional, rigid design methods like the Double Diamond process and foster a more relational approach. The workshop resulted in various relational concepts for commoning-inspired activities involving non-human actors that could be integrated into future design practices.

The SES Ecosystem mapping analysis and Planetary Actors cards underscored a fundamental aspect of commoning, key to addressing RQ2: its inclusive approach to human and non-human actors within an ecosystem. This departure from human-centric design broadened the landscape and fostered a more interconnected design perspective that considered the impact on nature, animals and non-human stakeholders. Ecosystem mapping also prompted reflections on considering the unintended consequences of current relationships and decisions. It underlined the importance of including planetary actors as a fundamental element, not an optional aspect. The process of mapping Planetary

Actors also helped to shift the human perspective, which represented a significant departure from the usual human-centric design paradigm. While not flawless and still influenced by human bias, it served as a stepping stone in the right direction. The Collaboration Canvas, too, centred on aligning purpose and balancing interest, prompting team members to consider non-human elements and the impacts of their project choices. This practical approach helped the team move beyond a human-centric perspective, fostering transparency and guiding a more interconnected design practice that focuses on nurturing and sustaining vital relationships, while effectively managing potential conflicts.

The research analysis demonstrated that in a world grappling with an imagination crisis, where persistent societal and environmental issues stem from a lack of regenerative approaches, commoning offers an alternative imagination framework for design practice. It enables individuals and communities to reimagine societal functioning, emphasising the importance of a world that values care, autonomy and sufficiency (Bollier & Helfrich, 2019). The action research affirmed the potential of commoning to foster discussions that depart from a human-centred, growth-driven paradigm and embrace a more relational and regenerative design ethos for planetary wellbeing. My observations on the constraints imposed by neoliberal paradigms on imaginative capacities directly align with findings from Seravalli et al. (2017), who noted that commoning in public sector projects like ReTuren challenges these paradigms by fostering community co-ownership and participatory governance. A key finding is that commoning can catalyse collective imagination, even if achieved through small steps. Bollier and Helfrich's (2019) discussions on the commons and commoning stress the importance of caring infrastructures and inclusivity, which align closely with my conclusions on commoning's role in reimagining societal functions. Based on the empirical research, commoning can empower designers to envision new narratives prioritising care for oneself, others, communities, nature, and non-human actors. This approach can challenge the existing paradigm and encourage the creation of new stories of belonging and interconnectedness. Nevertheless, it is important to acknowledge that the effectiveness of using commoning to design for human/non-human relations can vary significantly, depending on the organisational level at which it is implemented. At lower organisational levels, commoning can foster awareness and ignite imagination within the boundaries of influence accessible to participants. However, for substantial structural changes in business design, involving C-suite leadership and key decision-makers may be necessary.

7.2.3 Commoning to nurture 'Readying' and stewardship practices (Governance challenge)

Research Question 3 (RQ3) aimed to explore how commoning principles could inform contemporary design practice, specifically in facilitating the creation of collaboration infrastructures. The case study research underscored the significance of preparing for change through the intentional design of collaboration, validating the importance of RQ3. The concept of 'infrastructuring' emerged as a pivotal element in this preparation, which involved nurturing practices that foster cooperation, collaboration, and relational dynamics. The research highlighted that such dynamics do not simply emerge through co-design approaches; intentional infrastructure-building is essential as part of organisational stewardship practices. This foundation is crucial for enabling diverse stakeholders to collaborate effectively—an aspect often overlooked in current service and business transformation practices, as shown in the analysis of planetary health challenges (see Governance challenges, 6.2.3).

Examining the action research activities revealed that effectively tackling planetary challenges within organisations begins with acknowledging the organisation's deep entanglement with various aspects of everyday life. This encompasses economic foundations, mechanisms of information, control and feedback, as well as internal politics, culture and history. The transcontextual nature of these challenges then forms discernible patterns (see 6.2.4), resulting in intricate 'double binds' (Bateson, 2022) that can often impede straightforward solutions. Bateson (2021) suggested that navigating these double binds

requires a shift towards ecological perception, recognising the inherent interconnectedness of issues. Unlike traditional linear strategies with defined endpoints, addressing interconnected challenges, including planetary challenges, requires breaking free from siloed and compartmentalised thinking. Similar to the interdependency observed in ecological systems, the analysis of the action research activities revealed organisational interdependence across contexts, teams and departments, all intricately woven together, not neatly separated as an organisation's organigram might suggest. These findings emphasised the importance of creating stewardship practices to address this interdependency, advocating for infrastructures that support collaboration and a shared approach rather than isolating issues. This stands in contrast to the dominant organisational governance structures that have historically aimed to control and predict outcomes. As our societal systems grew more complex amidst various crises, a control-focused, growth-oriented governance model became less viable for organisations. Yet, many organisations, from their top-down perspective, still struggle to manage the complex systems they have created and to shift towards sustainable and regenerative practices. In this context, the research suggests that commoning can nurture organisational stewardship, promoting more responsible and sustainable practices within organisations.

Stewardship, though not a widespread norm, is an age-old concept that has evolved over millennia (Milstein et al., 2020). It involves the commitment of individuals to leave behind just and humane legacies, creating systems that enable everyone to thrive (Wilson et al., 2020). It can be understood as an ethical commitment to responsibly using, protecting, and managing natural resources. In today's era of deep divisions, systemic crises, and heightened system consciousness, a growing number of system stewards are embracing and revitalising practices that foster collective well-being. Organisational stewardship practices embody this ethos, prioritising ethical governance, collaborative infrastructures, sustainable practices, inclusivity, continuous learning, cultural and social responsibility, and a long-term vision. These practices aim to create institutions that are prosperous, sustainable, and equitable, enabling all people to participate fully and reach their potential. The fieldwork of this thesis has shown how commoning supports the development of organisational stewardship to transition away from centralised control towards a governance style rooted in deep collaboration. The analysis revealed how commoning helped to establish infrastructures that facilitate the convergence of contexts and address double binds through incremental steps and shared-purpose processes. For instance, in the research, participants experienced a double bind marked by their desire for important change-making towards regeneration and questioning the prevailing business model following the Urgency Awareness sessions and ESG Wheel discussions. However, this enthusiasm was juxtaposed with a deep sense of frustration and powerlessness, as the underlying business structures and key performance indicators (KPIs) imposed constraints that led to conflicting KPIs and hindered desired transformations. Commoning activities, such as the ESG Wheel, were important in shifting the team's ecological perception. Rather than feeling daunted by the perceived inaccessibility of engaging key decision-makers in deep business design, attention was redirected to more manageable aspects, allowing the team to align internal service and business transformation practices with sustainability goals that were within their control. Prioritising these manageable aspects through commoning alleviated the pressure associated with the double bind of tackling substantial business model challenges while needing to sustain livelihoods within the existing system. The discussions that followed effectively navigated the double bind by refocusing the service design team on the contexts within their agency and promoted alignment, sustainability awareness, and sustainable future priorities. As a stewardship practice, commoning fostered a sense of possibility, enabling the team to concentrate on immediate, actionable changes to their existing meetings and service design practices. Another example was the tension between company-wide sustainability strategy and team-based KPIs, which were inherently intertwined, often leading to conflicts. This brought to light a series of broken ripple effects and information barriers, emphasising the need to establish more meaningful connections and collaboration across teams, departments, and performance indicators.

The SES Ecosystem mapping exercise, while not resolving the double bind, played a key role in visualising the organisational ecosystem and uncovering intangible interconnections among system actors. The analysis of the mapping exercise not only shed light on the lack of collaboration infrastructures but also revealed potential pathways for achieving sustainable, resilient, and equitable outcomes that emphasised the importance of effective integration and alignment across teams and departments. Although not resolving the double bind, the exercise heightened team awareness and provided insights into key opportunity areas relating to the strategic relationships needed to tackle the identified double bind in the future through enhanced collaboration infrastructures and an ethic that promotes responsible and sustainable best practices. Similarly, the Collaboration Canvas created the frame for an activity to map collaboration infrastructures for specific projects, facilitating discussions on shared assumptions and strategies for conflict resolution. The Commoning Design workshop resulted in tangible ideas for design activities and infrastructures conducive to collaborative stewardship practices grounded in commoning principles. These infrastructures, encompassing everyday processes, routines, and expertise, provided practical collaborative entry points for transitioning towards regeneration. Although the workshop did not immediately instigate regenerative changes within the case study organisation, it laid the groundwork for altering design practices in response to diverse, interconnected challenges. These examples showcase how commoning activities have played a crucial role in preparing design efforts and establishing the essential infrastructures for regenerative change.

The work of Seravalli et al. (2017) supports the research findings on how commoning can nurture collaborative stewardship practices by discussing how commoning and infrastructuring have helped create new operational methods in the public sector, enabling local connections and diverse competences to collaboratively address community issues. In either scenario—my research or that of others—commoning and infrastructuring have a preparatory nature, creating the conditions for change. The importance of preparation aligns with Nora Bateson's recent theory on how to navigate double binds. She introduces the concept of 'ready-ing' as a vital preparatory process before actual change occurs (2022). By challenging linear strategies that seek to mandate change and qualities such as trust or respect, Bateson asserts that these qualities naturally emerge within specific contexts and unique relationships. She argues that focusing on measurable results may hinder effectively expressing ideas that do not neatly fit into predetermined goals or predefined outcomes (2022). In line with Bateson's theory, the analysis led me to propose that commoning, as a departure from conventional approaches, can challenge our familiar design processes of discovering, defining, developing, and delivering intentional change. It can embrace the notion of systemic 'ready-ing', shifting from change as an outcome of specific actions to change as a consequence of systemic preparedness. Bateson describes readiness as a non-linear process, emerging in unpredictable transcontextual ways (2022). The case study analysis affirmed that commoning exhibits characteristics conducive to 'ready-ing' practices, including nourishing flexibility for constant change, nurturing communication, and fostering contextual re-learning and openness to multiple pathways and non-directionality (Bateson, 2022). For instance, commoning sessions that focused on learning to balance interests cultivated such readiness for change by creating a shared purpose and finding compromises suitable for all system actors. Similarly, the Urgency Alignment sessions fostered a new understanding of the necessity for planet-centric approaches, laying the foundations for a paradigm shift towards regeneration, and SES Ecosystem mapping made visible the invisible connections within a system and their contexts, underscoring the need to build relationships where none currently exist. Acknowledging the need for 'ready-ing' is crucial in the change process because it emphasises the interconnectedness and interdependence of actors (Bateson, 2022). This recognition becomes even more pertinent when considering that change cannot be entirely controlled, highlighting the importance of adaptability and collaboration in navigating change. Teli and colleagues' work (2022) on how intermediation facilitates the integration of commoning practices within institutional settings supports my research findings on the potential of

commoning to nurture 'ready-ing' and collaboration infrastructures. Their analysis shows that intermediation serves as a crucial catalyst in these processes, effectively navigating among various stakeholders to foster collaboration and readiness for systemic transformation.

Bateson's concept can be seen as an extension of her father's idea, regarding the major problems in the world. Gregory Bateson, an anthropologist, social scientist and cyberneticist, emphasised the disparity between how nature operates and the processes of human thought, suggesting that many global challenges arise from this disconnection (1972). While Gregory Bateson highlighted the fundamental issues arising from the divergence between nature and human understanding, Nora Bateson proposes a way forward. 'Ready-ing' suggests that, rather than attempting to impose strategies or predefined outcomes, there is a need to prepare systems for change in a non-linear and anticipatory manner. This aligns closely with stewardship which focuses on creating the right conditions to support collaboration and sustainable practices. Building on Bateson's idea of 'ready-ing', the analysis of the scoping and case study research suggests that future contemporary design could benefit from adopting more complexity and context-informed practices to address inherent gaps. This involves creating space for learning, reflection, connection and a focus on the important and relational aspects rather than pre-planned outcomes. I would argue that commoning involves creating the conditions for systemic preparedness, enabling an adaptive response to the complex and interconnected challenges arising from the disparity between nature and human cognition. Consequently, commoning can be viewed as a valuable lens and practice through which design can nurture 'readying' processes based on collective imagination and principles of cooperation, that are also intrinsic to nature. As such, commoning can serve as a holistic approach that paves the way for the emergence of relational possibilities between people, teams, departments and institutions. In the final section of this chapter, I explore the feasibility of implementing 'Commoning by Design' as a relational design framework within current economic paradigms, investigating the potential impact, outcomes and risks associated with co-optation.

7.2.4 Exploring commoning impact, outcomes and risks of co-optation

At the onset of my research, I embarked on a journey to explore a relational framework for future design practices, envisioning a means to transition systems towards planetary health within the context of the commons. Having tested and prototyped commoning within an organisational setting and examined how design practices might adopt its principles as a guiding compass, the lingering question is the real-world impact of this approach. The case study research revealed that the impact of commoning manifests incrementally and relationally. Scholars argue that many of our global challenges are deeply relational problems, asserting that paradigmatic change is attainable through the adoption of relational perspectives (i.e. Tàbara, 2023). The case study findings reinforce the idea that commoning can be a crucial perspective in this context, suggesting that it can help to cultivate prosocial and cooperative behaviours among individuals and nurture an awareness about planetary urgency. These insights raise the broader question of what impact commoning could have on equipping design practice to tackle our prevailing planetary health challenges. As I navigate this final section of the analysis, my focus is on discussing the potential outcomes of commoning and critically reflecting on the risks of co-optation.

7.2.4.1 Fostering relational design through the commons

Bollier (2021) suggests that while the commons are often viewed through an economic lens, a much more accurate understanding sees commoning as a vibrant, relational social system. This perspective requires a shift in ontology — moving away from perceiving people as self-interested individuals and instead directing attention towards recognising the intricate, dynamic relationships that shape our world. A relational ontology requires going beyond centring human rationality and agency in discussions (Vásquez-Fernández and Ahenakew pii tai poo taa, 2020). Instead, it highlights the need to value

interconnected relationships within a broader context. A commons paradigm has been found to encourage a departure from perceiving living entities as mere machines, to acknowledging them as evolving beings intricately entangled with one another (Bollier and Helfrich, 2019). Building on this ontological turn, the commoning framework resulting from this thesis (7.1) aims to facilitate and strengthen an orientation along the relational qualities that characterise the commons. While there's growing recognition of relationality in design (Escobar, 2018; Cipolla & Manzini, 2009), as detailed in Chapter 2, contemporary design practice, defined as innovative approaches prioritising relationality and planetary health while challenging traditional economics, still lacks a full understanding of how embracing the commons and commoning within relational contexts could shape its approaches (Schaeper & Robert, 2020). Therefore, as a framework, Commoning by Design seeks to inspire a series of activities that focus on relationality and can help practitioners negotiate behavioural agreements conducive to mutual trust, caring relationships and, ultimately, sustainable resource use. While not intended to be prescriptive, the prototype artefacts can be a stepping stone to empower design practitioners to draw inspiration from the principles of the commons, informing design practice just *how* design may be able to create the conditions for collaboration to flourish. Namely, emphasising shared purpose, maintaining a balance between interests and contributions, adopting ecosystemic perspectives, empowering agency and establishing a set of infrastructures that enable teams to implement and integrate these agreements into their practices. Together, these principles, slightly reframed through this research to resonate with the design community, could then be seen as an invitation to strengthen modes of deep cooperation in future design methodologies.

Reflecting on the planetary health challenges unveiled in this research (see 6.2), Commoning by Design emerges as a relational approach not only for addressing issues like information gaps, trust deficits and governance silos but also for establishing collaborative infrastructures to meet entangled organisational challenges and double binds. These challenges encompass dilemmas related to the profit impasse, business-as-usual practices, mechanistic mindsets, metrics misalignment and greenwashing. Informed by commoning as *"the living process that enables people to co-create a sense of purpose, meaning and belonging, while meeting important needs"* (Bollier, 2021, p 9), commoning artefacts can be a first step to guide design practitioners towards a more relational stance. However, Commoning by Design is not intended as yet another design framework that promises to hold answers. It attempts to offer an inspirational, flexible and relational approach to design practice, grounded in prioritising cooperation and relationships. Commoning, by its very nature, involves a collective effort whereby individuals engage in dynamic relationships. The impact, when viewed through the lens of 'warm data' (Bateson, 2017), becomes evident in the depth and quality of these connections within an ecosystem. The practice-based outcomes of this research aim to reorient contemporary design practices by focusing on creating collaborative infrastructures as system conditions over solution-focused approaches. The next part explores the idea of achieving different outcomes at various organisational levels — from micro, meso to macro levels.

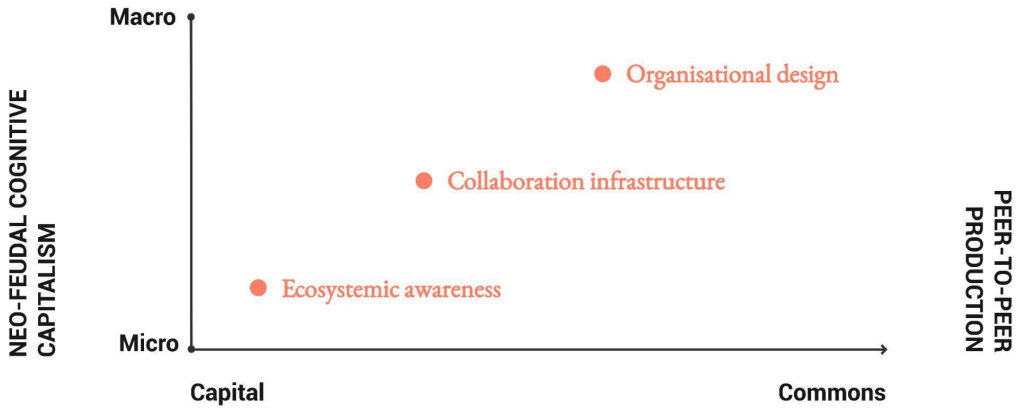
7.2.4.2 Tiers of commoning

The analysis of commoning practices underscores the significance of conceptualising Commoning by Design through a tiered approach and emphasises the need to apply commoning intentionally. Case study findings highlight that the impact of commoning can depend on the organisational environment, contextual factors and the values and practices of individual teams and practitioners (see 7.1.3). To unlock the transformative potential of commoning for planetary health challenges, commitment and support are crucial at multiple organisational layers, communities or entire systems (see 6.3.). Examining case study activities reveals diverse outcomes from commoning practices, including the alignment of shared purpose, adoption of ecosystem perspectives and improvement in agency and approaches to balance interests. These outcomes appear intricately linked to the contextual application

of commoning principles at different organisational tiers. For instance, at the micro level within teams — where the findings and interventions from the action research are situated — commoning can enhance collaboration, align teams with shared purposes and promote ecosystemic perspectives without necessarily challenging the underlying organisational business model. The focus is on fostering ecosystemic awareness through project-by-project collaboration and team-by-team interactions. At this level, commoning can facilitate team cooperation by encouraging a better understanding of shared values, promoting cooperative everyday behaviours and fostering a cohesive project and team environment. Additionally, project-specific commoning activities can enhance planet-centric thinking, aligning teams with collective goals. Micro-level applications of commoning can result in immediate and tangible improvements within teams and their design practices and may serve as a catalyst to foster more collaborative design approaches. Outcomes can include heightened ecosystemic awareness, improved team alignment, enhanced knowledge, encouraging collaborative behaviours and strengthening competencies. At this level, the actors involved are typically individuals and project teams. Although the empirical research primarily focused on applying commoning on the micro level, findings suggested its potential to instigate relational changes at higher organisational levels as well (see 6.3). Commoning at a meso and macro level may require significant involvement from senior leadership and incorporating cross-functional ways of working. In contexts involving cross-functional teams, Commoning by Design can provide a bridge for departments to collaborate more effectively. In a meso-level context, therefore, the emphasis of commoning could shift to working within the existing economic framework to address collaboration infrastructures, including aligning conflicting KPIs and preparing cross-functional teams and their capabilities for a transition. The focus might be on medium-term perspectives, enhancing cross-functional cooperation and facilitating or 'ready-ing' conditions for change. Outcomes can encompass the establishment of cross-functional collaboration infrastructures, including protocols, standards, policies and KPI structures.

At a macro level, a long-term, regenerative perspective could emerge to envision alternative economic models based on the commons. When applied at an organisational level where structural changes, such as the deep design of the business, can be implemented, then commoning could not only play a role in achieving strategic alignment but also broaden its focus to governance design, encompassing organisational processes and operations through tools like the ESG Wheel (6.3.1.2). Outcomes may involve shifts in business structures, ownership models and governance systems. This macro-level approach would aim at transformative shifts to foster regeneration and resilience on a broader scale. The emphasis would lie on constructing robust systems capable of addressing and responding to the challenges presented by our planetary landscape. Commoning could evolve from creating awareness about the need for change to embracing organisational design, exploring ownership structures, instigating cultural transformation and introducing principles of collaboration, regeneration and shared responsibility in a company's operational model. As a result, more democratic and collaborative structures may emerge, potentially paving the way for the conceptualisation of new commons.

Figure 64: Tiers of commoning and visual breakdown to provide a clear and concise overview of each level below



Tiers of application	Micro level: Ecosystemic Awareness	Meso level: Collaboration infrastructure	Macro level: Governance design
Focus	Project-by-project collaboration, team-by-team	Cross-functional and operational collaboration	Organisational design and governance and operations
Outcomes	E.g. Ecosystemic awareness, team alignment, knowledge improvements, collaborative behaviours and competencies	E.g. Cross-functional collaboration infrastructures including protocols, standards, policies and KPI structures	E.g. Business structures, ownership models and governance systems
Actors	Individuals and project teams	Teams working across functions	Organisational decision-makers, including executives
Goal	Commoning to improve collaboration, align teams with shared purposes and promote ecosystemic perspectives at project level	Commoning to enhance collaboration through standardised protocols, aligned KPIs, fostering a cooperative and cross-functional environment	Commoning to foster transformative shifts in organisational structures and ownership models for a regenerative and resilient approach

While the micro-level findings are grounded in robust research data from the case study analysis, meso- and macro-level tiers, focusing on collaboration infrastructure and governance design, respectively, are proposed as conceptual frameworks at this stage, awaiting further empirical validation.
Regardless, using Commoning by Design in an existing organisation, especially one deeply rooted in a growth-focused, neoliberal approach like the case study context, prompts careful thinking. This reflection revolves around assessing whether the implementation of commoning-influenced infrastructure and negotiation genuinely has the capacity to bring about essential economic, ecological and social changes. It also raises concerns regarding the possibility that these efforts may be susceptible to cooptation, wherein the original intentions of implementing commoning principles for system transition could be subverted for extractive purposes within the design context. The next section questions the potential impact of commoning, exploring whether it can drive significant shifts or if there exists a risk of it being appropriated by the prevailing neoliberal systems.

7.2.4.3 Navigating co-optation

Discussing the need to prevent the appropriation of the commons is crucial, especially considering that 'commoners' or common scholars explicitly question whether commons-based principles can be applied within existing systems. They argue that the commons should always be viewed as an alternative to markets and governments (Sutterlütti & Meretz, 2023). Core to their critique is that as ideas or concepts get objectified, for instance, into a set of rigid rules, there is a risk of exploitation, and the challenge, therefore, lies in safeguarding commoning from succumbing to this trap. In *The Wealth of the Commons* (2014), Massimo De Angelis also warns of the risk of co-optation of the commons. An example he refers to is the UK Conservative-Liberal Democrat government's 'Big Society' initiative[9], where despite advocating for community empowerment, massive public spending cuts since 2010 have hindered the activation of resources within communities. The commitment to a faster speed and scale of change lacked the necessary means for communities to engage in meaningful ways and, therefore, fell short of providing the necessary support communities needed (De Angelis, 2017).

[9] The Big Society was a sociopolitical concept of the first 15 years of the 21st century. https://assets.publishing.service.gov.uk/media/5a797771ed915d07d35b5be9/building-big-society_0.pdf

While the research analysis acknowledges the tangible impact of commons as an existing social movement and considers their roots as an alternative to the market economy, the research findings suggest a place for commoning approaches in organisational transformation, too. As designers, we need to be aware of how to navigate existing organisational constraints and apply commoning to contribute to economic transition, even if this happens through small steps in practice. Consequently, key questions arise for contemporary design practice when integrating a commoning approach, including: How can we ensure that the commons do not yield to existing capitalist constraints and dominant economic structures but actively contribute to economic transitioning? How can we mitigate the risk of co-optation and maintain a long-term regenerative perspective?

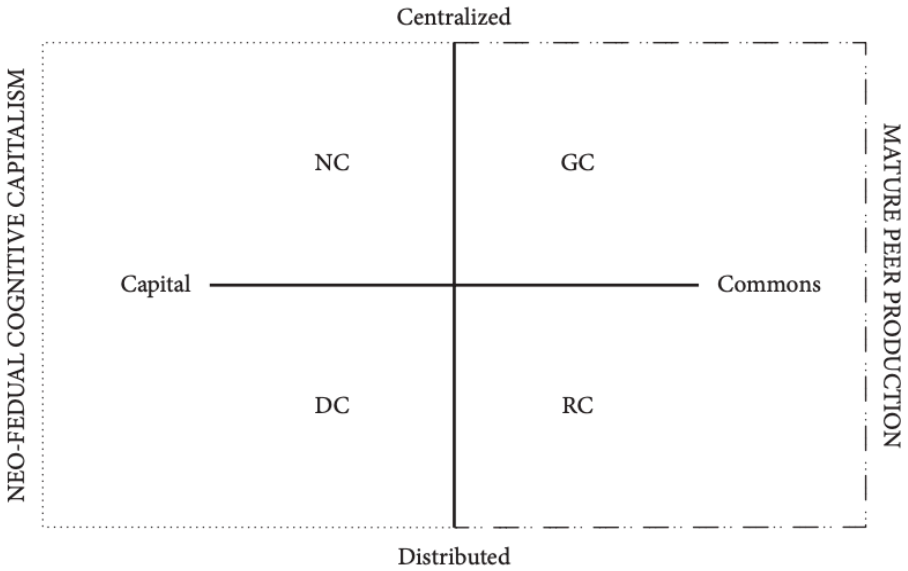
To explore answers to these questions, it is helpful to consider potential scenarios for the evolution of our economic futures within a capitalist context, as discussed by Kostakis and Bauwens (2014) in the transition from neo-feudal cognitive capitalism to mature commons-inspired peer-productions (see first mention in 3.2.2). Within each techno-economic paradigm (TEP), Kostakis and Bauwens (2014) delineate four phases: eruption, frenzy, turning point and deployment. The turning point is a pivotal stage involving institutional changes. Currently, we stand at a crucial turning point in our existing TEP, prompting institutional shifts. According to Kostakis and Bauwens there are three competing value models potentially influencing our economic futures at this turning point. The first is traditional proprietary capitalism, based on labour value and proprietary knowledge. It dominated the industrial phase of capitalism and relies on capital extraction of surplus value. This model (although dominant) is declining in importance and is characterised by a division between labour and capital, with labour becoming an appendage to machines and knowledge becoming increasingly proprietary.
The second value model is neo-feudal cognitive capitalism, where emerging forms of peer production are beginning to displace proprietary forms of knowledge. It is a system marked by the concentration of wealth and power in the hands of a few, leveraging cognitive and information-based resources and structured hierarchies. This model is still dominated by financial capital and represents a transitional phase. The third value model, which is hypothetical at this stage, is mature peer production under civic dominance. It envisions a future where peer production, based on the commons, becomes the dominant mode, characterised by collaborative and participatory processes. Although it is currently emerging within the interstices of the dominant system, the third model requires vital new policies to become dominant.

Kostakis and Bauwens argue that these three value models represent different trajectories for the economy's future, with traditional capitalism declining, neo-feudal cognitive capitalism in transition and the potential for mature peer production under civic dominance to reshape economic systems. Moving on, they propose a two-axe framework to discuss future possibilities in more detail and illustrate their economic projections based on global orientation through capital versus local orientation through the commons. This gives rise to four distinct future scenarios: Netarchical Capitalism (NC), Distributed Capitalism (DC), Resilient Communities (RC) and Global Commons (GC), each of which represents a dominant regime and defines the kind of political economy that may prevail (Kostakis and Bauwens, 2014)[10].

[10] NC refers to an economic system where power and influence are distributed through network structures, often facilitated by digital technologies. It involves decentralised forms of organisation that can still perpetuate capitalist dynamics, with control and wealth distributed across interconnected networks. DC is characterised by a decentralised distribution of ownership, control and decision-making within a network. In this model, economic activities and resources are spread across a network of participants, contributing to a more widely distributed and collaborative form of capitalism. RC describes local or regional networks that emphasise self-sufficiency, sustainability and the ability to withstand external shocks. These communities often focus on developing local resources, fostering collaboration, and building adaptive capacities to enhance overall resilience in the face of economic, social or environmental challenges. GC refers to shared resources or spaces, such as the atmosphere or oceans, that are not owned by any particular individual or nation but are considered the heritage of humanity. In an economic context, the concept involves collective management and sustainable use of these resources to ensure they benefit all, emphasising the interconnectedness and interdependence of global systems.

Importantly, in their analysis, Kostakis and Bauwens present those economic future scenarios in a way that positions the commons as a paradigm shift away from the prevailing capitalist system, known for its emphasis on competition, individualism and private property. The commons-inspired economic model underscores the cooperative nature of peer-to-peer production, where individuals contribute to and benefit from shared resources. Critiquing mainstream economic metrics like GDP, which overlooks the value of care work, quality of life, health, education and social capital, the commons emerge as a viable alternative to capitalism. This economic vision advocates for principles of equity, cooperation, and regeneration, foreseeing a future where commons-based production challenges the dominance of the market/state and fosters the growth of cooperative, social, and solidarity economies.

Figure 65: Two axes and four future scenarios; Kostakis & Bauwens, 2014



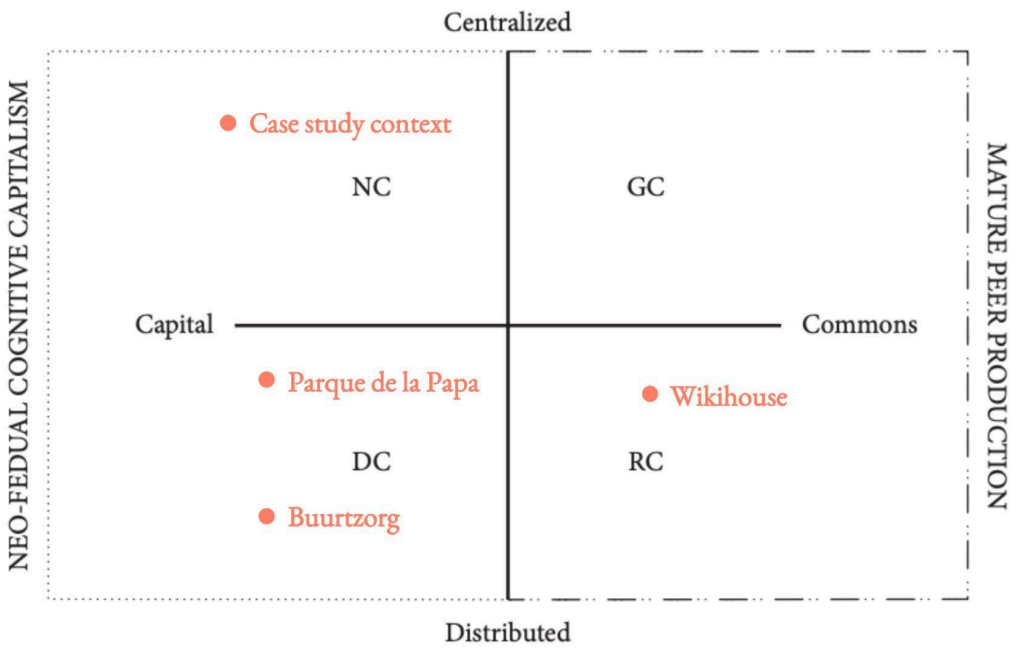
What is interesting in the context of this research is the proposition that the neo-feudal cognitive capitalism model on the left is transitioning towards a mature peer-production model on the right. A transition underscores the importance of infusing social values into current economic structures and suggests a gradual process with various economic possibilities emerging. Some of these economic possibilities may coexist, indicating the feasibility of embedding commoning within current economic approaches. Organisations like Buurtzorg operate within the existing economic model, yet they embrace organisational structures deeply rooted in commoning principles. This opens up the prospect of more organisations and communities gradually embracing commoning through different ways of working or taking over platforms as common or publicly owned utilities. This model recognises hybrid economic future scenarios where for-profit platforms can support commons-based collaboration infrastructures. Challenging the binary notion that economic systems must be exclusively capitalist or commons-based, this proposes the potential for coexistence and encourages exploring how to incorporate commoning as a relational design framework into existing systems. Supporting the theory that commons-based solutions can be initiated in our immediate surroundings, scholars, including Bollier (2021), emphasise the idea that commoning can subordinate prevailing market ethics to community needs.

This perspective elevates solidarity and ecological stewardship over profit, challenging the conventional frameworks of neoliberal and growth-oriented economics. Economic foundations would undergo a gradual reevaluation, highlighting the viability of social cooperation as an inherent human trait. Kostakis & Bauwens two axis projection is not just theoretical; it suggests that commons-based solutions can be implemented locally and promptly. However, collaboration with organisations that share a commitment to commoning and possess an understanding of its principles remains essential to effectively bring about these alternative approaches.

Navigating the risks of appropriating the commons within existing neoliberal systems demands a thoughtful approach. Bauwens and his colleagues acknowledge that while the commons holds the potential for the demise of capitalism, they also present an opportunity for capitalism's further expansion. De Angelis and Harvie (2014: 291) describe this as the *"[t]he 'ambiguity' between commons-within-and-for-capital and commoning-beyond-capital".* The challenge lies in fostering a coexistence of economic future scenarios that do not compromise the essence of commoning while maintaining resilience against co-optation forces. The landscape of existing commons-based organisations operating within contemporary economic frameworks, such as Buurtzorg and Parque de la Papa (and others see Bollier, 2021), demonstrates the potential for aligning organisational design with commoning principles today. These organisations might be part of what Kostakis and Bauwens describe as the Distributed Capitalist (DC) economic scenario, serving as inspirations and illustrating how a commitment to regenerative economic principles can flourish within the confines of traditional structures. Due to its peer-to-peer emphasis on self-sufficiency, sustainability and the cultivation of adaptive capacities, Wikihouse emerges as an example of what Kostakis and Bauwens characterise as Resilient Communities (RC), beginning to integrate into the commons sphere and exemplifying a more mature peer-to-peer economic model. For smaller-scale organisations like Buurtzorg, Wikihouse or Parque de la Papa, adapting internal operations to align with commoning appears more feasible, based on their organisational ownership structures that allow for direct changes in prevalent business models. However, the challenge becomes more pronounced when considering applying commoning in large-scale organisations driven by shareholder primacy, similar to the context of the case study organisation in this thesis.

The case study research underscored that embracing commoning in this context can still foster a heightened awareness of the imperative for change and facilitate the development of shared purpose and ecosystemic consciousness. However, large entities may encounter challenges in effectively incorporating commoning principles into their business models, particularly when compelled to prioritise shareholder interests, often synonymous with pursuing profit increases. In these cases, a different approach may be necessary, one that focuses on the intangible and relational aspects of commoning to foster collaboration and cooperative infrastructures across the organisation. Bauwens and other commons scholars frequently emphasise the active practice of commoning and the idea that creating and sustaining commons in support of a generative economy relies on the deliberate actions of a community. In contexts like the case study, commoning may be situated within what Kostakis and Bauwens term as Netarchical Capitalism (NC). Commoning by Design, in this scenario, aims to bolster community aspects by enhancing internal collaboration infrastructures, strategically enriching and distributing shared purpose and agency across organisational network structures.

Figure 66: Embedding commoning into economic future scenarios; adapted from Kostakis & Bauwens, 2014



Drawing insights from the case study research, in this context, the impact of commoning can be seen as an enhancement of social cooperation within and among teams. This encompasses improvements in alignment, the fostering of a sense of purpose, meaning, and belonging, all while addressing crucial personal and organisational needs. It could even extend to creating a system within an existing organisation designed to steward collective care towards achieving planetary health. In doing so, it has the potential to bring about a transformative impact on the fundamental design of business structures.

In either scenario, achieving commoning in economic contexts involves actively prioritising team collaboration and establishing cooperative infrastructures. This approach includes engaging diverse stakeholders in design projects, exploring non-human representation and building a robust work foundation rooted in shared purpose and collective decision-making. Transparency and open communication are crucial components, actively bridging existing organisational information gaps and other organisational challenges related to planetary health, while mitigating the potential ripple effects of broken communication channels. The case study research revealed that, under the pressure organisations face to meet operational key results (OKRs) and quarterly key performance indicators (KPIs), commoning approaches can be jeopardised when insufficient time is allocated for them. Crafting regulations and allocating dedicated time pockets might need to to be recognised as essential strategies to safeguard the unique nature and importance of commoning activities. This could not only protect against the dilution of commoning principles, but could also act as a deterrent against external entities seeking to exploit the commons for their own gain.

The exploration of commoning artefacts, as discussed in sections 7.1.3 and 7.2.5.2, reveals its versatile conceptual application across different organisational levels (micro, meso and macro). As proposed by Kostakis and Bauwens, and explored earlier in this section, commoning can also operate within distinct economic transitional scenarios, potentially navigating the shift from neo-feudal cognitive capitalism to mature peer production based on the commons. Together, this underscores that commoning should be treated not as a reductionist, linear approach but as a pluralistic and transcontextual practice that requires varied strategies based on the transitional path between capital and commons-based value systems, in which it is being applied.

Conclusion

This section concludes the final chapter of the thesis, discussing the findings in the context of the research aim and research questions. Building on the research analysis in chapter 6 – which addressed the working hypotheses and questions centring on the application of commoning to tackle planetary health challenges – this chapter begins with a key insight: commoning, in itself, requires design (7.1). Chapter 7 starts with a section synthesising the action research findings into a Commoning by Design framework. It discusses the need to design artefacts in the first instance, especially given the fact that this framework is not intended as yet another toolkit claiming to hold all the answers (7.1.1). It synthesises commons-based principles into a compass and respective compass points to be used as a guide by practising designers, including a canvas and a set of cards to inspire experiments at the intersection of design and the commons (7.1.2). The practice-based research component concludes with a reflection on potential use cases for applying the Commoning by Design framework, based on participant feedback.

Section 7.2 explores each research question in-depth by synthesising three fundamental design insights for how commoning can help tackle information, imagination and governance challenges, discussing the potential of commoning in shaping future design practices. The insights underscore the ability of commoning to unveil the invisible relational structures essential within and across systems **(RQ1 Information challenge)**, its capacity to inform the design of human/non-human relations **(RQ2 Imagination challenge)**, and, significantly, its role in nurturing states of 'readiness' for transformational change by establishing collaborative infrastructures spanning teams, departments and organisations **(RQ3 Governance challenge)**.

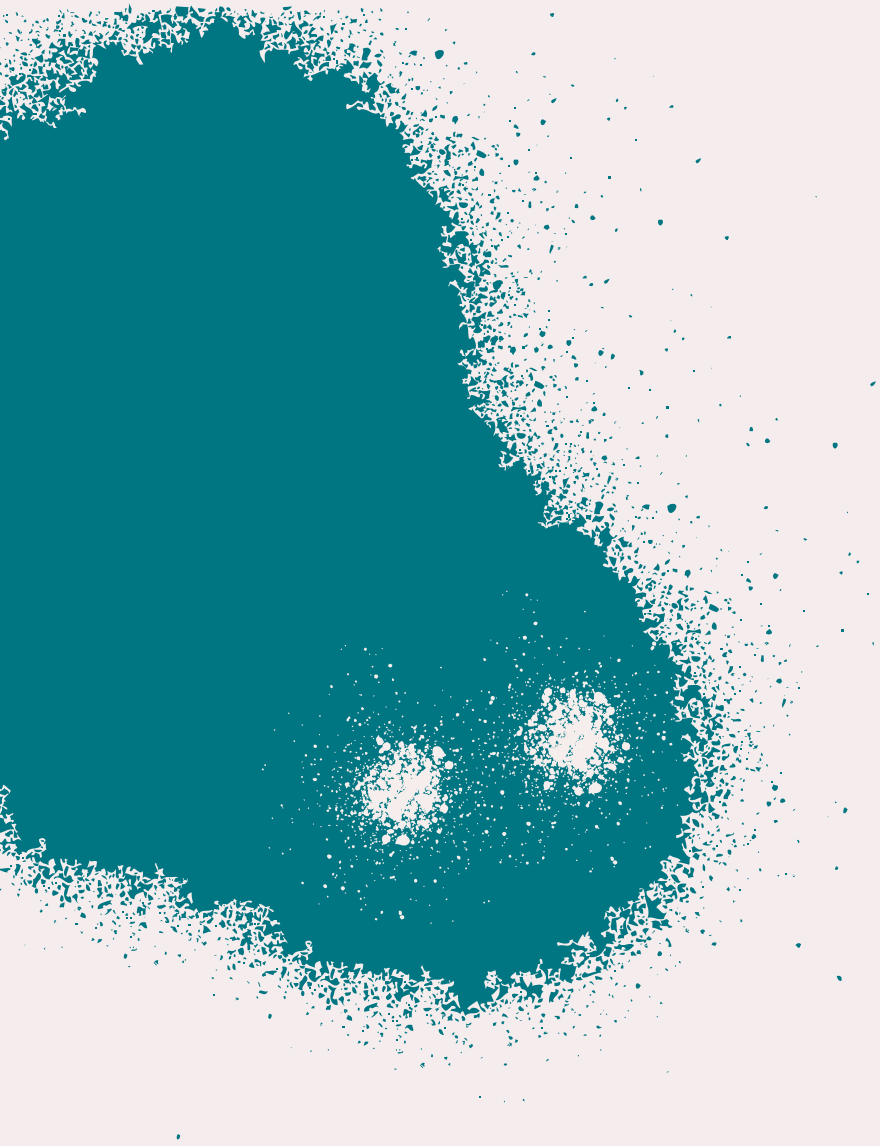
As a relational framework for change, commoning has strategically been positioned as a facilitator for creating collaborative spaces conducive to learning, exploration, experimentation and reflection. Grounded in nurturing 'readiness' (Bateson, 2022) through collaboration infrastructures, commoning prompted a deeper exploration of Bateson's theories on double binds, warm data, transcontextual research and her core ideas around 'ready-ing', to unveil a more nuanced understanding of how commoning may impact organisational change. The research analysis suggests that, while changes may seem modest and incremental due to their relational nature, they serve as crucial starting points for broader shifts, encompassing mindsets and paradigms that support the flexibility of living systems, cultivating a readiness for change (Bateson, 2022). Therefore, the Commoning by Design framework aims to strengthen an orientation toward the relational qualities inherent in the commons. It provides an inspirational, flexible and relational approach to contemporary design practices (7.2.4.1) that seek to prioritise relationality and planetary health.

Exploring commoning impact, outcomes and risks of co-optation in this chapter unpacks a more comprehensive understanding of commoning as a relational framework for future design practices. The discussion emphasises the need for the intentional application of commoning practices through a tiered approach, encompassing micro, meso and macro levels (7.2.4.2). While the micro-level findings are supported by empirical evidence in this thesis, the meso and macro levels are presented as conceptual frameworks requiring further validation. The tiers of commoning have been illustrated in a visual breakdown and highlight the potential outcomes, actors and goals at each level. The discourse continues to navigate potential risks of co-optation within existing neoliberal systems, encouraging reflection on the integration of commoning within current economic frameworks. In exploring potential future scenarios, this section delves into the coexistence of various economic possibilities (7.2.4.3) and acknowledges the feasibility of incorporating commoning principles into existing structures. It also provides examples of organisations operating within contemporary economic frameworks while actively adopting commoning approaches.

CHAPTER 8

Conclusions

Summary of the research



The last chapter summarises the research findings in the context of the research aim and questions. It will assess the contribution made to knowledge creation while addressing the study's limitations. The chapter will conclude by outlining potential directions for future research, building upon the identified gaps in the current research exploration.

8.1 Summary of the research

After more than five years of research and almost two years of extensive engagement with the case study site, involving a great number of interviews, participant observations and a series of action research activities, the journey led to the adoption of commoning principles for contemporary design practice in order to explore a relational framework for planetary health and 'redesigning design'. This section summarises the thesis by addressing research questions, aligning findings with the thesis aim and concluding with insights into the broader significance of the research.

8.1.1 Recap of the thesis

This thesis investigated the challenges in contemporary design practice related to planetary health and explored the development of a relational framework for transitioning systems towards it. It looked at incorporating theoretical disciplines typically outside of design theory. These include general and social systems theory, posthumanism theory and economic theory encompassing regenerative economics, post-growth and the commons. **The research aim was to explore challenges in contemporary design practice related to planetary health and develop a relational framework for transitioning systems towards it.** The theoretical investigation gave rise to three working hypotheses that guided the research questions in subsequent fieldwork:

1. The **first working hypothesis** posited that there were knowledge gaps in contemporary design practice regarding systems. **Research question 1 (RQ1)** explored how commoning could address these gaps to facilitate designing for living systems.

2. The **second working hypothesis** suggested that a human-centric and growth-oriented paradigm limited designers' imaginations. **Research question 2 (RQ2)** investigated how commoning could enable a shift from a human- and growth-centric paradigm towards a more relational approach.

3. The **third working hypothesis** highlighted the lack of understanding of how to foster sustainable and collaborative governance through design. **Research question 3 (RQ3)** explored how commoning could inform contemporary design practices to facilitate the creation of collaboration infrastructures.

Methodologically, the research used a combination of ethnography, observations, quantitative research, organisational ethnographic case studies, discourse analysis and a theoretical framework derived from the theory of the commons. **Chapter 1** provided an overview of the dissertation, detailing the author's personal motivation, the research context, a summary of the research aim, the positioning of literature, and the structure of the thesis, serving as an introductory entry point to the study.

Chapters 2 and 3 form the theoretical foundation of the thesis. **Chapter 2** traced the evolution of contemporary design practice, specifically within the service design domain, exploring its development, process, limitations and emerging issues in applying service design to complex systems. The discourse points towards a need for service design to evolve into a systems-led, critical and decolonising practice,

emphasising broader applications beyond services to encompass systems and human/non-human relations. This chapter navigates the evolving nature of design, focusing on shifting from traditional problem-solving to embracing pluralities. It concludes by defining the *research aim*.

Chapter 3 evaluated the role of contemporary design practice in promoting planetary health. Three additional theory inputs were introduced — systems theory, economic theories including regenerative economics, and degrowth and the commons — to refine the research questions and address design practice gaps. The discussion highlighted inadequacies in design when it comes to addressing ecological degradation and social inequalities, emphasising the necessity to disentangle design from mechanistic, colonial and neoliberal foundations. The transformative power of the commons is explored. Theoretical insights based on Elinor Ostrom's research emphasised that the commons, driven by bottom-up initiatives, prioritise meeting people's needs over market exchange, aligning with essential degrowth values. The chapter refined the *theoretical framework* and *three working hypotheses and research questions*, categorising planetary health challenges as information, imagination and governance challenges within contemporary design practice. It proposed using these categories as a lens for analysing subsequent fieldwork to address practice gaps and understand how commoning approaches may help to address these.

Chapter 4 presented the research methodology, employing three interconnected lenses: Saunders' research onion for conceptual and philosophical grounding, Dewey's pattern of inquiry for a pragmatic and interpretive approach, and Frayling's distinction for creative research methods. The methodology was crafted to align with conceptual and philosophical underpinnings, while integrating practical and creative approaches to thoroughly investigate the three research questions. This chapter provided a comprehensive overview of the chosen research design, emphasising the 'why', 'what' and 'how' of the study through these interconnected lenses.

Chapters 5 and 6 present the empirical research. **Chapter 5** presented findings from initial scoping research and participatory co-design workshops, conducted to inform the design of the case study ethnography. It identified an initial set of challenges in contemporary design related to planetary health and highlighted positive enablers aligning with Ostrom's principles. The participatory workshops validated the effectiveness of commoning principles before entering the main empirical research phase. They underscored the importance of beginning commoning processes with an awareness creation phase and resulted in 60+ ideas for commoning activities based on Ostrom's original principles.

Chapter 6 explored a case study of a global sportswear manufacturer, testing commoning principles for future design practices. The study involved interviews, observations and action research to analyse organisational planetary health challenges, validate working hypotheses and explore the research questions through prototyping of commoning activities. It demonstrated the potential of commoning approaches to address planetary health challenges, bridge knowledge gaps and foster regenerative design. It also showed how commoning could create space and infrastructure to acknowledge nature and its actors, fostering collective imagination for degrowth and common futures amidst conflicting interests. The analysis underscored how the commons can foster collaboration infrastructures and synthesised a catalogue of potential commoning activities. They emphasised the necessity of a flexible Commoning by Design approach, adaptable to specific needs and acknowledging the transcontextual nature of the planetary health challenges.

Chapters 7 and 8 analysed the research findings and answered the research questions. **Chapter 7** introduced the Commoning by Design Framework, a deliberate and relational approach to synthesising commons-based principles for design practice. The framework consists of a guiding commoning compass, a canvas and a set of cards that design practitioners can experiment with, including

reflections on potential use cases. The subsequent discussion analysed the empirical fieldwork in the context of the research aim and questions, revealing three key insights. These insights highlight commoning's ability to unveil invisible relational structures, inform the design of human/non-human relations, and crucially, foster states of 'readiness' for transformative change by establishing collaborative infrastructures across teams, departments and organisations. The chapter also examined the potential impact, outcomes and risks of commoning approaches, stressing the importance of intentional application at micro, meso, and macro levels. It concludes by exploring the integration of commoning into existing economic frameworks to foster coexisting economic possibilities while addressing the associated risks of co-optation.

Chapter 8 concludes the thesis, with an overview of the research process and its key findings. It emphasised the thesis' contribution to knowledge within the contemporary design discourse, in design research methodology and within the commons discourse. It critically examined the limitations of the research and offered insights into potential avenues for future exploration, concluding with thoughtful remarks that encapsulate the study's broader implications for the field.

8.1.2 Answering the research questions

8.1.2.1 RQ1 How might commoning address knowledge gaps in contemporary design to facilitate designing for living systems?

The first working hypothesis proposed that there are inherent information and knowledge gaps concerning how systems operate, constitute and reproduce themselves in contemporary design practice. The case study, aligning with Working hypothesis 1, affirms the existence of these intrinsic gaps not only in the understanding of the operation, constitution, and reproduction of systems but also across domains such as economic theory, ecology, and natural science. Information challenges primarily stemmed from a lack of expertise and insights across various cross-functional areas within the organisation, spanning sustainability, EU regulations, material science, ecology and economic drivers. These challenges were further exacerbated by a breakdown in information flow.

To explore RQ1, the study prototyped various commoning activities, including Urgency Alignment sessions, the ESG Wheel, the Shared Purpose map, SES Ecosystem mapping and Planetary Actors cards. The Urgency Alignment and the ESG Wheel underscored the significance of adopting a living system perspective, bringing attention to essential knowledge gaps within environmental, social, and governance aspects of sustainability. The Shared Purpose session helped research participants identify knowledge gaps by steering discussions towards desired future practices. The SES Ecosystem map visually portrayed the sustainability landscape, also revealing critical information and relationship gaps to the team. This visualisation highlighted opportunities for service design and sparked discussions on addressing deficiencies for enhanced sustainability impact in the future. While the Planetary Actors cards offered a practical approach to considering non-human needs, their effectiveness was limited due to a focus on individual actors rather than their interrelationships.

While the research revealed the need for further refinement of commoning activities, it also underscored their potential. The findings emphasised that, despite requiring improvement, existing commoning prototypes have already demonstrated their capacity to identify knowledge gaps, nurture curiosity and inspire teams to explore new territories. Participants recognised the need to integrate sustainability earlier in their design process, exposing a lack of expertise in setting necessary priorities for future transformations. The fieldwork highlighted the ability of commoning to make visible the invisible, creating liminal spaces for participants to explore and visualise broken links in communication

and information flows across the organisation. Commoning activities as prototyped in this research, facilitated a departure from conventional and linear design patterns, fostering systemic awareness and increased planetary consciousness. Not only did this enable team members to align on their values, but it also provided a platform for experimentation. The insight gleaned from 'making visible the invisible' emphasises interconnected and relational information, often unseen within a complex organisational system. Consequently, commoning activities revealed somewhat hidden dimensions in complex systems, unearthing contextual richness and dynamic interrelationships.

In relation to RQ1, the research demonstrated that commoning, through its refined principles and prototyped tools, can effectively address knowledge gaps in contemporary design. By bringing invisible aspects to light, it concentrates on identifying gaps, fostering awareness, and laying essential groundwork for designing for living systems.

8.1.2.2 RQ2 How might commoning enable a shift from a human and growth-centric paradigm towards a relational and regenerative design practice for planetary health?

The second working hypothesis suggests that designers' imagination is somewhat restricted by the human-centric, neoliberal economic paradigm, limiting explorations of human/nature interconnections. Confirming Working hypothesis 2, the research affirms that designers' creativity faces constraints not because they lack the ability to envision alternative economic scenarios but rather due to their adherence to the predicaments of current economic systems. Design practice often falls short of adequately challenging anthropocentrism within project work, remaining deeply entrenched in existing business mindsets. These mindsets are often based on design briefs geared toward increasing net sales, enhancing customer experiences or improving system efficiencies. Limited imagination predominantly arises from alignment with short-term business cycles, growth-focused underlying business structures and KPIs and a lack of regenerative thinking.

In addressing RQ2, the analysis of commoning sessions — including the Urgency Alignments, Commoning Design workshop, SES Ecosystem mapping, Collaboration Canvas and Planetary Actors cards — reveals insights into how commoning principles can nurture relational and regenerative design practice for planetary health. The Urgency Alignment session raised awareness of the need to move beyond a growth-centric paradigm, grounding participants in a regenerative perspective and nurturing hope and imagination. The ESG Wheel deepened sustainability understanding, sparking discussions on prioritising social and governance aspects beyond the growth paradigm. The Commoning Design workshop, driven by reframed commoning principles, prompted a reimagining of economic structures by acknowledging ways to include nature and non-human actors and stimulating ideas for relational design activities beyond conventional methods. The SES Ecosystem mapping, the Collaboration Canvas and the Planetary Actors cards underscored how commoning can emphasise an inclusive approach, guiding a more interconnected design practice that considers non-human elements, while encouraging participants to envision practices and values that engage humans with their environments.

Engaging in commoning activities, research participants recognised the significance of adopting a design approach centred on relationships and regeneration for the planet's wellbeing. In response to this realisation, ‘Commoning by Design’ emerged as an approach for experimenting with methods that consider non-human entities within existing business frameworks. This approach introduced a distinct perspective for contemporary design practice, emphasising inclusivity and creating caring infrastructures. However, the impact of commoning in shaping these caring relationships is contingent on where commoning practices are implemented within an organisation. At higher levels of the organisation, commoning can have considerably more potential to affect change, requiring the involvement of leaders and decision-makers. On the other hand, at lower organisational levels,

commoning remains valuable for raising awareness and inspiring creative initiatives within the scope of participant influence. In either scenario, commoning involves helping people work together to steward responsibly, aiming to create a just and equitable world.

In relation to RQ2, the research revealed that, through engagement in commoning, individuals explore diverse methods of collectively taking care of things. Even in situations where integrating new ideas into the fabric of the organisation proved difficult, commoning improved planetary awareness within the design team. This shift directed focus towards practices and methods that, at the very least, acknowledge and consider the needs of non-human entities.

8.1.2.3 RQ3 How might commoning inform contemporary design practice to facilitate creating collaboration infrastructures?

The third and final working hypothesis suggests that contemporary design lacks an understanding of how to support sustainable and collaborative governance. In line with Working hypothesis 3, the case study revealed significant gaps in knowledge and understanding of sustainable and collaborative governance. Governance emerged as the primary challenge, marked by substantial collaboration barriers, a profit-centric leadership mindset, and a reliance on external forces for change. Despite the importance of overcoming political dynamics and conflict resolution for advancing sustainability as a relevant topic for business transformation and service design, the design team demonstrated a lack of awareness and strategies to address these challenges. While acknowledging these gaps, the team faced persistent constraints, not only in terms of time but also in having the necessary know-how to effectively tackle them.

To address RQ3, the research prototyped a series of activities using commoning principles as a guide to establish connections and relationships necessary for collaboration. The ESG Wheel served as a platform for discussion, increasing awareness about the need to collaborate across teams and functions, including engagement with external experts in ecology, natural sciences and the economy. The SES Ecosystem map exposed relational gaps and deficiencies in collaboration infrastructures. Although not fully resolving these gaps, the mapping exercise heightened team awareness and provided insights into key opportunities to enhance cross-functional collaboration. Grounded in commoning principles, the Collaboration Canvas proved valuable for increasing transparency of information and proactive conflict management, offering a framework for more intentional design of collaborative efforts within projects. The Commoning Design workshop resulted in tangible ideas for commoning activities and infrastructures conducive to collaborative practices. These ideas provided practical entry points for creating necessary infrastructures. For designers, incorporating commoning principles through commoning activities informed how to design more successfully for sustained participation, extending to understanding how diverse communities of users, encompassing both human and non-human entities, could more effectively collaborate based on sustainable resource management practices.

The research findings underscored that effectively addressing planetary challenges within organisations requires acknowledging the interconnected nature of these challenges. While breaking free from siloed and compartmentalised thinking is crucial, the findings also revealed that collaboration infrastructures do not spontaneously emerge from co-design processes; they require intentional design. Here, 'design' encompasses the creative activities of planning and arranging people, infrastructure, communication and material components to deliberately shape collaborative environments and structures.

Drawing insights from evolutionary principles of cooperation is essential for fostering collaboration and relational dynamics among diverse stakeholders—an often-overlooked aspect in current service and business transformation practices. Establishing these infrastructures can be viewed as a strategic preparation, laying the groundwork for effectively addressing and resolving planetary health challenges. Commoning, with its characteristics conducive to Bateson's concept of 'ready-ing', nurtures flexibility, communication, and openness along multiple pathways. Consequently, the research proposes Commoning by Design as a potential lens and practice through which design can facilitate the ready-ing process, grounded in cooperation and collective imagination. Consequently, commoning can inform design practices in creating conditions for systemic preparedness, enabling adaptive responses to complex and interconnected challenges and thereby promoting the establishment of collaborative structures.

In response to RQ3, the research demonstrated that commoning can foster collaborative and relational possibilities in contemporary design practice. It not only confirmed the significance of intentionally designing collaboration infrastructures but also highlighted that commoning principles can guide future design practices, serving as a supportive framework for interventions that tackle prevailing planetary challenges.

8.1.3 Meeting the aim of the thesis

At the outset, I formulated a set of working hypotheses around the idea that design theory, practice and pedagogy are currently ill-equipped to effectively deliver the new knowledge, understanding and transformative change required to tackle the complex challenges of our times. To foster healthier futures, it was argued that design needs to evolve into a practice capable of embracing collective and relational approaches. In this thesis, 'contemporary design practices' served as an overarching concept, emphasising inquiry-based approaches to design that prioritise relationality and planetary health in addressing complex challenges beyond conventional problem-solving methods. While acknowledging the emergence of various design disciplines driven by an urgency for change, the adoption of the term 'pluriversal contemporary design practices' underscored the importance of unity and shared principles amidst diverse perspectives to tackle ecological, social and governance issues. Against this backdrop, the goal of this thesis was to explore the challenges in contemporary design practice related to planetary health and to develop a relational framework that facilitates systemic transition towards it.

The research then thoroughly explored the landscape of challenges related to planetary health that contemporary design practice faces when engaging with complex organisations. During the data analysis process, I uncovered the profound interconnections among these challenges. This discovery led me to explore Bateson's theories, ultimately affirming the notion that design must increasingly engage with and consider the transcontextual nature of these challenges. These insights also underscored the importance of relationality and highlighted the need for more informed frameworks when designing for systemic change in complex systems. The entanglement of challenges suggested that interventions may simultaneously need to address and impact multiple planetary health challenges, highlighting their systemic and transcontextual nature.

Testing and prototyping approaches to contemporary design practice, grounded in the commons and evolutionary science of cooperation, and focusing on the collaborative aspects of both humans and other species, have facilitated the development of a framework for relational design. While the scale of relational design interventions in the case study was small – taking place within teams and encouraging them to challenge and redefine their own practices – the findings showcased how even small changes within existing organisational frameworks have the potential to strengthen social cooperation, collaborative infrastructures and a consciousness for both. They emphasised how

commoning activities generate awareness regarding the imperative for change and the necessity to question neoliberal growth-based structures. This serves as a potential starting point or 'readying' stage for change.

The analysis concludes that Commoning by Design, as a pluralistic and transcontextual practice, could serve as a viable transitional tool within contemporary economic structures. This assertion is supported by examples of commons-based organisations and by the findings of commons-based scholars (Bollier, 2021; Kostakis & Bauwens, 2014; De Angelis and Harvie, 2014), who previously argued that the cumulative effect of potential changes may shape a profoundly different worldview from the one currently prevailing. But it also requires further longitudinal research for validation.

Drawing from Bateson's concept of 'ready-ing' (2021), a relational framework for contemporary design to transition towards planetary health is just a starting point. 'Ready-ing' underscores the preparatory nature inherent in transitions, calling for a relational design approach that is anticipatory, responsive, and capable of adapting to emerging complexities. Supported by Bateson's ideas around the 'transcontextual', the research highlights that commoning, in itself, is not a prescriptive model but requires flexibility and adaptability for contextualization. The commoning tools prototyped in this research are activities suited to the case study context and should be regarded as inspiration and stepping stones for further experiments with commoning by design. The point being, that there is no singular answer to designing a relational framework for contemporary design practice. The literature review, exploring developments in design, has shown various design disciplines evolving in response to our polycrisis, entering a pluralist realm that breaks the linear mould of previous design-thinking practices. There will not be a 'right' set of concepts to learn, only inspirational examples of methods or lenses for examining challenges and exploring complex systems at different levels – with different purposes and goals in mind. "All models are wrong, but some are useful" (Box & Draper, 1987) and, as such, through exploring Commoning by Design, I believe the research succeeded in conceptualising the commons as a way to re-evaluate contemporary design practice towards planetary health.

8.1.4 Implications of the research findings

Why does any of this matter? The technocratic and mechanistic mindset of today's Western society is characterised by a solutionist understanding of the world, where technology is viewed as the answer to most problems caused by us humans. We see this as an approach to the polycrisis and, within design, we are known to have a solution-oriented, extractive practice, too. Many people still believe that we can keep going and resolve our problems by inventing more technological solutions, using a mindset that created the problems in the first place. Rooted in the ideals of reductionist science[11], this mindset has been identified as seeking to control and dominate nature, people and cultures. The consequences are stark — companies grow at the expense of planetary health and continue to deplete planetary resources. This perspective, embedded within a capitalist paradigm, sees creative inventions as a way to commodify the market to support continuous exponential growth often through technological progress. Think about the internet. Initially seen as a philanthropic opportunity for collaboration, it has taken a turn towards economic exploitation, as the focus shifted to market expansion through digital technology. Services, initially seen to support dematerialisation of our economy, have been found to rematerialise, instead, supporting growth through customer-experience design and operational-process

[11] The reductionist approach in science, with roots traced back to figures like René Descartes and Sir Francis Bacon during the Scientific Revolution, involves understanding complex phenomena by breaking them down into simpler components. Descartes advocated for a mechanistic worldview, while Bacon emphasised empirical observation and experimentation. This reductionist perspective laid the groundwork for the development of classical mechanics and became integral to the scientific method across various disciplines (see for instance Bacon, 1620 and Descartes, 1637)

optimisation. Green growth, which initially sought to focus on decoupling GDP from emissions, failed to provide scientific evidence of actually having happened in the timeframe we need it to.

Attempts to address and partially resolve aspects of our crises reflect the mindset that contributed to their occurrence. In economic terms, a designed service became a transactional and linear endpoint that had to be reached faster and cheaply. The emphasis on efficiency, cost-effectiveness and rapid outcomes exemplifies what is at the core of neoliberalism today. Much of today's design activity reflects this neoliberal mindset that has wrapped itself into every niche of our economy. Consequently, a significant challenge arises from our tendency to approach complex, nonlinear issues with strategies fixated on predefined outcomes. This approach often results in actions that are detached from the dynamic and transcontextual nature of our planetary challenges, as proposed by Bateson (2021). It gives rise to unintended consequences and many double binds, underscoring the pressing need for an alternative mindset to effectively address the issues of our times.

Reflecting on this research in the context of planetary health and regenerative economics, it is clear that the postwar period of economic growth and expansion, amplified by digitalisation, has come to an end. Similarly, libertarian arguments justifying market-centric approaches through the lens of Darwin's 'survival of the fittest' have proven inadequate. Shifting our mindset away from the emphasis on speed, quantity and cost towards one that prioritises life will not be easy. Nonetheless, it is crucial that we actively explore and embrace alternative ideas and approaches to bring about change. A closer look at Darwin's work reveals a nuanced interplay of cooperation and collaboration in nature (i.e. Bryant and Brown, 2021), contradicting the simplistic notion of relentless competition based on differentiated and measurable change. It is time for our economy to embrace an evolutionary understanding, recognising that entities thriving in cooperation are more likely to endure. This includes tending to the often unseen flexibilities of living systems that are about interconnection, entanglement and always producing readiness for change. And so it is time for contemporary design practice, too, to break out of those neoliberal ties, adopt more relational approaches and increasingly create the conditions for change.

The thesis argues that, in some places, a fundamental shift is already underway. Active movements and practices are advocating for regeneration and degrowth. The commons, far from being a vague utopia, already exist, coexisting with deeply cooperative methods of reorganising economic foundations and provisioning systems. We are transitioning from perceiving change and innovation as outcomes of specific actions to viewing them as consequences of systemic 'ready-ing' (Bateson, 2023). And many people recognise the very importance of functioning collaboration infrastructures in this context. Now is the time not to fall back into linear thinking, but to adopt what we can learn from the evolution of cooperation. Discussing the findings revealed that the more crucial element in systemic change might, in reality, be a preparatory phase that precedes actions through small relational steps of awareness, contemplation and connection — to embrace a state of readiness that can later enable unforeseeable actions to unfold. The research suggests that commoning can actualise small relational steps, recognising humanity's inherent social nature and the essential role of cooperation for survival. Therefore, at its core, this research proposes that the commons, or commoning, can serve as a means to foster readiness by emphasising the creation of conditions conducive to change rather than effecting the change directly. Through shared resources and collaboration, the commons cultivate an environment that nurtures the potential for transformation and relational shifts towards pro-social and cooperative values.

'Commoning by Design' emerged as a way to help designers leverage the theory of the commons to reorient design practice based on pro-social values and collaboration. It advocates for a relational stance to designing, highlighting that being part of our planet is a deeply collaborative effort. It builds on the idea that while design has historically been emphasising processes of co-design, it has often

neglected what can be learnt from evolutionary dynamics of cooperation and the conditions supporting our cooperative tendencies. Territorial and siloed thinking within organisations is deeply ingrained in an extractive, competitive and market-oriented mindset. Commoning by Design seeks to slowly rewire this mindset through the fabric of community and pro-social behaviours inherent in the commons. Rather than isolating individuals, cooperative approaches foster connection and team collaborations, creating shared purpose and the infrastructures to embed and sustain it. Thus, Commoning by Design extends an invitation to embrace cooperative principles more deeply within design practice, steering away from competitive and extractive paths.

Aligned with Bateson's concept of aphanipoiesis – the theory of how systems coalesce in unseen pre-emergent ways – commoning focuses on those often unseen, relational elements. Deliberately designing or controlling systems contradicts the imperative of life. The commons and commoning, as advocated in this thesis, adopt an aphanipoietic lens to understand the nature of change. Instead of attempting to dictate outcomes or predetermine events, the focus shifts towards creating optimal conditions for transcontextual collaboration.

Commoning activities, including mapping ecosystems and relationships, seeking shared purpose, and balancing interests and contributions, are approaches to cooperation that might enable solutions we are yet unable to foresee. By centring our design processes on 'ready-ing' change, the philosophy underlying Commoning by Design supports the idea of designing the conditions for life and planetary health. From there, I am certain, life in its dynamic and emergent form will make itself.

8.2 Contribution to knowledge creation

This thesis presents a unique contribution to knowledge at the intersection of contemporary design practice—critical design approaches that prioritise relationality and planetary health—and the commons discourse. It provides insights into how commoning approaches can be embedded in today's service design practices to address gaps in prevailing knowledge, imagination and governance practices. Drawing on critical design theory, systems theory, posthumanism, and commons theory, this research builds upon the insights of scholars in the field of commons and design, including the work of Seravalli et al. (2017), who examine the application of commoning within public sector innovation, and Teli et al. (2022), who explore intermediation practices that facilitate commoning processes. Expanding on their contributions, this thesis presents a multi-level perspective to commoning by design that offers a nuanced understanding of how to design for planet-centricity through the lens of the commons, specifically tailored to organisational contexts.

8.2.1 Contribution to the contemporary design discourse

This research explores **new directions in the evolution of contemporary design practices based on the commons**. Insights drawn from a comprehensive literature review, along with the practical implementations of commoning approaches in design (e.g., Seravalli et al., 2017), highlight the need to shift towards relational design inherent in contemporary pluriversal design practices. These innovative and critical design approaches — framed as contemporary design practices in this thesis—prioritise relationality, purpose and planetary health over traditional hierarchies, advocating for pluralities and decentralisation. They emphasise the designer's role in strengthening relationships, especially in sustainability and regeneration-led projects. This approach is supported by Teli et al.'s existing work (2022), who highlight the role of commoning intermediation facilitated by designers in enhancing these relationships. Consequently, the thesis advocates for a **commoning approach that prioritises designing systemic conditions over solutions.** This shift redirects the focus from co-design as a

by-product of Design Thinking to a more intentional design activity guided by commoning principles, a perspective also supported by Botero et al. (2020) in their examination of how commoning principles can foster community-led design. This relational activity centres on creating **collaboration infrastructures** that are crucial for our emerging futures. Empirical studies conducted within a real-life organisational context focused on business transformation offer **new insights into how commoning within contemorary design practices and neoliberal contexts can manifest**. These insights extend from improving project collaboration to establishing new commons and moving commoning approaches beyond urban or digital settings into organisational contexts. As such, the research also **critically examines the interconnectedness of design with neoliberal economics**, emphasising the imperative to challenge this prevailing paradigm, which could be achieved gradually through the commons. These findings lay the foundation for an evolved design approach centred on relationality, built on the commons as an alternative economic foundation to address gaps in knowledge, imagination and governance practices.

8.2.2 Contribution to design research and methodology

The thesis makes a specific contribution to design research and design methodologies by exploring the potential of the commons as a framework to guide the evolution of design practice towards greater relationality. Chapters 6 and 7 present findings that constitute an original contribution to knowledge, advancing our **comprehension of how the commons, or commoning, can support relational and planetary design**. While the concept of relationality has been a focal point in design discourse for some time, often advocating for a shift in practice, this research demonstrates the practical application of **commons-based perspectives to inform design methodology**. By adopting a commons lens, the research reveals how commoning can inform the design process, providing valuable guidance on the types of tools and methods necessary to foster improved relationships. This goes beyond the conventional approach of co-design, instead offering a more nuanced understanding of how to co-design intentionally to engage with systemic actors more successfully over time. Essentially, this research contributes a **practical dimension to the discourse on relational design**, by demonstrating the applicability of commons-based perspectives in shaping design methods. By offering concrete insights into activities that support relationality within an ecosystem, it paves the way for a more informed and intentional approach to co-design, thereby enriching the toolbox of design methods. This work builds on and diverges from Teli et al. (2022) by applying commoning not just as a theoretical framework but as a **practical intervention within an organisation entrenched in neoliberal economics**. While commoning is often envisioned in opposition to neoliberal principles, this research demonstrates its application within such contexts, suggesting a gradual path towards regenerative economics. It is argued that this **nuanced application allows for the temporary co-existence of economic paradigms to transition towards peer-to-peer regenerative economics**. It acknowledges, as De Angelis (2014) emphasised, the risks of appropriation when commoning principles are implemented within neoliberal frameworks, requiring careful consideration to avoid undermining the transformative potential of commoning.

The thesis also contributes to design research through its cross-disciplinary methodology, which uses methods from social-ecological systems rooted in social and systems theory and ecology research. It incorporates observations and interviews from ethnographic research and participatory co-creation from design research, merged with action research. This approach allows for a holistic analysis of research insights. The analysis extends beyond theoretical discussions, offering specific insights into the activities required to identify, create and strengthen relationships within an ecosystem.

8.2.3 Contribution to the commons discourse

Furthermore, this thesis constitutes an original contribution to the commons discourse, particularly through its **unique application of commons theories and practices within the global commercial capitalist economic context**. It **expands the concept of the commons into the realms of design and change theory**, testing and developing **designed approaches to commoning** as a means to evolve design practice and facilitate organisational transformation. By drawing on foundational principles outlined by Ostrom (1990) and adapting them within the context of contemporary organisational challenges using a multi-level perspective (Geels & Kemp, 2000), this research introduces a **novel application of commoning that addresses the complexities of transitioning from neoliberal to regenerative economic practices.**

Three tiers elucidate how the levels of a complex societal system are nested and interconnected through transcontextuality, comprising various patterns and mechanisms through which Commoning by Design can contribute to transitional change. By exploring commons theory in the context of contemporary design practice limitations, the research uncovers **new possibilities for integrating commoning principles** into collaborative infrastructures and, ideally, for creating entirely new commons. As such, Common scholars can also leverage design practice for creatively applying commoning activities, shifting from retrospective analyses to a proactive stance. This contributes to the commons discourse by offering a **practice-led approach to actively creating and establishing new commons-based structures.** This approach is innovative in its acknowledgment of the coexistence of diverse economic paradigms and the specific risks this coexistence entails.

By reflecting on existing commons literature (Bollier & Helfrich, 2012; Seravalli et al. 2017, Botero et. al 2020, Teli et. al, 2022, Poderi et.al, 2022, Schranz et al, 2023) on the efficacy of commoning practices in fostering collaborative and sustainable design, this research explores how similar strategies can be employed in more traditionally structured organisations, navigating the nuances of neoliberal frameworks. This not only challenges but also enhances our understanding of how design practices influenced by commoning can contribute to significant organisational shifts towards sustainability and regeneration. Through its practice-led approach, this research offers valuable insights into **actively creating and establishing collaboration infrastructures inspired by the commons.** By exploring how these infrastructures interact with economic scenarios, the study **contributes to the ongoing discourse on the potential of the commons to drive economic change.**

8.3 Limitations

The findings of this case study are subject to a series of limitations that warrant acknowledgement. While in the past, I have consistently and with ease designed appropriate research methodologies in my project work, creating the methodology for this research proved complex and challenging. This may stem from my desire to avoid perpetuating the same mistakes in my designerly approaches, including neoliberal, linear and extractive processes that the study has identified as needing reform and from recognising that similar mindsets often lead to the reproduction of results. The difficulty in identifying the right research questions, based on my broad literature research and then methodologically addressing them, was particularly difficult. The research initially explored planetary health challenges and their connection to contemporary design practices, driven by a sense that the existing design paradigm is inadequate for sustaining us into the future. Lacking a clear research question at the outset, but entering the process with a research interest, I immersed myself in broad topics – including design theory, planetary health, systems theory, posthumanism, regenerative economics, degrowth and the theory of the commons – to formulate a research aim supported through a set of research questions by way of a literature review. In retrospect, starting with a focused research question might have streamlined my methodology and allowed for a more targeted approach. Also I struggled with the fact that the empirical research remains within the realm of the current paradigm and dominant system, as the identification of case studies proved challenging. The case study focused on a large-scale corporate entity, which some might argue significantly contributes to environmental degradation. Ideally, I would have liked to have identified a case study context, within which I could have prototyped using commoning to create new commons that challenge underlying business models. This was not possible.

The literature review also presents limitations. Since its completion, there have been developments emphasising the need to decolonise not only design practice, but also the literature search, ensuring greater diversity in references (see 1.4). For example, the concept of planetary health, central to the research, has undergone a recent decolonisation debate, highlighting the importance of indigenous thought and stewardship. For this reason, the focus on planetary health literature has been omitted, and instead, planetary health and its associated challenge categories serve as the research context only. If revisiting the research and literature review, I would likely choose a frame centred on indigenous insights into planetary health interconnectedness, potentially altering the research focus. This brings attention to another limitation concerning the commons and commoning perspective, particularly in its inclination as a theory rooted in the Global North. Ostrom's work, predominantly based on case studies from European and North American contexts, prompts critics to argue that the distinct social, cultural and economic contexts of the Global South may render the application of Ostrom's principles inappropriate. Despite advocating for a fundamental paradigm shift in the literature review, emphasising the need for different design approaches and a reshaping of economic patterns, Ostrom’s commoning approach has been chosen, although it is recognised as a theory originating within the Global North. Ostrom's theory arguably assumes a Western legal framework, which is not only a limitation that fails to address the unique social, cultural and economic contexts of the Global South, but assumes that rules and guidelines shape human behaviours. Relying on designing 'principles' could be seen as reproducing an assumption that a rule of law guides human behaviours. Other commons scholars, such as Bollier and Helfrich, have developed alternative value-based models to conceptualise the commons, offering alternatives to Ostrom's core design principles, although these models are arguably still situated in close proximity to the Global North. This limitation underscores the necessity for further research at the intersection of the commons and initiatives in the Global South. Such research should explore structures that may share similarities with the commons, but might not necessarily rely on the concept of 'principles' to extract key characteristics and, subsequently, design for them, as proposed by this research.

Additional limitations revolve around the empirical research site and its resulting data, representing a singular case-study context with a perspective on commoning that focuses on its application as a means to transition existing neoliberal paradigms — an approach that understandably may raise scepticism (see discussion on co-optation 7.2.4.3). Concentrating on a single organisational context might limit the generalisability of findings, as the impact of applying commoning principles in different contexts may vary. It is crucial to acknowledge that the unique nature of the service design and business transformation team within the case study organisation may not represent all settings. While the empirical findings related to planetary health challenges may seem transferable to various organisational contexts, they should be viewed as a snapshot of a large-scale corporate organisation, and its internal service design and business transformation practice. Since the empirical research took place, the research site could have undergone changes and the findings do not reflect such developments. This underscores the conclusion that Commoning by Design artefacts should be treated as flexible guides that require ongoing contextualisation. While workshop templates and commoning activity descriptions may, to some degree, be generalisable across different contexts, they will likely need careful refinement for specific applications, such as creating a collaborative governance agreement for communal lands. A more appropriate approach for designers to consider the implementation of commoning, may be to use the Commoning by Design framework and tailor activities to their specific context. Finally, the empirical research study's time constraints limited testing to a prioritised set of commoning activities, based on relevance for the research participants and time availability. This emphasises the need for continuous testing and development of the Commoning by Design framework to create a more comprehensive set of commoning concepts. It underscores the dynamic nature of the commons and the understanding that commoning is an evolving process without a one-size-fits-all approach. There are plenty of unexplored tools and approaches within the commoning framework, which leave ample room for further research and development.

8.4 Future research and final remarks

The limitations section of this thesis has highlighted areas that, due to constraints in time, research scope, resources and context, could not be fully explored, which, rather than being endpoints, can serve as guideposts for future research directions.

Commoning across economic scenarios, from micro to meso to macro

The thesis proposes that commoning has the potential to influence contemporary design practices towards relational design, supporting organisations to transition towards planetary health. So far, the research has predominantly focused on the micro-level, examining commoning within an in-house design team. To create a more comprehensive understanding of how commoning approaches can be used proactively within design practice, future research should extend its scope to explore commoning at meso levels. This expansion would involve testing commoning in diverse contexts across economic scenarios as outlined by Kostakis and Bauwens (2014, 2015), focusing on ecosystemic awareness and cross-functional collaboration infrastructures. The research has also presented a compelling argument for extending commoning to a macro level to create economic alternatives through Commoning by Design. The exploration at this level, although speculative at this stage, builds on initial research findings from this thesis and aims to shift contemporary design towards a relational paradigm, facilitating organisational transitions to an emerging regenerative model that can include the creation of new commons. Based on my findings, which suggest that Commoning by Design has the potential to facilitate the creation of commons-based organisations and infrastructures, future research would need to include advancing our understanding of commoning in order to transition economic models from

capital to the commons, and identifying suitable case study contexts – something that I struggled with in this thesis. By incorporating various cases representing micro, meso and macro levels of commoning across the economic spectrum (outlined in 7.2.4.3), a more comprehensive understanding of the framework's impact could be achieved.

> ***A note on ongoing research at meso level***
> *A specific research direction, involving exploring commoning at the meso level to create cross-functional collaboration infrastructures, has already been initiated as a follow-up from this research. The ongoing research forms part of the proposed future research trajectory, focusing on testing commoning approaches within a design studio of a large consultancy headquartered in Sweden. It comprises 180+ designers specialising in creating customer experiences across diverse sectors, such as mobility, automotive, medtech, industrial and service design. Notably, this studio's design approach already prioritises sustainability as part of its organisational DNA and considers the planetary ecosystem as core to its design approach, a commitment that garnered senior leadership involvement in the research. This was a key requirement to increase impact of specific commoning activities, as highlighted in the case study research findings with the global sportswear manufacturer (see 6.3.1.2). The senior leadership team of the Swedish design studio recognised the research as an opportunity to enhance their approach to design and internal ways of working. Commoning by Design activities tested so far include two Urgency Alignment Sessions with senior leaders and the entire design team, an Environment, Social and Governance (ESG) Wheel workshop with the senior leadership team, and a Shared Purpose session to establish a collective team goal. The research is ongoing, with the intention to test commoning approaches derived from the thesis and add to them. The aim is not only to refine and expand the Commoning by Design framework, but also to develop different tools as a result of the Commoning Design workshop session and to understand how a commoning approach may influence client-facing project deliveries. This investigation seeks to deepen the understanding of the impact of commoning on information, imagination and governance challenges within a context that involves senior leadership's commitment towards planetary health and transformative business change. It explores how commoning can question and challenge the existing economic structures within the studio, contributing to a more sustainable and regenerative approach to the studio's design practices.*

Towards a Commoning Design community

Traditionally, commons literature, exemplified by Ostrom (1990), has focused on the governance of natural resources. Ostrom's comparative analysis of community-managed resources provides critical insights into conditions necessary to avoid a tragedy of the commons. Recently, however, there has been a shift towards employing commoning to create and maintain shared governance structures. Design scholars are increasingly drawing inspiration from the commons and integrating commoning principles into participatory design frameworks, although this integration remains somewhat niche (e.g., Seravalli et al., 2017; Botero et al., 2020; Teli et al., 2022). Seravalli's research demonstrates how infrastructuring and commoning can transform public service design by enhancing adaptability and responsiveness through relational strategies. Similarly, Teli et al. highlight the role of designers as mediators, fostering environments conducive to commoning and navigating the complex dynamics between communities and institutions. Building on these foundational insights, this research introduces a nuanced perspective that deepens the relational focus in design practices by incorporating Bateson's concept of aphanipoiesis—the theory of how systems form in unseen, pre-emergent ways. This study delves into the often-overlooked preparatory phases of systemic change within organisations through a commons lens, suggesting that the key to transformative shifts lies not only in specific actions but also in the readiness facilitated by incremental relational steps of awareness, contemplation and connection.

It posits that this readiness, cultivated through commoning, can enable unforeseeable actions to unfold effectively, thus advancing the application of commoning in design. 'Commoning by Design' consequently emerges from this practice-based research as an innovative approach that reorients design practice towards pro-social values and deep collaboration. It challenges prevailing competitive and extractive paradigms by advocating for a relational stance in design that recognises cooperation as integral to our planetary coexistence. This approach is pivotal in shifting siloed, market-oriented mindsets within organisations towards more community-focused and sustainable practices, reinforcing existing research that underscores the importance of designers' intermediary roles in bridging community interests with institutional frameworks (i.e. Teli et al., 2022).

However, perhaps most controversially, this research applies commoning within an existing capitalist organisational structure, critically examining the complexities of embedding commoning in neoliberal contexts. It demonstrates that commoning can function within economic transitional scenarios, potentially guiding the shift from neo-feudal cognitive capitalism to mature peer production based on the commons. This exploration emphasises that commoning is not a simplistic or linear approach but a pluralistic and transcontextual practice that requires varied strategies tailored to the specific transitional paths between capitalist and commons-based value systems. Future research could expand commons applications into the design community, intentionally fostering cooperation, collaboration, and relationality. Designers could catalyse a commoning movement in design practice, advancing 'designing commoning and commons' at its core. Such a movement could further explore the use of commoning as a heuristic or ethical guideline to align design practices with future planetary needs and, importantly, encourage the sharing and building upon each other's emerging insights. Building on Bateson's concept of aphanipoiesis, it is crucial to recognise that the dynamics of shifting and changing are inherently relational and responsive. Aphanipoiesis invites an approach to the study of living systems that acknowledges the mutual influence and alteration between organisms and ideas. Organisms and ideas engage in a continuous dance of mutual learning, allowing for both moments of stasis and transformative change. A Commoning Design community could channel its efforts into researching not only sympoiesis (Haraway, 2016), but also the emergence of aphanipoiesis (Bateson, 2021) through design. This involves a deep exploration of the intricate interplay between cultural and social dimensions. Researchers in this field could investigate how diverse cultural contexts shape and influence community engagement in shared practices. Such investigations could, in turn, inform the design of nuanced strategies that embrace and integrate a multitude of cultural perspectives within the evolving landscape of commoning. The study of aphanipoiesis through a commons lens could open up avenues for a more holistic and responsive understanding of how living systems, including design communities, navigate the delicate balance between stability and transformation.

The thesis only provides a starting point by translating commoning principles for design practice, proposing a 'Commoning by Design' framework along with a set of resources. While not exhaustive, this framework will no doubt require further research and refinement. There are many opportunities for novel research on the commons and contemporary design practice that could contribute to designing better governance of shared material and immaterial resources. Yet, the research findings suggest that tackling the complexity of planetary challenges necessitates a paradigm shift in our design approach. Redesigning design is key before we can effectively contribute to creating new conditions and outcomes that prioritise the wellbeing of our planet. Commoning can offer a pathway to guide design towards a deeper understanding of how to create meaningful relationships. Consequently, there is a compelling argument for practical engagement and experimentation with commoning within the design field to enable planetary change by design. Further research is needed to help designers understand the crisis of capital and extraction in the context of our polycrisis, including what it means for them and how the commons and commoning may help to meet ideologies that frequently disempower them.

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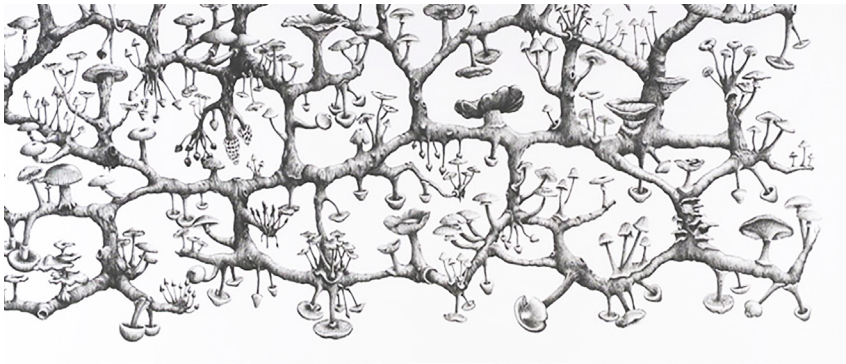
C. Supportive materials

Research information sheet: Expert practitioner survey (4.2.2.1)



WELCOME

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Thank you for taking a moment to find out more about the survey I am running as part of my PhD research, which investigates how design practice can better support system transitions towards planetary health.

In this first part of the survey (Round 1) I would like to hear about practitioners' experiences of applying design practice to tackle systemic challenges to achieve sustainable futures and planetary health (including the benefits and shortcomings of using a design-led approach). The survey will take approx. 30 min of your time to complete. In return, you will receive a set of findings which will include a synthesis of all survey entries (anonymised) and a fresh set of insights that can hopefully be relevant for your own practice. These findings will be open to feedback in a second survey round (Round 2).

On the following pages, I have included more information on what participating would entail. If you have any unanswered questions, you are very welcome to email me at j.schaeper1@arts.ac.uk

Many thanks for your time,

TWO-PART SURVEY INFORMATION SHEET 'RELATIONAL BY DESIGN'

RESEARCH OVERVIEW

In my doctoral research, I am exploring the contribution of contemporary design practice to achieving more sustainable futures and planetary health. My research addresses key challenge areas to achieving planetary health by exploring how we can:

1. leverage social system theory more fully to inform design practice,
2. integrate design with aspects of posthumanism to develop more relational thinking beyond human-centricity and,
3. build on Ostrom's economic theory of the commons to evolve cooperation, self-organization, and shared decision-making processes by design.

SURVEY AIMS

Alongside conducting case study ethnographies and interviews, I am carrying out an online survey using the Delphi method. The Delphi technique has proven to be a reliable approach in developing new concepts and setting the direction of future-orientated research. Through **two rounds of surveys, requiring a maximum of 60 min of your time,** it seeks the opinion of a group of experts to understand the extent of agreement, resolve disagreement on a specific issue and establish consensus across a range of subject areas. Given the increasing level of uncertainty caused by rapid technological and social change around the globe, collaborations and collective knowledge are likely to gain even more importance. The Delphi aims are threefold: first, to learn from respondents' experience of applying a design-led approach to achieve sustainable futures and planetary health; second, to test and validate hypotheses of how we might be able to leverage the economic theory of the commons to evolve self-organization, shared decision-making, and cooperation by design, and third to refine ideas of how to develop more relational thinking beyond human-centricity.

A TWO-PART SURVEY STRUCTURE

The survey will be broken into two parts using Google Forms. Each part will take around 30 min of the respondents' time to fill out. The first part of the questionnaire (Round 1) will focus on identifying issues and generating as many insights and ideas as possible by answering a series of multiple choice and open-ended questions about specific experiences respondents have had. The second part (Round 2) will look at providing anonymous feedback on all the insights, ideas and forecasts generated in the first round and provide opportunities to refine and evolve concepts and comment on their strengths or weaknesses.10-20 respondents will be chosen to participate of their expertise, specific knowledge, or experience of the topic area. Participants won't meet in person and won't be identified through the process as all entries are captured anonymously. In return for your time, you will receive a report of each survey round which I hope will provide you with insightful findings for your own practice.

USE OF DATA & CONFIDENTIALITY

Data, which will include written responses, will be captured electronically using the online survey tool Google Forms. I will ensure to keep your responses anonymous at all times. Survey anonymity will be guaranteed by switching the option to collect computer IP addresses to 'No'. Only I, as the researcher, will have access to the survey software account, and therefore the data stored within it, which will be used to create the survey. The data might subsequently be shared only with Academic Supervisors and may be monitored by the College Research Committee (CRC) and the 'University of the Arts London' Ethics Sub-Committee. The survey data will be stored on an encrypted hard drive and kept in file for 5 years after the date of publication, in case of possible use for future research. As a respondent, you can exit the survey at any point. However, you cannot withdraw any responses that have been made at the point of exit – if you wish to erase your responses before exiting the survey, you need to backtrack through the survey. Your survey responses will be captured with a view to be included and published in the outcome of the research. All materials gathered during this research will only be used for this research and associated publications. There are no risks or disadvantages related to this study, and your input will be invaluable. Please know that your participation is entirely voluntary. If you wish to leave at any time, this is fine.

Expert practitioner survey questions (4.2.2.1)

Dear participant,

Thank you for taking the time to help with my PhD research. Before we start, I need to collect your consent and share some research information with you, which you can download on the link below. If you have any questions before or after the survey, you are very welcome to email me at j.schaeper1@arts.ac.uk.

Download more information on the research here:
https://drive.google.com/file/d/1hSEgPV9_ZlxB9qLuc-7LDQciU0sj6Iai/view?usp=sharing

I agree to participate in the research project 'Commoning by Design'. I have read the information sheet for the study. I understand what I am being asked to do in this research and that all data will remain anonymous. I also understand how the data will be used and confirm that all my questions have been answered to my satisfaction. YES or NO

Your context

1. What type of organization do you work in?
   - Public sector (e.g. government)
   - Private sector (e.g. most businesses and individuals, including agencies)
   - Not-for-profit sector
   - Other

2. Which industry do you work in? (you can choose multiple answers if applicable)
   - Business, consultancy or management, Creative arts or design agency
   - Creative arts or design agency
   - Business, consultancy or management, Creative arts or design agency, Marketing, advertising or PR, Media or digital, Teacher training or education
   - Housing, construction or architecture
   - Charity and voluntary work
   - Business, consultancy or management, Creative arts or design agency
   - Business, consultancy or management, Charity and voluntary work, Creative arts or design agency, Environment or agriculture, Hospitality or events, Marketing, advertising or PR, Media or digital, Recruitment or HR, Social care, Teacher training or education
   - Charity and voluntary work, Science or pharmaceuticals, Bio-based and bio-inspired innovation
   - Environment or agriculture, Housing, construction or architecture, Teacher training or education
   - Business, consultancy or management, Charity and voluntary work, Computing or IT, Healthcare, Public services or administration, Social care

3. What is the size of your organization?
   - < 10
   - 10-19
   - 20-49
   - 50-99
   - 100-999
   - 1000-4999
   - 5000 or more

4. Where are you based?
   - Asia
   - Africa
   - North America
   - South America
   - Europe
   - Australia

5. Which of the following best describes your role in your organization?
- Upper Management
- Middle Management
- Junior Management
- Administrative Staff
- Support Staff
- Student
- Consultant & freelance
- Researcher

6. What is your title at your organization?

7. Have you been trained as a designer? If not, please add your background behind 'Other'
- Yes
- Other

8. How do you understand and apply the word 'sustainability' in your practice? As a reminder, the United Nations defined sustainability as meeting the needs of the present without compromising the ability of future generations to meet their own needs (UN WCED, 1987)

9. On a scale of 1 to 5, how important is the topic of sustainability to your organization, its business operations and client success? (1= Very Important, 5= Not Important)?

10. Which one of these is the main reason why sustainability is important to your organization?
- Urgency of climate, social & justice crises (external driver)
- Increased client demand (external driver)
- Organizational identity & purpose (internal driver)
- Employee interests & ambitions (internal driver)
- Individual need (internal & external driver)

11. Which of the following statements most likely applies to your organization?
- We have a strong desire to be more sustainable and have the right tools, processes and capabilities to get us there
- We have a strong desire to be more sustainable but are lacking the tools, processes and capabilities
- For us, sustainability is not a priority and we don't need to adjust our tools, processes and capabilities

12. How good of a job do you think your organization is doing with regard to environmental sustainability?
- Excellent
- Good
- OK
- Poor
- Just fair

13. Please give an example of what your organization is doing well/ poorly in terms of environmental sustainability

14. How good of a job do you think your organization is doing with regard to social sustainability?
- Excellent
- Good
- OK
- Poor
- Just fair

15. Please give an example of what your organization is doing well/ poorly in terms of social sustainability

16. In your view, what are the biggest challenges of getting organizations (your own and your clients) to transition in order to drive more sustainable futures?

Your experience

17. Please describe a project in which you were involved and used design for (social or environmental) sustainable systems change. This could be an internal or client facing project. Please state your project aim, objective, methods, year, outcomes, etc.

18. What were your role and responsibilities with respect to the facilitation and delivery of the project?

19 Please indicate which major stakeholder groups (UN, 2020) you engaged in your project

- Business & industry experts (i.e. shareholders, managers, suppliers, customers, industry experts)
- Local authorities (i.e. governmental departments, local authorities, councils)
- Indigenous Peoples & their communities (i.e. indigenous communities, trans-generational experiences, observations and transmission)
- Non-governmental organizations (i.e. accredited organizations working at policy and programmatic level)
- The scientific and technological community (i.e. scientists, ecologists, developers)
- Children and youth (i.e. advocates for future generations)
- Farmers (i.e. small-scale farmers and fishers, pastoralists and foresters)
- Women (i.e. promoting gender equality)
- Workers & Trade Unions (i.e. promoting fundamental values such as equity, fairness and inclusiveness)
- Environment & Non-human species (animals, plants etc)

20. Looking back, were any important stakeholders underrepresented in your project? If so, which groups and why do you think this was?

21. What specific activities did you engage stakeholder(s) in, and how? If you used design methods, please name these.

22. Did you identify leverage points for systemic design interventions, i.e. the places where a small shift in one thing can produce big changes (Meadows, 1999)? If so, how?

23. Did you adapt your approach, tools and work practices to reflect and drive the context of sustainability? If so, how?

24. What advice would you give to a colleague seeking to drive sustainable systems change by design, and why?

Designing for systems change and planetary health

25. What are the top three (3) strengths of design practice when applied to complex environmental and societal challenges that require participatory solutions? (First to third choice)

- Adopting an ecosystem perspective
- Creating cross-functional alignment & partnerships
- Envisioning futures
- Focusing on creative problem-solving
- Understanding contexts and needs
- Using a participatory co-design approach
- None of the above? Please add your answers below

26. What are the biggest barriers in current design practice when applied to complex environmental and societal challenges? (First to third choice)

- Imagination challenges (i.e. resulting from the human-first approach of design)
- Knowledge & information challenges (i.e. design is lacking to integrate knowledge from other scientific fields)
- Governance challenges (i.e. design is failing to understand and design for successful stewardship and group cooperation)

27. Reflecting on the challenge buckets above, can you expand on your choice and describe a specific gap in design practice today (across service, system or participatory design)?

28. Donella Meadows defines a system as an 'interconnected set of elements that is coherently organized in a way that achieves something' and argues that a system must consist of: 1) elements, 2) interconnections and 3) a purpose. In your experience, what aspects can be 'designed'?

- System behaviours
- System feedback loops
- System function & paradigm
- System parts & materials
- System relationships
- System results
- System rules
- System structures/ conditions (i.e. of information flows)

29. Please give an example of something in a system that you have successfully designed?

30 Self-organizing and nonlinear systems, including organizations, are inherently unpredictable (Meadows, 2001). If you can't understand, predict, and control systems, what is there for designers and managers to do?

<u>Designing organisations that drive regenerative futures</u>

31. In your practice, do you distinguish between 'sustainability' and 'regeneration'? If so, why and how?

32. 80% of the ecological impacts of a product are said to be locked in at the design phase. What do you consider the top three (3) most important design activities to create regenerative systems change? (First to third choice)

- Design for adoption of low carb solutions
- Design for circularity (incl. circular business models, material flows, recycling & repairability)
- Design for dematerialization (incl. reducing overall size, weight and no of materials)
- Design for Product Service Systems (incl. services ahead of product ownership)
- Design for regenerative business practice (incl. business operations, collaboration & cooperation, ways of working , supply chains and logisitcs)
- Design for systems (incl. paradigms and shifting status quo)
- Design for transitions (incl. capabilities, conditions and infrastructures needed to change)
- None of the above? Please add your answers below

33. On a scale between 1 and 5, how equipped are practitioners today to deliver those three activities? (1= Very, 5= Not at all)

34. Which of the following components are the biggest drivers for regeneration that design practice can nurture in an organization?

- Sustainable target setting
- Supportive tools and processes
- Capability & knowhow

On a scale between 1 and 5, when designing for regeneration across an organization, how important is self-organization? (1= Very Important, 5= Not Important)

How would you approach designing for self-organization? Please pick your top three (3) answers.
Allow people to choose how to best accomplish their work (as opposed to being directed by others)
Empower people to manage their own work

Give people the environment, support and trust they need to get the job done
Let people leverage their talents
Facilitate communication and coordination exchange
Other

On a scale between 1 and 5, when designing for regenerative systems, how important is successful group cooperation amongst project stakeholders? (1= Very Important, 5= Not Important)

Do you currently spend time designing the conditions for how people cooperate as part of a group? If so, can you name an example

How would you approach designing for systemic conditions, relations and interconnections? Please pick your top three (3) answers. (First to third choice)
Create shared purpose and group identity
Focus on identifying system purpose & behavi-ours ahead of individual needs and motives
Map communications flows & relationships
Understand what enables trust and balance within a system
Visualize and support decision-making processes
None of the above? Please add your answers below

Which of the following design activities do you actively nurture in your practice today?
Allowing for agency in the change process and for groups to self-manage their activities
Allowing for self-determination and fair & inclusive decision-making
Balancing self-interests with collective interests
Creating accountablity & monitoring agreed behaviours
Creating shared purpose and identity in the project group
Enabling fast and fair conflict resolution
Responding to helpful and unhelpful behaviour
Seeking open, transparent & collaborative relationships with other groups and institutions

Does your organization look inside to find ways to reconfigure internal operations and accelerate a transformation toward regenerative futures?
Yes
No
Partly - we could improve

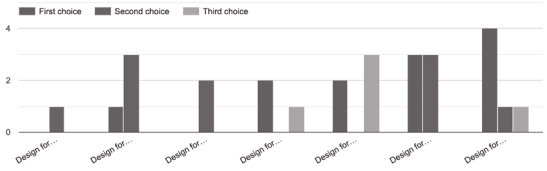
Do you feel your teams have the time and resources to be reflecting on, testing and integrating new practices for more regenerative futures?
Yes
No
Partly - we could improve

If you answered no or partly, what are the main barriers to do so?

What do you feel hopeful and positive about, and where do you see the biggest potential for people to make an impactful contribution towards achieving regenerative futures by design?

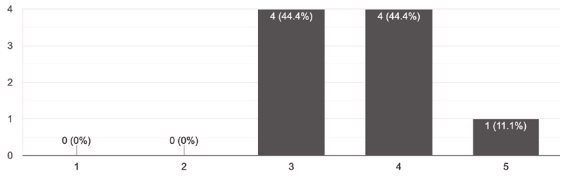
Expert practitioner excerpt of survey responses (4.2.2.1)

80% of the ecological impacts of a product are said to be locked in at the design phase. What do you consider the top three (3) most important design activities to create regenerati...*ve within ecosystems processes* (East, 2020)

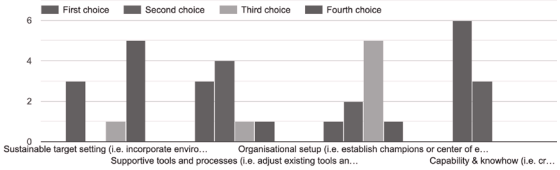


On a scale between 1 and 5, how equipped are practitioners today to deliver those three activities? (1= Very, 5= Not at all)

9 responses

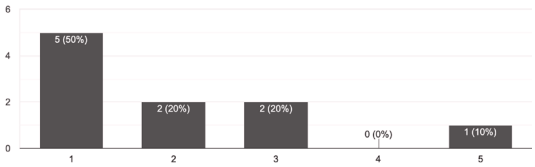


Which of the following components are the biggest drivers for regeneration that design practice can nurture in an organization?

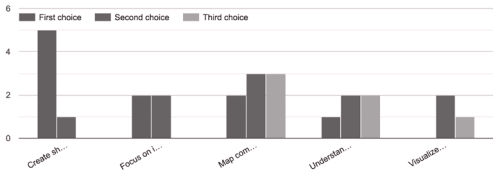


On a scale between 1 and 5, when designing for regeneration across an organization, how important is self-organization? (1= Very Important, 5= Not Important)

10 responses

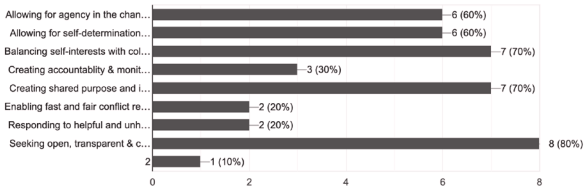


How would you approach designing for systemic conditions, relations and interconnections? Please pick your top three (3) answers.



Which of the following design activities do you actively nurture in your practice today?

10 responses



Expert practitioner excerpt of survey responses (4.2.2.1)

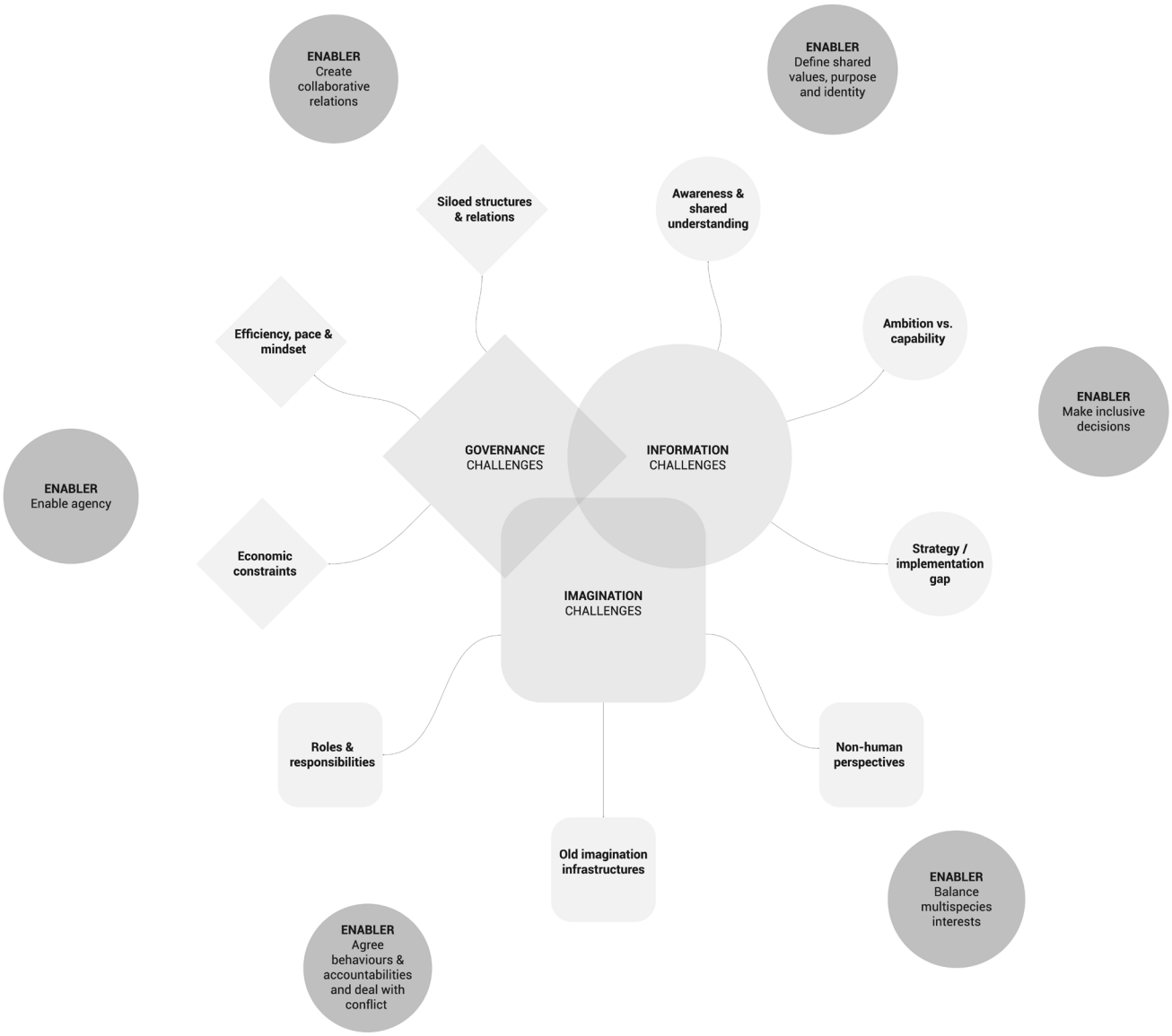
In your practice, do you distinguish between 'sustainability' and 'regeneration'? If so, why and how?9 responses
I'd say sustainability is more about the balance of the current system/planet/resources/emissions (especially thinking of definitions of sustainable growth which do not change business as usual) and regeneration is about completely rethinking, creating change that is better than current processes, has wide ranging benefits and gives back rather than being extractive
I see regeneration as an evolution of thinking about the purpose of sustainability - digging deeper into the question of what it is we are sustaining and how we work towards this. For me regeneration better articulates the purpose of regeneration as seeking to sustain life and that the route to doing this is through building potential. I dont see sustainability as wrong or a word not to use, but we should always ask what assumptions lie beneath any time either word is used.
Yes - sustainability in essence looks at sustaining, Regeneration loos at giving back.
Yes. 0 and +
Yes, as per the previous note I made on this. Sustainability is not enough, we don't want to 'sustain' fracking and mountain top removal. We don't want to sustain our current levels of planetary degradation. What we need to do is move towards giving more thank what we take. Therefore, regeneration is what is needed.
Sustainability I associate with SDG's and the way how can we stop degenerative and cultivate mechanistic practices. Regeneration is for me about how we can renew resources, regenerate what has been lost and cultivate the nature of living systems.
No, we haven't explored what the different might means in practice, but I can understand the difference (sustainability = ensuring no harm, regeneration = actively creating more good that will overcome the "bad" of the past).

Do you currently spend time designing the conditions for how people cooperate as part of a group? If so, can you name an example9 responses
Yes... Getting people to listen and hear is so important. Creating spaces for reflection and deep thinking.
Yes. We recently designed and facilitated a workshop for an organisation to help them implement strategies for enhancing their capabilities and organisational preparedness to deal with the changing climate
Yes helping design a process or workshop for collaboration within my organisation. As currently senior voices dominate decision making and other points of view are missed
Yes. eg Building trust, shared purpose relationships eg through check ins, space for group co-design and visioning, reflection and retrospectives.
Yes, we're currently working on designing the next round of projects for the citizen science lab.
Yes. In the Ecovillage project, we are at the stage where we are starting to talk about how we want to collaborate and what conditions we need to do that successfully. What I'm doing right now is sending questions to our Whatsapp group, e.g. what do you need to feel comfortable in our group? What do you struggling with? What do you think could be helpful for us to collaborate effectively? I'm asking people to leave me recorded messages and collecting all answers on Miro board here: https://miro.com/app/board/uXjVO-5WTvs=/?share_link_id=752274772295. The next step will be starting our internal debate about our answers and all these conditions, rules, the decision-making processes, and other elements of our culture which we want to create and evolve.
Yes, a lot of our work is actually implicitly doing that; designing workshops to enable stakeholders to discuss and identify issues in a constructive and collaborative way, co-design sessions, regular meetings and Show and tells, etc.

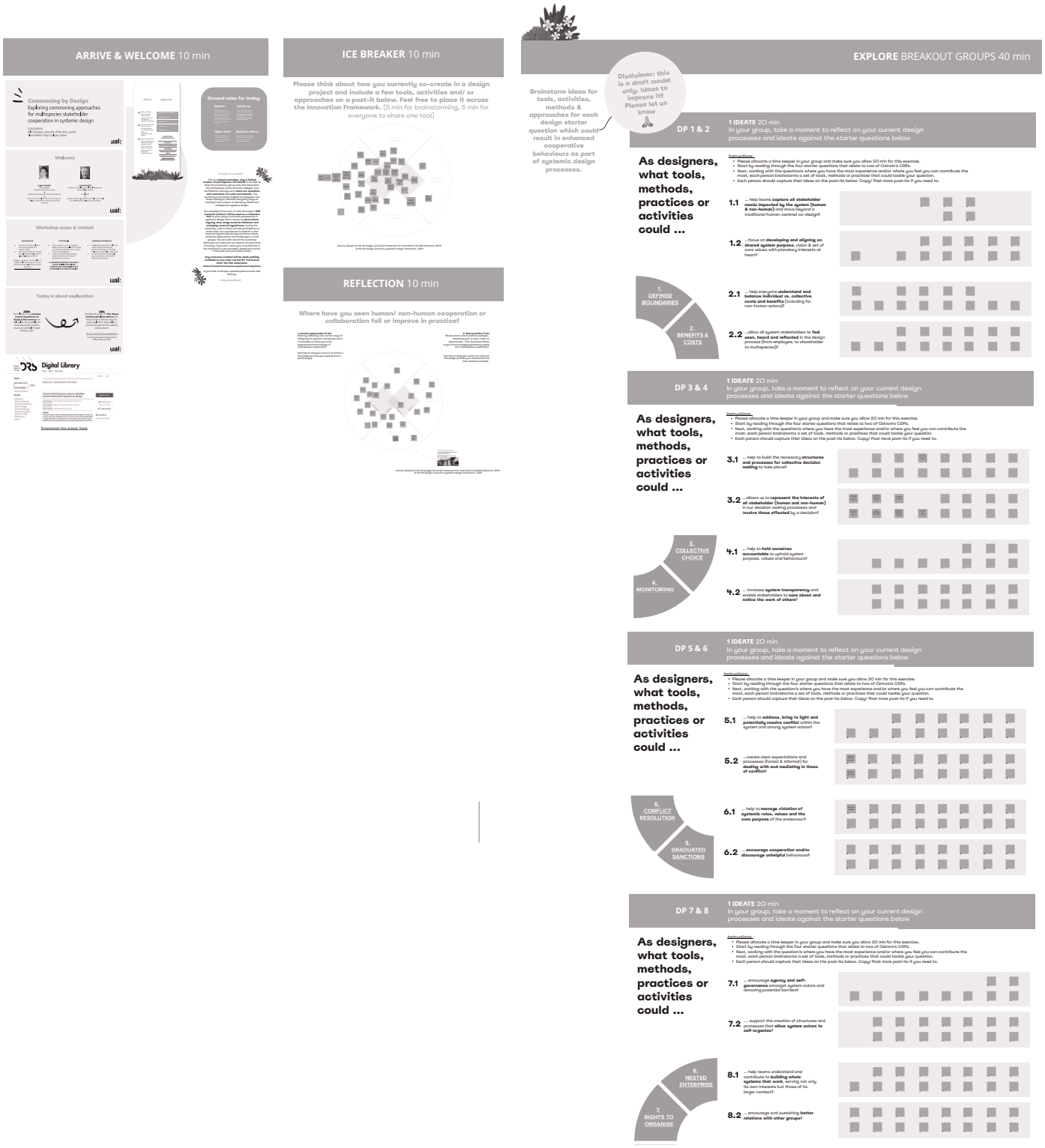
If you answered no or partly, what are the main barriers to do so?5 responses
Fixed annual funding which is allocated for other specific activities, senior leadership deprioritising climate compared to other short-term issues, lack of understanding about the scale and urgency of change
Structural barriers created by business model and hierarchical strcuture
Time, due to money. Once we have more members, both co-founders can work in the business.
In our newest project, we are at the initial phase so firstly, we need to learn how to use shared language and meanings especially that I'm working with people who live in a regenerative way, with deep respect to nature, the planet, people and other species and I'm newcomers with my background.
The agency model we follow means that the priority is to allocate team member's time to billable project and briefs, which often consist of delivery our "traditional" methods of design, within which there's often limited time to embed regenerative methods or sustainability considerations appropriately. We have little time outside of project for learning and experimenting which means that we don't have enough time to form our understanding and practice around complex systems change.

What do you feel hopeful and positive about, and where do you see the biggest potential for people to make an impactful contribution towards achieving regenerative futures by design?9 responses
It feels more and more designers want to work in this space.. I'm not sure people are totally clear how, but there is energy and passion there. It's useful that the Design Council have shifted their focus to Design For Planet.
I am optimistic that a systems view of life is emerging.
Hopeful and positive - Project examples, hearing other people's stories and experiences (both things that were successful and those that were not), hearing that many other designers want to create change in their practice Impactful contribution - generating more examples to show what's possible, creating influence and change within organisations (esp. at a senior level) to shift worldviews
Hopeful about emerging recognition of interdependence and holism and the need to us to work for health of the whole planet. Biggest potential is to see potential and let go of need for certainty.
Not much - people are still coming to terms with sustainability (let alone regenerative) and there is a lot of confusion in this field, A great article recently about this: https://medium.com/disruptive-design/should-we-ditch-sustainability-5420b417ed8
.Nature's inherent ability to regenerate inspires me. As does the bubbling up of more people interested in the regenerative movement. Most impactful contribution would be to show up as your unique self, develop your individual sovereignty and autonomy, but do it in service to the whole.
I believe and feel hopeful that good system design, services or product design can help people fall in love in life again. Regenerative design as a "matchmaker" with life is quite a good metaphor, for me, for the profound role of designers in contributing to a regenerative future.
The young generation truly cares about the planet and social justice, they not only feel and want the paradigm shift needed. We have technology and solutions that enables us to do so much. It's about creating conditions to enable these capabilities and energy to catalyse the healing our planet and society and live in harmony.

Expert practitioner excerpt of survey findings triangulated with other data (4.2.2.1)



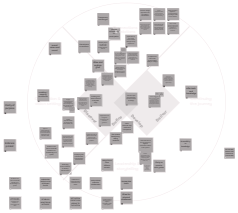
Participatory co-design workshops, workshop overview (4.2.2.2)



2 CONTEXUALISE 10 min
Thinking about your proposed ideas, where could you see new practices and activities taking place in the design process?

Instructions:

- Start by think about which aspect of the design process could be enhanced with your idea.
- Then drag each relevant post it from your idea bucket from the left to the double diamond process below and share it with your breakout group.
- Based on your experience, we'd like to understand where in the process we need to focus on improving current design practice and how



SHARE 25 min

Coming together, we'd like to invite each group to share two ideas and reflections on their CDP, including where design is lacking and how a commoning approach could help

DP 1 & 2

DP 3 & 4

DP 5 & 6

DP 7 & 8

Thank you.

D.A.M. SCHAEFER

GLENN ROBERT

RSD11 contributions

13.10.22 presentation (2pm GMT)

DRS Paper
Download the paper here

ual:

FEEDBACK 10 min

Feedback

Please take a few minutes to provide us with some feedback

COMMONING BY DESIGN - THE CONCEPT

Pick an emoji that reflects how you experienced this workshop contents, copy & and drag it in the zone

What would you like to see improved in the thinking? Please pick a post-it and put it into the box below

What – if anything – do you think might be missing from Ostrom's principles if applied in a systemic design context?

What contents and activities in the workshop need refinement or adjusting in your view, and why?

Thank you!

Participatory co-design workshops, excerpt of workshop provocations (4.2.2.2)

Lack of sustained cooperation
A design failure?

ual:

From participatory design practices to neglecting non-human stakeholders

Previous design focus

- Much of design has focused on participation methods through a variety of design practices, including Service Design, Participatory Design, or Human-Centred-Design
- Bringing people together to co-create systemic solutions informed by shared human experiences, Irwin, 2019.

Ongoing debates

- PD hinders regenerative outcomes as participation often refers to the context of the human voice, human needs and decision-making structures, ignoring non-human representations, Akama, Light, Kamihira, 2020
- HCD is criticised as a problem-generating approach unable to account for non-human needs and ignoring the issues of sustainability, inequity, and the need for long-term positive impact.

ual:

Knowledge gaps in systemic design practice

Design's failure to combine scientific knowledge

- Design's focus has failed to combine knowledge from **evolutionary, indigenous and economic sciences** and how one could design for improved cooperation and decision-making
- Research highlighting **gaps in service design practice when it comes to integrating knowledge from evolutionary science** to better understand the drivers of cooperative behaviours (Schaeper, Robert, 2019)

RADICALLY SELF-ORGANIZED CARE: WHAT CAN DESIGNERS LEARN FROM THE EVOLUTIONARY DYNAMICS OF COOPERATION

ual:

From facilitating to designing for cooperation

Current design practice

Cooperation as by-product
Participatory approach to designing solutions, in which community members are treated as equal collaborators in the design process, i.e.:

- Intentionally involving users in designing solutions through participation
- Synthesizing feedback from target users into insights
- Sense-making based on co-creation and analysis to make design decisions
- Generative co-creative toolkits to develop solutions

Design practice gaps

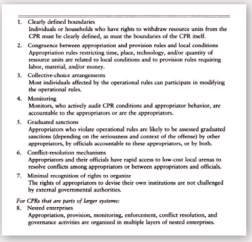
Creating intentional conditions for cooperation
Following and learning from evolutionary theory to identify and enhance the conditions conditions for cooperation, i.e.

- Group identity & purpose
- Understanding & balancing individual versus collective interests
- Collective decision-making
- Allowing for self-organisation
- Embracing a systemic perspective

ual:

Redesigning Design
designing-with-many
Based on the Commons

What are the commons?


1. Clearly defined boundaries
   Individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself.
2. Congruence between appropriation and provision rules and local conditions
   Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labor, material, and/or money.
3. Collective-choice arrangements
   Most individuals affected by the operational rules can participate in modifying the operational rules.
4. Monitoring
   Monitors, who actively audit CPR conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.
5. Graduated sanctions
   Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators, or by both.
6. Conflict-resolution mechanisms
   Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.
7. Minimal recognition of rights to organize
   The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.

For CPRs that are parts of larger systems:

8. Nested enterprises
   Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

ual:

Commoning & changemaking

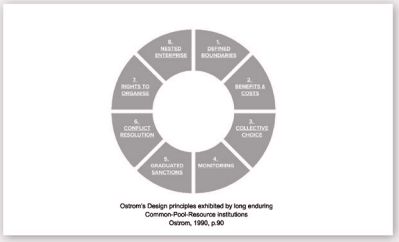
Types of commons: from commons to commoning

Depletable commons
i.e. forests, fisheries, or groundwater or natural resources

Non-depletable commons
i.e. knowledge, digital, health or cultural commons

ual:

Social & institutional practices of the commons



ual:

Commoning as a way to decenter the human perspective, recognize the importance of our entanglement with nature and take a multi-species approach of **collectively negotiating boundaries and managing resources.**

ual:

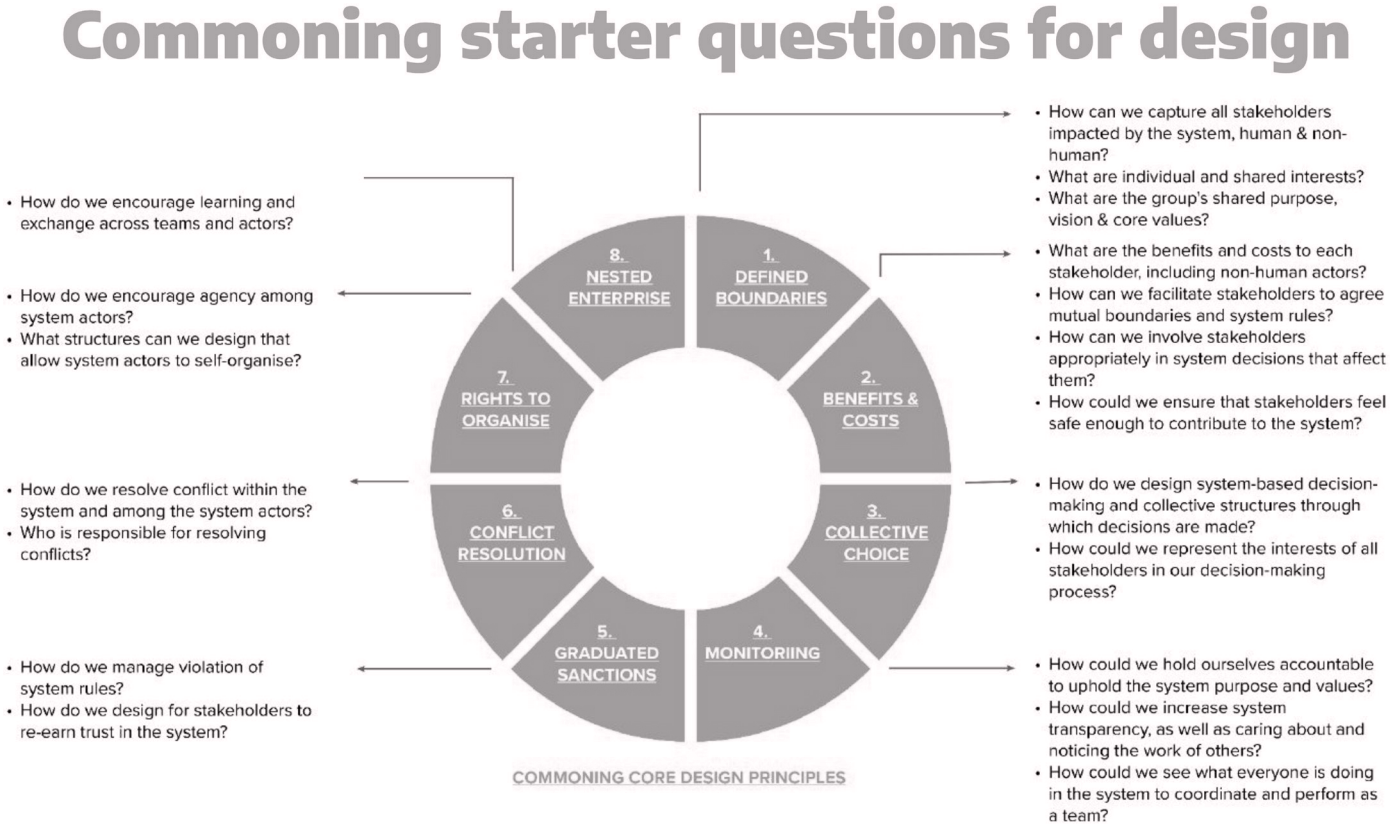
WORKSHOP
HYPOTHESES

1
Commoning to **enhance shared endeavours** within multispecies systems

2
Commoning to **sustain cooperation within and beyond** co-design

3
Commoning to **design systemic conditions for cooperation** (rather than specific system outcomes)

Participatory co-design workshops, Commoning starter questions (4.2.2.2 and 5.2)



Interviews, Thematic interview guide (4.2.3.4)

Exploring Planetary Health and Sustainability at Your Company

1. Background and Introductory Questions
- Could you please introduce yourself? What is your name, title, and how long have you been with your company?
- What is your current role, and could you outline your responsibilities within the organization?
- From your perspective, what is the most rewarding aspect of being part of your company?

2. Planetary Health, Sustainability & You
- How do you personally define sustainability, and what does it mean to you?
- In what ways do you perceive your company as sustainable, particularly in terms of environmental, social, and cultural aspects?
- While the company emphasizes environmental sustainability, how do you feel it addresses social or cultural sustainability, and how is this reflected in your organization?
- What conditions do you think are necessary for global and local teams to work increasingly towards sustainability, and is there a common understanding within the team?

3. Planetary Health, Sustainability & Your Company
- How do you perceive your current projects aligning with the overall sustainability objectives of the company?
- Can you provide specific examples of how your work directly contributes to the achievement of sustainability goals?
- In your role, how do you measure or assess the environmental, social, or economic impact of the projects you're involved in?
- Are there key performance indicators (KPIs) or metrics specific to sustainability that you actively track in your work?
- How have you integrated sustainable practices into your daily tasks or decision-making processes?
- Are there particular aspects of sustainability, such as resource efficiency or waste reduction, that you focus on in your projects?
- What are your thoughts on the sustainability and regeneration initiatives discussed as part of this reserach?
- Given the need for substantial business transformation, how do you envision navigating this at your company? What key levers and strategies would be essential for a truly regenerative agenda?
- What internal targets need to be achieved, and how does regenerative sustainable development fit into the broader business perspective?
- From your perspective, what does a sustainable future mean for your company, and what would it look like?
- What role do you believe design plays in delivering sustainable futures for the company?
- Considering the need to move beyond traditional sustainability, what's your view on innovating business models, potentially embracing a degrowth paradigm, and how could your company achieve this?
- In which areas (environmental, social, economic, human) do you think design can have the most impact within your company?

4. Planetary Health Challenges
- What do you see as the key challenges to embracing sustainability and regeneration in your work?
- How do sustainability standards and KPIs translate into your daily work, especially in brand, design, and digital departments?
- Could you describe current management practices regarding sustainability targets in marketing, design, and development? Where do you see scope for improvement?
- What level of support would be beneficial for you in implementing and delivering on sustainability targets?

- What challenges do you face in trying to incorporate sustainability into your work, and how do you overcome them?
- Are there any institutional or procedural barriers that hinder the integration of sustainability principles in your projects?
- What are the sustainability KPIs at your company, and do you see them connected to the general KPIs of the company?
- What trends or legislations do you anticipate having the most significant impact on your company's sustainability efforts?
- Besides trends, what concrete risks do you foresee that may not be adequately addressed by current sustainability efforts?
- Who are the main actors and teams currently working on sustainability at your company, and is sustainability actively measured within these teams?
- Are there specific sustainability-related targets within your team, and what resources are available within the company to support sustainability efforts?

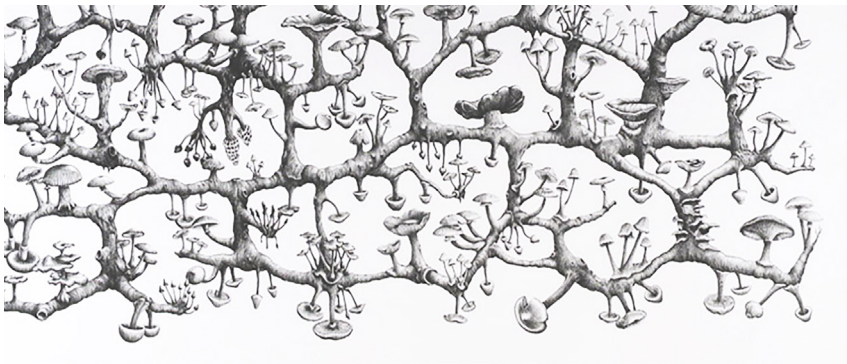
5. Collaboration for Sustainability

- To what extent do you collaborate with other teams or departments to ensure sustainability considerations are integrated into the entire project lifecycle?
- Can you share an example of a successful collaboration that significantly enhanced the sustainability aspects of a project?
- How does your team adapt to evolving sustainability standards and best practices in your industry?
- In what ways do you ensure continuous improvement in integrating sustainability into your work?
- How do you involve your team members or colleagues in promoting sustainability in their respective roles?
- Is there an awareness or training program in place to enhance employee understanding of sustainability practices?

6..Future Opportunities and Learnings

- If there's an increased focus on sustainability, what strengths do you believe your company possesses?
- What resource or governance systems would facilitate this?
- In your past or current work, have there been experiments or initiatives related to sustainability that you feel should not be overlooked or lost? (e.g., features, frameworks, pilots)
- Looking ahead, how do you envision the evolution of your role in contributing to the company's sustainability goals?
- Are there specific areas within your work where you see opportunities for further sustainability improvements?

Interviews, consent form (4.2.3.4)



WELCOME

JULIA SCHAEPER
PHD RESEARCHER

Research Management and Administration
University of the Arts London
5th Floor The Granary Building
1 Granary Square
London N1C 4AA
Email: researchethics@arts.ac.uk

Thank you for agreeing to participate in an interview which is part of a research collaboration 'Sustainable by Design' with the University of the Arts, London, where we hope to get meaningful insights into how service design practices can support the transition to sustainability and planetary health.

During a 30-60 min interview, I would like to find out more about your experiences of applying the design methodology to tackle sustainability challenges at your organisation. Although I will have some suggested topics that I would like to cover, I would like the conversation to be led by you, so you can talk about the things that are most important to you. The themes I would like to touch on include your organisational culture, current business & sustainability approaches, management support, collaborations & cooperations, work environment, capabilities, as well as barriers and opportunities you encountered.

On the following pages, you will find a more detailed information sheet for you to read and a consent form for you to sign. If you have any questions or queries before or after the interview, you are very welcome to email me at j.schaeper1@arts.ac.uk

Many thanks,

INFORMATION SHEET

ABOUT THE RESEARCH

This research explores the contribution of contemporary design practice to achieving more sustainable futures and planetary health. Specifically, it looks at what methods and techniques are being using to create healthier, diverse futures and seek to actively support organizations to step into a 'transitions space' to create more sustainable business solutions. The research addresses key challenge areas to achieving planetary health by exploring how we can:

1. leverage social system theory more fully to inform design practice,
2. integrate design with aspects of posthumanism to develop more relational thinking beyond human-centricity and,
3. build on Ostrom's economic theory of the commons to evolve cooperation, self-organization, and shared decision-making processes by design.

THE INTERVIEW

The research will use qualitative research methods including semi-structured interviews with design practitioners and change makers working in the context of design & sustainability. The interview will be conducted online (via Google Meet or Zoom if more suitable for you) and will last 30-60 min max. With your consent, I would like to audio record our conversation for my analysis. Data I would like to capture include your name, contact details and experiences working in design and sustainability. You do not have to answer any questions that you would prefer not to. Your answers will be used to identify important areas for action and to explore how design could facilitate sustainable change moving forward. You have the right to withdraw from participating in the study at any point. Your data will then be excluded from the research. There are no risks or disadvantages related to this study, and your input will be invaluable. Know that your participation is entirely voluntary.

USE OF DATA & CONFIDENTIALITY

Data will be captured and held on paper and electronically - including your name, contact details, audio recordings, written notes. Recorded interviews will be transcribed; handwritten interview notes will be typed up by the researcher. In both cases, your transcript will be anonymised by removing your name and any information that might allow identifying you such as names of institutions and time specifications. All personal data is strictly kept separate from the transcripts. Only the researcher involved in the study will have access to the data. The data may be shared with the researcher's Academic Supervisors (Dr Alison Prendiville and Dr Glenn Robert) and may be monitored by the researcher's College Research Committee (CRC) and the 'University of the Arts London' Ethics Subcommittee. The voice recordings will be deleted latest at the end of the research, while the interview transcriptions will be stored securely on a password-protected hard drive. The identifiable data will be stored on an encrypted hard drive and kept on file for five years after the date of publication, in case of possible use for future research. If required, you will have the opportunity to review the transcript of your interview and remove data from it, to ensure that no unnecessary risks are being taken. The procedure of anonymising interviews as described above may be contradictory to your intention to popularise your insights or to promote your case study as best practice. In this case, you can declare in the consent form that you agree with processing and publishing your interview data in a non-anonymised form.

All materials gathered during this research will only be used for this research and associated publications. The results of the study will be disseminated in different ways including forming part of my doctoral dissertation, publication in academic journals and conferences, articles and web or blog entries. There are no risks or disadvantages related to this study, and your input will be invaluable. Please know that your participation is entirely voluntary. If you wish to leave at any time, this is fine. You can withdraw at any time, and you do not have to give any reason. To do so, please email the researcher using the contact details below. Withdrawal from the research must be declared three months after data collection at latest. Once results are published, it will no longer be possible to remove your contribution.

By signing the consent form, you agree to keep the information discussed with you during the course of the research confidential.

INFORMED INTERVIEW CONSENT FORM

PROJECT TITLE: Sustainable by Design

RESEARCHER: Julia Schaeper

Thank you for your interest in taking part in this research. Before you agree to take part, I must explain the project to you in the information sheet. If you have any questions arising from the information sheet, please do ask me before you to decide whether to join in. Once you have read the sheet and are happy with the information provided, please complete this consent form. You will be given a copy of this to keep and refer to at any time

PARTICIPANT'S STATEMENT (Please tick)

1. I agree to participate in the research project 'Sustainable by Design. I have read the Information Sheet for the study. I understand what I am being asked in this research, and all my questions have been answered to my satisfaction.
   YES ☐ NO ☐
2. I understand that I am free to withdraw from the research at any time, without giving a reason.
   YES ☐ NO ☐
3. I understand that I am free to ask any questions at any time.
   YES ☐ NO ☐
4. I understand what will happen to the data collected from me for the research and consent for it to be used and disseminated as outlined in the Information Sheet.
   YES ☐ NO ☐
5. I have been provided with a copy of this Consent Form and the Participant Information Sheet.
   YES ☐ NO ☐
6. I understand that quotes from the interview may be used in the dissemination of the results.
   YES ☐ NO ☐
7. I agree that my interview data can be processed and published in a non-anonymised form. I know that I can withdraw from this agreement and demand that my interview data will be anonymised. I understand that this is only possible before publication.
   YES ☐ NO ☐

Please note that if you ticked NO, any information which might help to identify you will be removed from the transcript. Data that will be removed are your name, your job title, location information and time specifications.

CONTACT DETAILS

For any questions, you can contact the Research Management and Administration office, University of the Arts London, 5th Floor The Granary Building, 1 Granary Square, London N1C 4AA, Email: researchethics@arts.ac.uk

Interviews, Sample transcript excerpt (4.2.3.4)

Interviewee
Julia, Hello. Can you hear me, okay?

Researcher
Yes, I can. Hello, welcome. Thank you for agreeing to do the interview with me today. Let's dive into it. We'll have a loosely structured interview today with a couple of topics I want to touch on and hear your thoughts around. Also, maybe get a little bit of feedback around some of the interventions that we've been doing through the workshops. But to start, could you please introduce yourself? What is your name, title, and how long have you been with your company? What is your current role, and could you outline your responsibilities within the organization? From your perspective, what is the most rewarding aspect of being part of your company?

Interviewee
Sure. My name is…. I am Vice President Business Transformation…. at …… I've been at the company for about 8 years. In my role, I support global teams to help consumers and customers through their daily work. I also lead sustainable change at scale based on service design, as well as Business Architecture frameworks and strategic transformation initiatives.

Researcher
Great thank you. First, I'd love to hear from you what your thoughts are when reflecting on our journey together thus far. I am curious to hear if the message around sustainability and regeneration has landed following our urgency awareness sessions and in which way?

Interviewee
The challenge is clearly right: How do we integrate sustainability and regeneration and make it meaningful in the context of our company. But I think in the broader context of, you know, a late-stage capitalist organization, the challenge is how do we shift mindsets behaviours, value propositions, incentives, etc, towards a transitional path. So, the principal agenda - tick – it has landed, and I think there might be various hooks, that we will maybe get to, where we can start to nudge and influence an organization on the scale of our company.

Service design being of them, even business architecture. A lot of what we're doing in the transformation space, even how we turn up and do change management and engagement across teams and markets, etc. can be part of the foundation to help bring us that vision to life. It's about how do we instil the right values and enable this in the organisation. So, I think, we are well positioned from that perspective, and the message from your research resonates and makes sense. And we have lots to do on the back of it.

Researcher
What conditions do you think are necessary for global and local teams to work increasingly towards sustainability, and is there a common understanding within the team? What are your thoughts on transforming the company business model towards more accountability, social and environmental impact and away from shareholder primacy. Is it possible to achieve?

Interviewee
So I think there are two things there to learn. I think, one, you need to come up with a different name for degrowth. Words matter and they're powerful. At its core, it's about stable companies. Right? Growth isn't always upwards. Growth can be increasing the root system. It can be across the transformative path with a butterfly effect; it can be growing in harmony, which is fundamentally different from what we do now. But I think you need to reposition the goal away from degrowth to enable buy-in and motivate someone in the company. It could use a different branding.

I think that the second piece, just responding to what you're saying, is that consumers don't care about how big the company is in growth terms. They genuinely don't care. Like, I didn't know how big it was before I googled it. Right now we're talking about growth in the measure of net sales and market capitalization.

I couldn't tell you what our market capitalization is today. I don't care, although I'm literally incentivized to care about the share price and earnings per share, which leads many people to pursue growth for personal reasons. Consumers care about just living their life, and you know, they're excited if they're able to tap into emotions about how to respond to just solve a problem. That's what they're wanting from us. They want something cool. But showing me something cool isn't necessarily always any product but that moment of tapping into the chemicals in the brain to feel good, right? And so that doesn't have to be answered with a product. We already offer services and a connected community and there's a lot of digital content and so forth which can tap into as part of the brand.

For those who care about the growth bit, like shareholders and the owners who want to make money… from that perspective, don't talk to them about not growing. Talk about how we live in this crazy VUCA world, and how we can drive incentives and motivations to be stable and long term? Scalable, impactful, and stable. When I talk about the concerns to executives and the conversations is like 'how do we make sure we can respond to what's coming next?' Everyone said in 2020, oh, yeah, okay, 2021 will be okay.' But 2021 was not better. It had its own craziness. '2022 we'll be finally back, etc…' I think, finally, people are getting used to the fact that it's not that everything's going to return to normal. Now a conversation is how do we get ourselves to respond and be stable in whatever comes next. How can we become a responsive company? And that's what I think the opportunity is to say, what are the mindset to be responsive and to view changes as opportunities versus a threat.

For instance, that's why in all of my team meetings, I get people to switch chairs between sessions, right? Just go find somebody new and change your perspective. It's only a little micro-moment, but it gets people used to responding or shifting the moment or changing perspective and not getting comfortable so that when a bigger thing comes it doesn't feel like a shock to the system as much as it could.

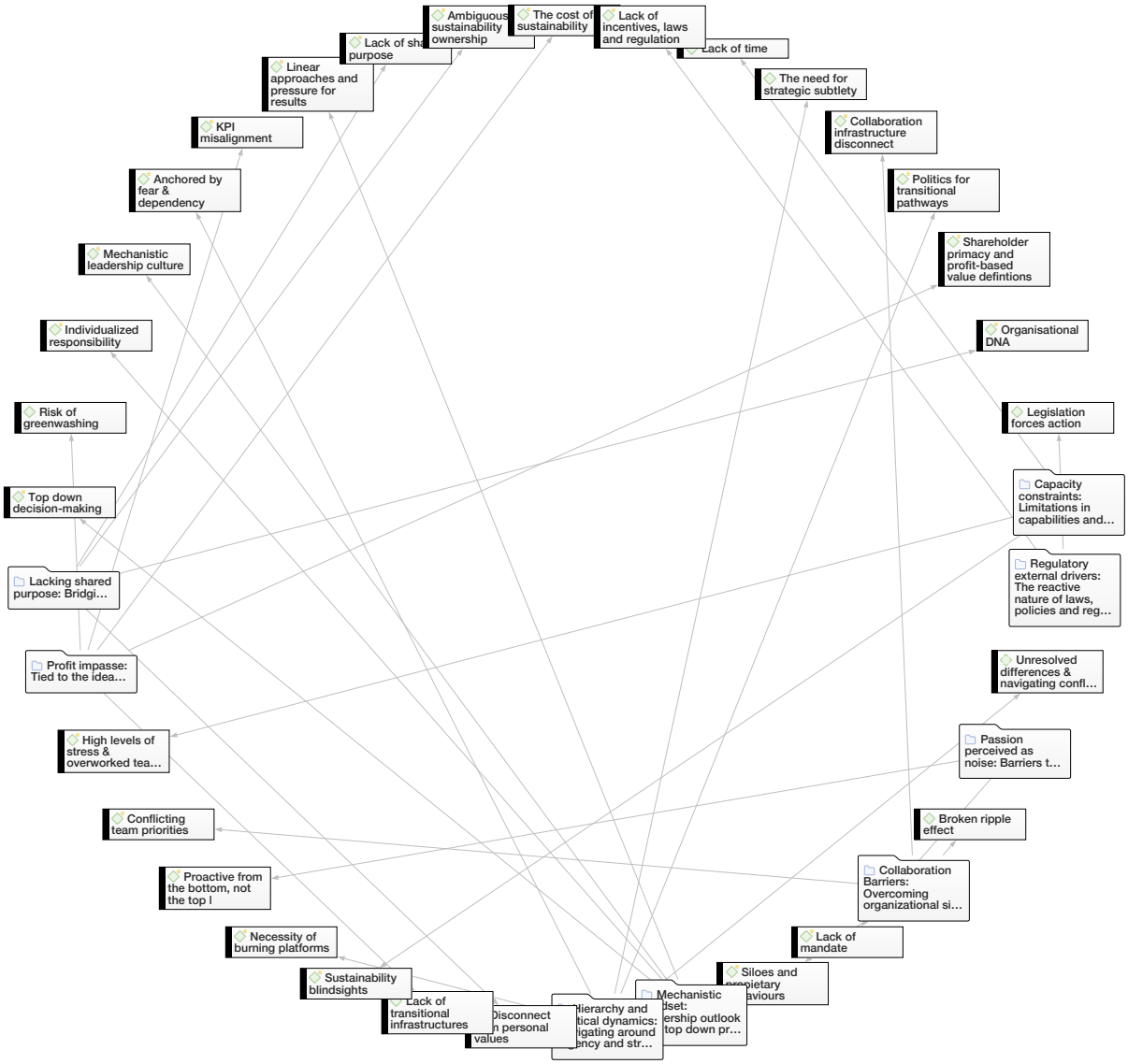
Researcher
So you're coming up with small ideas to nudge people into feeling comfortable when taking on different perspectives. On the note of changing practice, let's move over to the commoning interventions where we are starting to prototype. In one of our workshops, some interesting insights were around how linear our way of designing has become. We've managed to stick everything into tables and excel sheets, through journey mapping and blueprinting with a very clear starting and endpoint. We've now done a few workshops as part of the research, making small practice-based interventions visualizing ecosystems within the company. I wondered what your thoughts and feedback are?

Interviewee
This is super interesting. I had the first immediate thought to go okay, here's an ecosystem and based on our mountain view, it needs a clear purpose to be useful. So creating it as an exercise, we need to be clear about how we might use it, what the use cases are, and benefits we can gain from investing the time. I think there might be two elements to it, one, to either discover or identify opportunities for our teams, or second to check how I'm going when implementing an opportunity to keep the right things in mind and help navigate the achievement in a broader context. So I think in both of those contexts, the question is, is the effort worth the impact it can have? What is the amount of effort required to fill it, what level of granularity you go into, how stable it is, versus being a framework that needs to be filled in dynamically.

I'm hoping that as a company we're shifting more towards a hypothesis-based strategy, knowing our next strategy cycle. Because we've got to find a strategy that has got some fancy words but maybe where the words are high level and vague enough that we can figure out what we want it to be at any point in time. And in that context, I could see how populating the ecosystem map could help to validate certain hypotheses or to formulate them in more detail. The second use case might be when I'm putting myself in the context of climbing that mountain; this could be one of the tools that could be done in terms of before you go right up there. Here's a way to create a better stakeholder map that also reflects on risks and issues some of those traditional project governance artifacts. During project kickoff or set up, for instance, when completing this ecosystem view would help set a project up for success and therefore is a valuable thing because if that project is successful, then we realize the benefits of the

Interviews, Atlas.Ti coding sample/ visualising networks (4.2.3.4)

Governance challenges



Participatory action research, content overview of Urgency Alignment (4.2.4.1 and 6.3.1.1)

Part 1: The old world

The talk began with a brief meditation to allow participants to ground themselves. Starting a session with meditation is an effective way to create a calm and focused atmosphere, as it helps participants shift their attention from external distractions to the present moment, setting a positive tone for the session, fostering a receptive mindset, and encouraging active engagement in the subsequent content and discussions.

The talk then continued with an exploration of the ecological crisis, delving into the severity of climate change, the loss of biodiversity and the overall environmental degradation faced globally. I reinforced the idea that these crises were not solely caused by individual behaviour but rather by the structural features of the current economic system.

Scientific evidence was presented to illustrate the urgency of the situation, including the potential for severe displacements, crop yield decline, species extinction and political upheaval. Participants were made aware of the substantial loss of biomass and forests and the alarming projections for ocean plastic pollution.

The economic perspective of the ecological crisis was highlighted, focusing on the economic system's dependency on perpetual growth. This growth-driven model was linked to increased resource usage, wealth inequality, and a failure to meet basic human needs. Participants were challenged to recognise the link between economic growth, resource extraction and the ecological crisis.

Part 2: The new world

To offer an alternative perspective, the emerging new world based on regenerative principles was introduced. Participants were informed about the increasing calls for a shift in economic models and rethinking traditional measures like GDP. The talk emphasised the need for a holistic and interconnected approach to address the current crises effectively.

The importance of adopting sustainable and regenerative ways of working was emphasised, necessitating a shift away from mechanistic hierarchies to adaptive and responsive living systems. Participants were introduced to the concept of "Teal organisations" (Laloux, 2015), which challenge traditional organisational and management models by emphasising evolutionary purpose, self-management and wholeness.

The talk also highlighted the significance of viewing sustainability beyond environmental aspects and considering social, economic and governance dimensions.

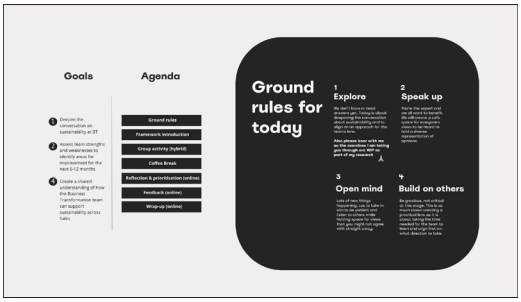
Part 3: What does this mean for you?

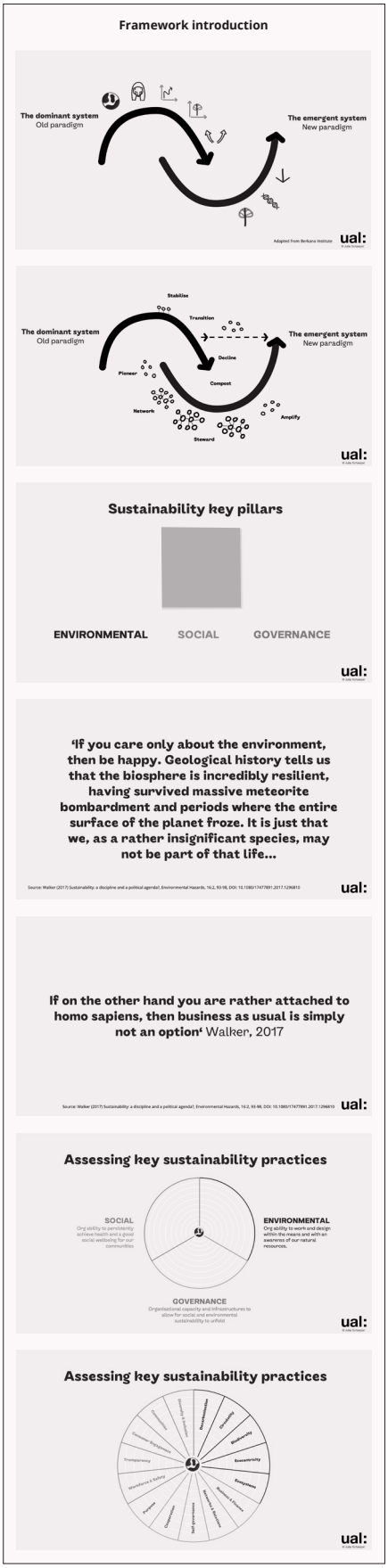
The third part of the talk focused on translating these concepts into actionable steps for participants. They were encouraged to question the motivations behind their business decisions and organisational power distribution. I emphasised the ongoing transition period between the old and new systems, acknowledging the challenges and opportunities it presents.

Participants were urged to reflect on their roles and potential interventions within their organisation. The Berkana two-loop model of change (Wheatley & Frieze, 2006) was introduced as a mental framework to facilitate this. This model allows individuals to assess where their organisation stands in the change process and identify potential pathways towards sustainability and regenerative practices.

Participatory action research, ESG wheel workshop overview (4.2.4.1 and 6.3.1.2)

10:10





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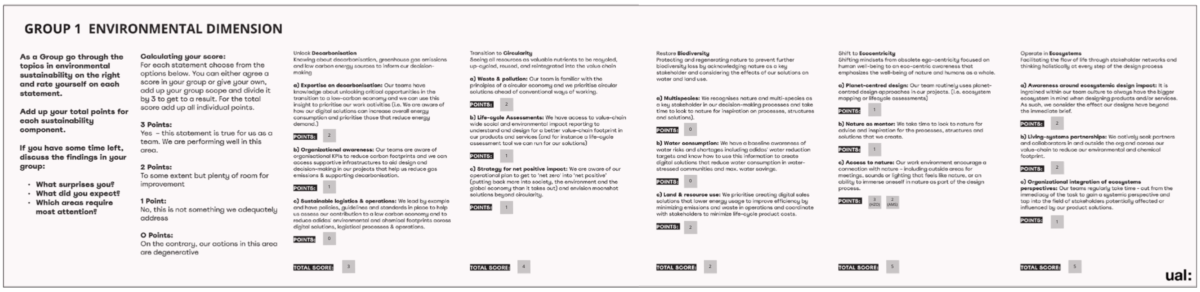
GROUP 1 ENVIRONMENTAL DIMENSION
As a Group go through the topics in environmental sustainability on the right and rate yourself on each statement.
Add up your total points for each sustainability component.
If you have some time left, discuss the findings in your group:
What surprises you?
What did you expect?
Which areas require most attention?
Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.
3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.
2 Points:
To some extent but plenty of room for improvement
1 Point:
No, this is not something we adequately address
0 Points:
On the contrary, our actions in this area are degenerative
Unlock Decarbonisation
Knowing about decarbonisation, greenhouse gas emissions and low carbon energy sources to inform our decision-making
a) Expertise on decarbonisation: Our teams have knowledge about unlocking critical opportunities in the transition to a low-carbon economy and we can use this insight to prioritise our work activities (i.e. We are aware of how our digital solutions can increase overall energy consumption and prioritise those that reduce energy demand.)
POINTS: 2
b) Organizational awareness: Our teams are aware of organisational KPIs to reduce carbon footprints and we can access supportive infrastructures to aid design and decision-making in our projects that help us reduce gas emissions & supporting decarbonisation.
POINTS: 1
c) Sustainable logistics & operations: We lead by example and have policies, guidelines and standards in place to help us assess our contribution to a low carbon economy and to reduce adidas' environmental and chemical footprints across digital solutions, logistical processes & operations.
POINTS: 0
TOTAL SCORE: 3
Transition to Circularity
Seeing all resources as valuable nutrients to be recycled, up-cycled, reused, and reintegrated into the value chain
a) Waste & pollution: Our team is familiar with the principles of a circular economy and we prioritise circular solutions ahead of conventional ways of working.
POINTS: 2
b) Life-cycle Assessments: We have access to value-chain wide social and environmental impact reporting to understand and design for a better value-chain footprint in our products and services (and for instance a life-cycle assessment tool we can run for our solutions)
POINTS: 1
c) Strategy for net positive impact: We are aware of our operational plan to get to 'net zero' into 'net positive' (putting back more into society, the environment and the global economy than it takes out) and envision moonshot solutions beyond circularity.
POINTS: 1
TOTAL SCORE: 4
Restore Biodiversity
Protecting and regenerating nature to prevent further biodiversity loss by acknowledging nature as a key stakeholder and considering the effects of our solutions on water and land use.
a) Multispecies: We recognises nature and multi-species as a key stakeholder in our decision-making processes and take time to look to nature for inspiration on processes, structures and solutions).
POINTS: 0
b) Water consumption: We have a baseline awareness of water risks and shortages including adidas' water reduction targets and know how to use this information to create digital solutions that reduce water consumption in water-stressed communities and max. water savings.
POINTS: 0
c) Land & resource use: We prioritise creating digital sales solutions that lower energy usage to improve efficiency by minimizing emissions and waste in operations and coordinate with stakeholders to minimize life-cycle product costs.
POINTS: 2
TOTAL SCORE: 2
Shift to Ecocentricity
Shifting mindsets from obsolete ego-centricity focused on human well-being to an eco-centric awareness that emphasizes the well-being of nature and humans as a whole.
a) Planet-centred design: Our team routinely uses planet-centred design approaches in our projects. (i.e. ecosystem mapping or lifecycle assessments)
POINTS: 1
b) Nature as mentor: We take time to look to nature for advice and inspiration for the processes, structures and solutions that we create.
POINTS: 1
c) Access to nature: Our work environment encourage a connection with nature – including outside areas for meetings, sounds or lighting that feels like nature, or an ability to immerse oneself in nature as part of the design process.
POINTS: 3 (HZO) 2 (AMS)
TOTAL SCORE: 5
Operate in Ecosystems
Facilitating the flow of life through stakeholder networks and thinking holistically at every step of the design process
a) Awareness around ecosystemic design impact: It is ingrained within our team culture to always have the bigger ecosystem in mind when designing products and/or services. As such, we consider the effect our designs have beyond the immediate brief.
POINTS: 2
b) Living-systems partnerships: We actively seek partners and collaborators in and outside the org and across our value-chain to reduce our environmental and chemical footprint.
POINTS: 2
c) Organizational integration of ecosystems perspectives: Our teams regularly take time - out from the immediacy of the task to gain a systemic perspective and tap into the field of stakeholders potentially affected or influenced by our product solutions.
POINTS: 1
TOTAL SCORE: 5
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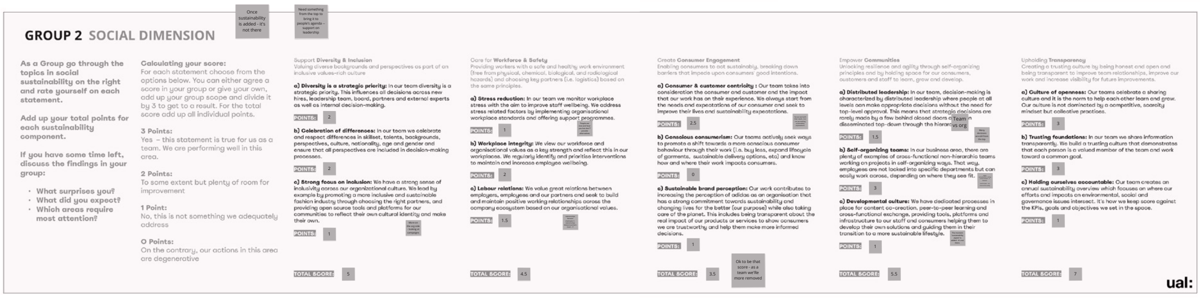
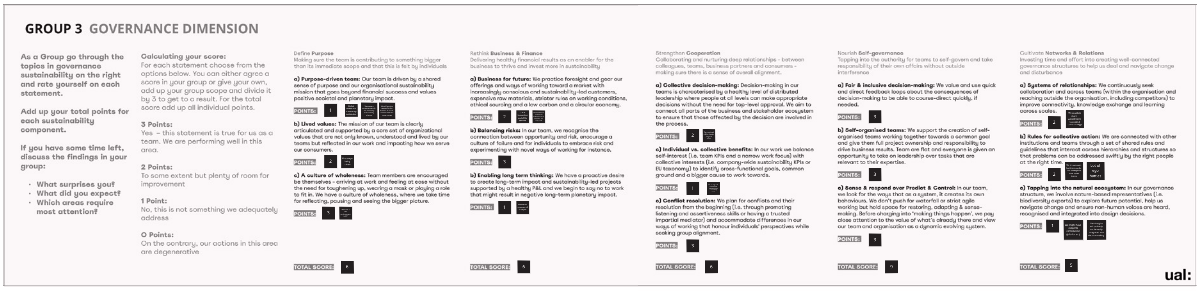
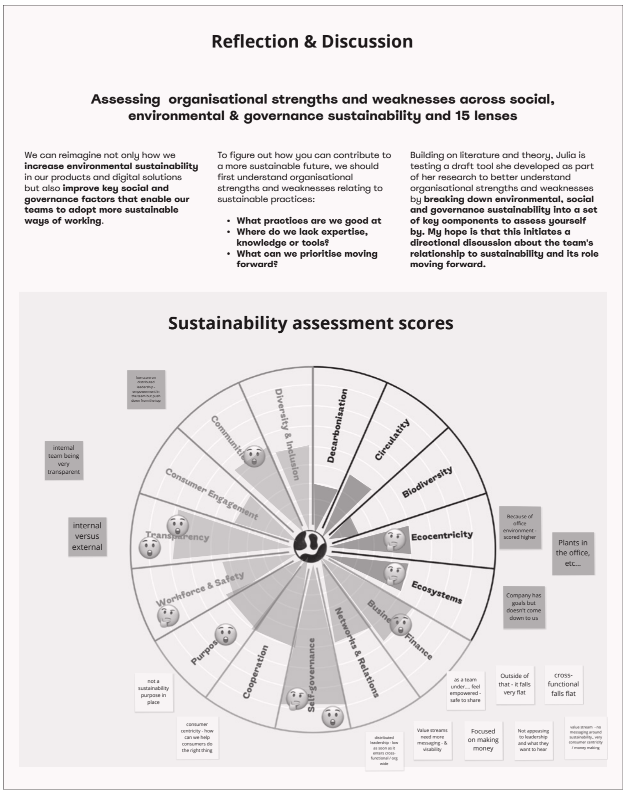
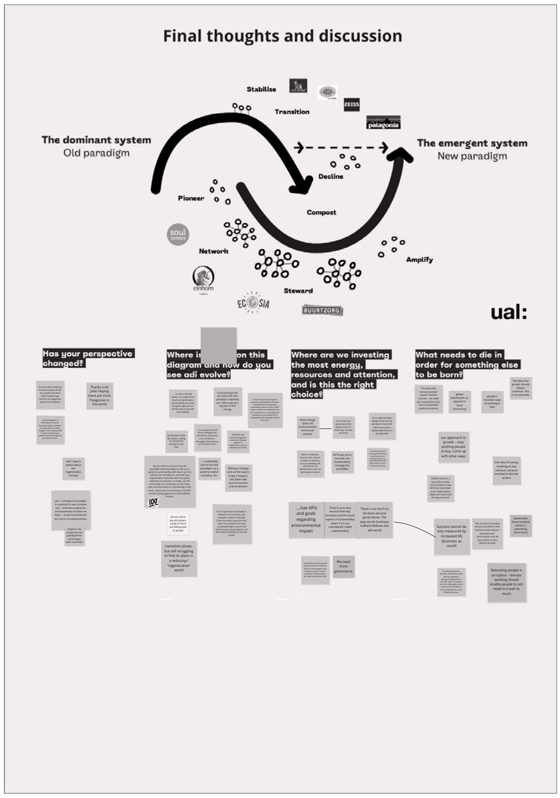

Once sustainability is added - it's not there
GROUP 2 SOCIAL DIMENSION
As a Group go through the topics in social sustainability on the right and rate yourself on each statement.
Add up your total points for each sustainability component.
If you have some time left, discuss the findings in your group:
What surprises you?
What did you expect?
Which areas require most attention?
Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.
3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.
2 Points:
To some extent but plenty of room for improvement
1 Point:
No, this is not something we adequately address
0 Points:
On the contrary, our actions in this area are degenerative
Support Diversity & Inclusion
Valuing diverse backgrounds and perspectives as part of an inclusive values-rich culture
a) Diversity is a strategic priority: In our team diversity is a strategic priority. This influences all decisions across new hires, leadership team, board, partners and external experts as well as internal decision-making.
POINTS: 2
b) Celebration of differences: In our team we celebrate and respect differences in skillset, talents, backgrounds, perspectives, culture, nationality, age and gender and ensure that all perspectives are included in decision-making processes.
POINTS: 2
c) Strong focus on inclusion: We have a strong sense of inclusivity across our organizational culture. We lead by example by promoting a more inclusive and sustainable fashion industry through choosing the right partners, and providing open source tools and platforms for our communities to reflect their own cultural identity and make their own.
POINTS: 1
TOTAL SCORE: 5
Care for Workforce & Safety
Providing workers with a safe and healthy work environment (free from physical, chemical, biological, and radiological hazards) and choosing key partners (i.e. logistics) based on the same principles.
a) Stress reduction: In our team we monitor workplace stress with the aim to improve staff wellbeing. We address stress related factors by implementing organisational workplace standards and offering support programmes.
POINTS: 1
b) Workplace integrity: We view our workforce and organisational values as a key strength and reflect this in our workplaces. We regularly identify and prioritise interventions to maintain and increase employee wellbeing.
POINTS: 2
c) Labour relations: We value great relations between employers, employees and our partners and seek to build and maintain positive working relationships across the company ecosystem based on our organisational values.
POINTS: 1.5
TOTAL SCORE: 4.5
Create Consumer Engagement
Enabling consumers to act sustainably, breaking down barriers that impede upon consumers' good intentions.
a) Consumer & customer centricity : Our team takes into consideration the consumer and customer and the impact that our work has on their experience. We always start from the needs and expectations of our consumer and seek to improve their lives and sustainability expectations.
POINTS: 2.5
b) Conscious consumerism: Our teams actively seek ways to promote a shift towards a more conscious consumer behaviour through their work (i.e. buy less, expand lifecycle of garments, sustainable delivery options, etc) and know how and where their work impacts consumers.
POINTS: 0
c) Sustainable brand perception: Our work contributes to increasing the perception of adidas as an organisation that has a strong commitment towards sustainability and changing lives for the better (our purpose) while also taking care of the planet. This includes being transparent about the real impact of our products or services to show consumers we are trustworthy and help them make more informed decisions.
POINTS: 1
TOTAL SCORE: 3.5
Ok to be that score - as a team we'Re more removed
Empower Communities
Unlocking resilience and agility through self-organizing principles and by holding space for our consumers, customers and staff to learn, grow and develop.
a) Distributed leadership: In our team, decision-making is characterized by distributed leadership where people at all levels can make appropriate decisions without the need for top-level approval. This means that strategic decisions are rarely made by a few behind closed doors and disseminated top-down through the hierarchy.
Team vs org
POINTS: 1.5
b) Self-organizing teams: In our business area, there are plenty of examples of cross-functional non-hierarchic teams working on projects in self-organizing ways. That way, employees are not locked into specific departments but can easily work across, depending on where they see fit.
POINTS: 3
c) Developmental culture: We have dedicated processes in place for content co-creation, peer-to-peer learning and cross-functional exchange, providing tools, platforms and infrastructure to our staff and consumers helping them to develop their own solutions and guiding them in their transition to a more sustainable lifestyle.
POINTS: 1
TOTAL SCORE: 5.5
Upholding Transparency
Creating a trusting culture by being honest and open and being transparent to improve team relationships, improve our work and increase visibility for future improvements.
a) Culture of openness: Our teams celebrate a sharing culture and it is the norm to help each other learn and grow. Our culture is not dominated by a competitive, scarcity mindset but collective practices.
POINTS: 3
b) Trusting foundations: In our team we share information transparently. We build a trusting culture that demonstrates that each person is a valued member of the team and work toward a common goal.
POINTS: 3
c) Holding ourselves accountable: Our team creates an annual sustainability overview which focuses on where our efforts and impacts on environmental, social and governance issues intersect. It's how we keep score against the KPIs, goals and objectives we set in the space.
POINTS: 1
TOTAL SCORE: 7
ual:


GROUP 3 GOVERNANCE DIMENSION
As a Group go through the topics in governance sustainability on the right and rate yourself on each statement.
Add up your total points for each sustainability component.
If you have some time left, discuss the findings in your group:
What surprises you?
What did you expect?
Which areas require most attention?
Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.
3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.
2 Points:
To some extent but plenty of room for improvement
1 Point:
No, this is not something we adequately address
0 Points:
On the contrary, our actions in this area are degenerative
Define Purpose
Making sure the team is contributing to something bigger than its immediate scope and that this is felt by individuals
a) Purpose-driven team: Our team is driven by a shared sense of purpose and our organisational sustainability mission that goes beyond financial success and values positive societal and planetary impact.
POINTS: 1
b) Lived values: The mission of our team is clearly articulated and supported by a core set of organizational values that are not only known, understood and lived by our teams but reflected in our work and impacting how we serve our consumers.
POINTS: 2
c) A culture of wholeness: Team members are encouraged be themselves - arriving at work and feeling at ease without the need for toughening up, wearing a mask or playing a role to fit in. We have a culture of wholeness, where we take time for reflecting, pausing and seeing the bigger picture.
POINTS: 3
TOTAL SCORE: 6
Rethink Business & Finance
Delivering healthy financial results as an enabler for the business to thrive and invest more in sustainability
a) Business for future: We practice foresight and gear our offerings and ways of working toward a market with increasingly conscious and sustainability-led customers, expensive raw materials, stricter rules on working conditions, ethical sourcing and a low carbon and a circular economy.
POINTS: 2
b) Balancing risks: In our team, we recognise the connection between opportunity and risk, encourage a culture of failure and for individuals to embrace risk and experimenting with novel ways of working for instance.
POINTS: 3
b) Enabling long term thinking: We have a proactive desire to create long-term impact and sustainability-led projects supported by a healthy P&L and we begin to say no to work that might result in negative long-term planetary impact.
POINTS: 1
TOTAL SCORE: 6
Strengthen Cooperation
Collaborating and nurturing deep relationships - between colleagues, teams, business partners and consumers - making sure there is a sense of overall alignment.
a) Collective decision-making: Decision-making in our teams is characterised by a healthy level of distributed leadership where people at all levels can make appropriate decisions without the need for top-level approval. We aim to connect all parts of the business and stakeholder ecosystem to ensure that those affected by the decision are involved in the process.
POINTS: 2
c) Individual vs. collective benefits: In our work we balance self-interest (i.e. team KPIs and a narrow work focus) with collective interests (i.e. company-wide sustainability KPIs or EU taxonomy) to identify cross-functional goals, common ground and a bigger cause to work towards.
POINTS: 1
c) Conflict resolution: We plan for conflicts and their resolution from the beginning (i.e. through promoting listening and assertiveness skills or having a trusted impartial mediator) and accommodate differences in our ways of working that honour individuals' perspectives while seeking group alignment.
POINTS: 3
TOTAL SCORE: 6
Nourish Self-governance
Tapping into the authority for teams to self-govern and take responsibility of their own affairs without outside interference
a) Fair & inclusive decision-making: We value and use quick and direct feedback loops about the consequences of decision-making to be able to course-direct quickly, if needed.
POINTS: 3
b) Self-organised teams: We support the creation of self-organised teams working together towards a common goal and give them full project ownership and responsibility to drive business results. Team are flat and everyone is given an opportunity to take on leadership over tasks that are relevant to their expertise.
POINTS: 3
c) Sense & respond over Predict & Control: In our team, we look for the ways that as a system, it creates its own behaviours. We don't push for waterfall or strict agile working but hold space for restoring, adapting & sense-making. Before charging into 'making things happen', we pay close attention to the value of what's already there and view our team and organisation as a dynamic evolving system.
POINTS: 3
TOTAL SCORE: 9
Cultivate Networks & Relations
Investing time and effort into creating well-connected governance structures to help us deal and navigate change and disturbance
a) Systems of relationships: We continuously seek collaboration and across teams (within the organisation and reaching outside the organisation, including competitors) to improve connectivity, knowledge exchange and learning across scales.
POINTS: 2
b) Rules for collective action: We are connected with other institutions and teams through a set of shared rules and guidelines that interact across hierarchies and structures so that problems can be addressed swiftly by the right people at the right time.
POINTS: 2
Lot of ego battles
c) Tapping into the natural ecosystem: In our governance structure, we involve nature-based representatives (i.e. biodiversity experts) to explore future potential, help us navigate change and ensure non-human voices are heard, recognised and integrated into design decisions.
POINTS: 1
TOTAL SCORE: 5
ual:


Reflection & Discussion
Assessing organisational strengths and weaknesses across social, environmental & governance sustainability and 15 lenses
We can reimagine not only how we increase environmental sustainability in our products and digital solutions but also improve key social and governance factors that enable our teams to adopt more sustainable ways of working.
To figure out how you can contribute to a more sustainable future, we should first understand organisational strengths and weaknesses relating to sustainable practices:
What practices are we good at
Where do we lack expertise, knowledge or tools?
What can we prioritise moving forward?
Building on literature and theory, Julia is testing a draft tool she developed as part of her research to better understand organisational strengths and weaknesses by breaking down environmental, social and governance sustainability into a set of key components to assess yourself by. My hope is that this initiates a directional discussion about the team's relationship to sustainability and its role moving forward.
Sustainability assessment scores
Decarbonisation
Circulatity
Biodiversity
Ecocentricity
Ecosystems
Business & Finance
Networks & Relations
Self-governance
Cooperation
Purpose
Workforce & Safety
Transparency
Consumer Engagement
Communities
Diversity & Inclusion
low score on distributed leadership - empowerment in the team but push down from the top
internal team being very transparent
internal versus external
Because of office environment - scored higher
Plants in the office, etc...
Company has goals but doesn't come down to us
not a sustainability purpose in place
consumer centricity - how can we help consumers do the right thing
as a team under.... feel empowered - safe to share
Outside of that - it falls very flat
cross-functional falls flat
distributed leadership - low as soon as it enters cross-functional / org wide
Value streams need more messaging - & visability
Focused on making money
Not appeasing to leadership and what they want to hear
value stream - no messaging around sustainability,. very consumer centricity / money making


Final thoughts and discussion
Stabilise
Transition
ZEISS
patagonia
The dominant system
Old paradigm
The emergent system
New paradigm
Decline
Pioneer
Compost
soul bottles
Network
Amplify
einhorn
Steward
ECOSIA
BUURTZORG
ual:
Has your perspective changed?
Where is [...] on this diagram and how do you see adi evolve?
Where are we investing the most energy, resources and attention, and is this the right choice?
What needs to die in order for something else to be born?
Thanks a lot Julia! Hoping there are more Patagonias in the world
transition phase, but still struggling to find its place in a reducing / "regenerative" world
....has KPIs and goals regarding environmental impact
We need more governance
Success cannot be only measured by increased NS (business as usual)
Relocating people is an option - remote working should enable people to not need to travel so much

Participatory action research, Commoning design workshop overview (4.2.4.1 and 6.3.2.1)

EXPLORING COMMONING PATTERNS FOR PLANET CENTRIC SD PATTERNS GROUP WORK 45 min

STEP 1 5min

Patterns shape systems and people in systems

Patterns are interconnected behaviours, relationships and structures that together make a picture of what 'common practice' looks like and is experienced by people. Patterns they help us understand, navigate and respond to the world around us.

However, research is telling us that tackling the challenges ahead requires new patterns and common practices.

Based on my research, I extracted some key areas to help explore new patterns for a more planet-centric SD practice. These are based on the conditions under which:

- natural resources have been found to be used more sustainably,
- sustainable solutions have been developed cooperation and
- collaboration has been found to thrive.

Let's design against these patterns and brainstorm ideas for tools, activities, methods & approaches for each design starter question to inspire more planet centric ways of SD practice at adidas

COMMONING PATTERNS FOR PLANET-CENTRIC CO-DESIGN

1. VALUES & PURPOSE
Common beliefs and a sense of belonging that underpin how SD as a system is conceptualised, organised & ultimately experienced.

2.BALANCED INTERESTS
Understanding, recognising & balancing individual versus collective group interests

3.COLLECTIVE CHOICE
Fair decision making mechanisms inclusive of those affected by the decision.

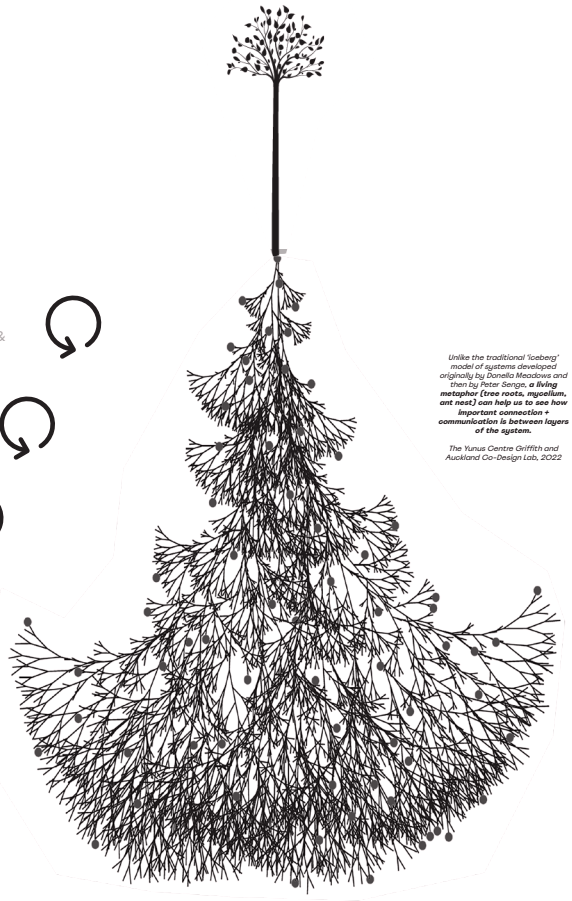
4.PRACTICES
Establishing ways, projects and activities that translate values and purpose into practice. Holding ourselves accountable and increasing transparency.

5.BEHAVIOURS
How individuals, teams, groups within a system behave both in responding to people within & those engaging with the system.

6.DIFFERENCES
Nurturing diversity through putting structures into place that can 'hold' diversity through policies, processes, relationships, routines, habits and interventions - even through friction and conflict.

7.SELF-GOVERNANCE
Deepening self-agency and providing an environment that supports self-management and the capacity to self-organise.

8.NETWORKS & RELATIONS
Acting as part of a wider network of relationships and between systemic layers.



*Unlike the traditional 'Iceberg' model of systems developed originally by Donella Meadows and then by Peter Senge, **a living metaphor (tree roots, mycelium, ant nest) can help us to see how important connection + communication is between layers of the system.***

The Yunus Centre Griffith and Auckland Co-Design Lab, 2022

SHARING GROUP REFLECTIONS 40 min

Disclaimer: this is a draft model only. Ideas to improve it? Please let us know

STEP 2 40 min

Let's design against these patterns and brainstorm ideas for tools, activities, methods & approaches for each design starter question to inspire more planet centric ways of SD practice at adidas. Feel free to build on the previous reflection exercise too, as further inspiration.

IDEATE
With your partner, take a moment to reflect on your current design processes and ideate against the starter questions below

As designers, what tools, methods, practices or activities could ...

Instructions:
- Start by reading through the four starter questions
- Next, brainstorm a set of tools, methods or practices that could tackle your question. You might want to reflect on current ways of working for inspiration in terms of where gaps are, or remember your future fieldwork notes.
- Each person to capture ideas on post-its using the colour legend provided.

1.1 ...help teams to **reflect/ develop/ align on shared purpose** & a set of core values with **planetary interests at heart?**

1.2 ... help teams **capture all stakeholder needs impacted by the system (human & non-human)** and move beyond a human-centred design?

2.1 ...allow all system actors **feel seen, heard and reflected** in the design process (from employee, to shareholder to multispecies and nature)?

2.2 ... help everyone **understand and balance individual vs. collective interests, costs and benefits across lifecycles** (including for non-human actors)?

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3.1 ...allows us to **represent the interests of all actors (human and non-human) in our decision making processes** and involve those affected by a decision?

3.2 ... help to build the necessary **structures and processes for collective decision making** to take place?

4.1 .... help us **uphold team purpose, values and behaviours** and **hold ourselves accountable?**

4.2 .... increase **transparency** and enable teams to **care and learn about our work?**

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5.1 .... help to **address, bring to light and potentially resolve conflict** within the system and among system actors?

5.2 ...create clear expectations and processes (formal & informal) for **dealing with and mediating in times of conflict?**

6.1 ... **encourage cooperation and/or discourage unhelpful** behaviours?

6.2 ... help to **manage breaking of systemic rules, values, behaviours and purpose?**

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7.1 .. encourage **agency and self-governance** amongst system actors and remove potential barriers?

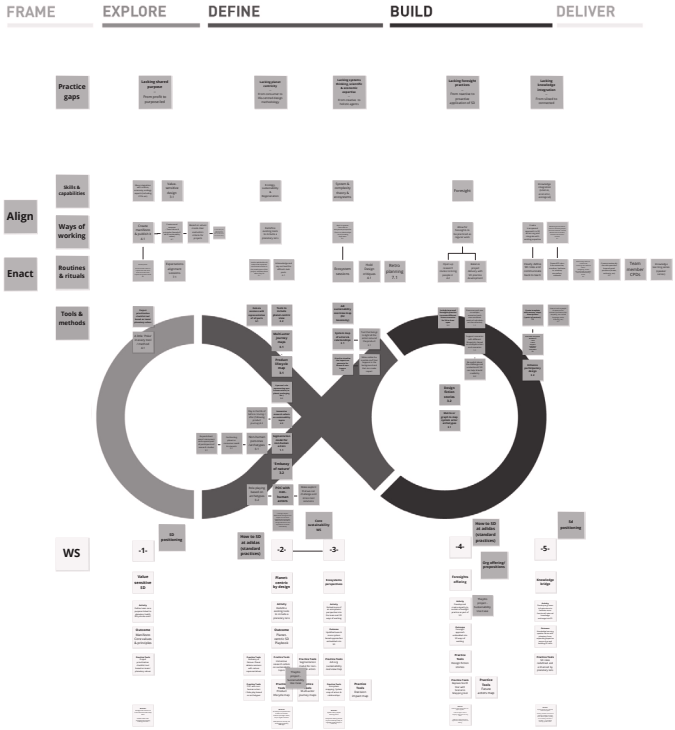
7.2 ... help create structures and processes that **allow system actors to self-organise?**

8.1 ... help teams understand and contribute to **building whole systems that work**, serving not only own interests but those of its larger context?

8.2 ... encourage and sustaining **better relations within and with other groups?**

Coming back together let's hear from each of the four groups what ideas they came up with.

Each group will have up to 10 minutes to share their ideas based on the questions they worked on and to plot them on our design framework. Whilst they present feel free to consider your response to the idea, and how it resonates with the 6 values outlined earlier. If you feel the idea has the potential to create high impact based on the values, take a sticky dot, get up and put it next to the idea post it.



Templates!

Participatory action research, Commoning design brainstorm questions (6.3.2.1)

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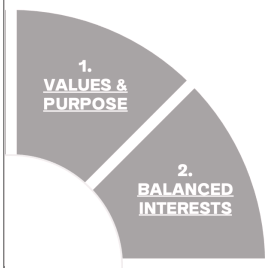

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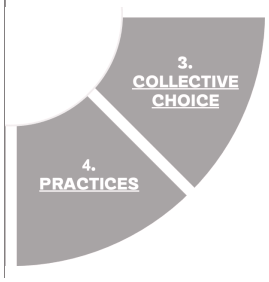

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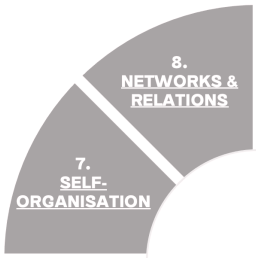

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Participatory action research, Commoning design, planetary health values (6.3.2.1)

The workshop's planetary health values were formulated based on insights derived from relevant literature.

- **DO NOT HARM:** Emphasising the responsibility to avoid unintended consequences and disruptions in the ecosystem caused by design decisions (Meadows 2009; Luhmann 2018)
- **REDUCE & DEGROW:** Encouraging a shift away from perpetual growth and promoting the reduction of negative social and environmental impacts (Fullerton 2015; Raworth 2017; Hickel 2020)
- **DESIGN AS NATURE:** Encouraging a mindset shift to embrace multispecies needs and consider design decisions within a broader ecosystem context (Tsing 2015; Haraway 2016).
- **LONGER TERM:** Highlighting the importance of designing solutions within a larger systemic context and understanding their impact on the entire system (Ostrom 1990; Meadows 2009; Bollier and Helfrich 2019).
- **LOCALLY GLOBAL:** Acknowledging the need for place-based innovation and responsive design that addresses multifaceted challenges (Ostrom 1990; Meadows 2009; Bollier and Helfrich 2019).

DO NOT HARM

With great power comes great responsibility. *Are you aware of whether your designs are creating harm in the ecosystem? Are you aware of unintended consequences your design decisions may have? Do you know if you are disrupt something you weren't aware of?*

REDUCE & DEGROW

Perpetual growth is not an option. Are you aware how and where your design decisions are contributing to the idea of endless growth? Are you challenging the idea of growth and aim to reduce negative social and environmental impact?

DESIGN AS NATURE

We need to overcome the human/ nature separation. Are you designing as nature? Are you expanding the mindset of HCD to embrace multispecies needs also?

LONGER TERM

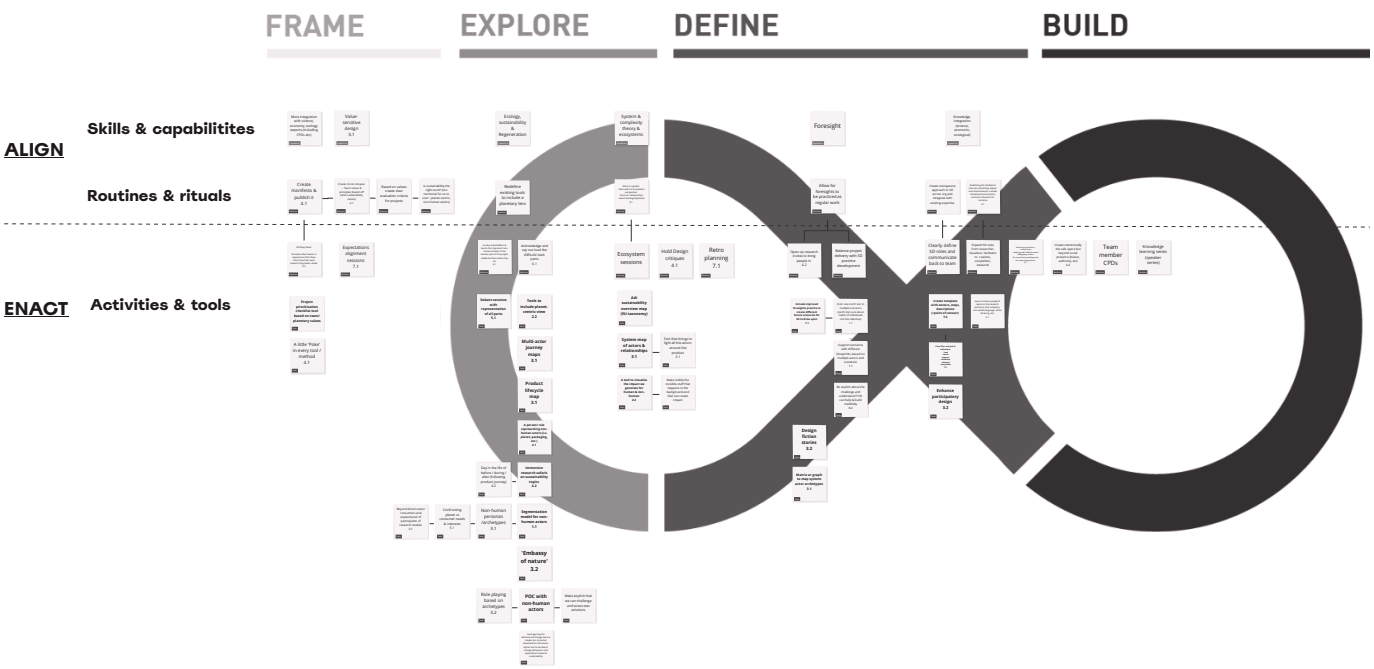
Design solutions and decisions always exists within a larger context. Are you designing as part of a bigger ecosystem? Are you aware of the effects of your decision on other parts of the system?

LOCALLY GLOBAL

The future is place-based innovation. Are you acknowledging multifaceted challenges of each place that likely requires different solutions? Are you designing in high levels of responsiveness so systems can adjust and change to local contexts? Are you relating to other entities in the network still?

Participatory action research, Commoning design, principles brainstorm summary (6.3.2.1)

Practice gaps	Lacking shared purpose -- From profit to purpose-led	Lacking planet centricity -- From consumer to life-centred design methodology	Lacking systems thinking, scientific & economic expertise -- From creative to holistic agents	Lacking foresight practices -- From reactive to proactive application of SD	Lacking knowledge integration -- From siloed to connected



Participatory action research, excerpt of shared purpose and meditation (4.2.4.1 and 6.3.2.2)

FUTURE FIELD RECORDINGS 25 min

STEP 1 10 min

I'd like to invite you to close your eyes.

I'd like you to imagine that it's 2030 and that thanks to a remarkable and historic shift at adidas that took place over the past 8 years in the context of seismic and deep cascading positive changes that in November 2022 felt unimaginable we now live in a very different world with very different approaches to business and design and where SD is in fact catalyst for change. How do you feel? Entering your workspace, what do you see around you? What sounds do you hear? What voices do you hear and what do they say? What do you do in your work? What words come to mind to describe what you do and how you do it?

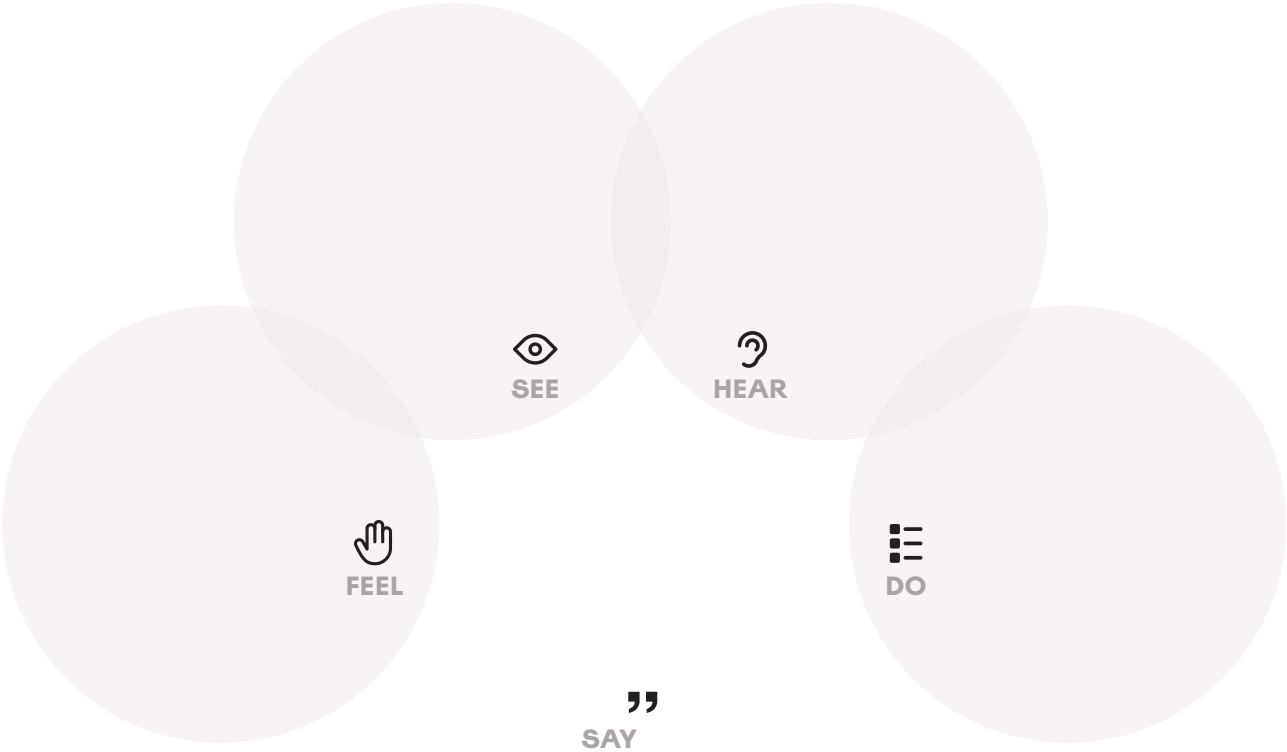
I'd like to invite you to capture what you see, hear, feel and do in this world and to take us on a walk through your imagination.

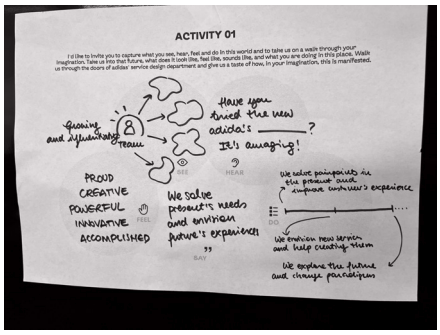
Take us into that future, what does it look like, feel like, sounds like, and what you are doing in this place. Walk us through the doors of adidas service design department and give us a taste of how, in your imagination, this is manifested.

STEP2 15 min

Voice over

Each person has 1-2 minutes to share the highlights of their future field recording

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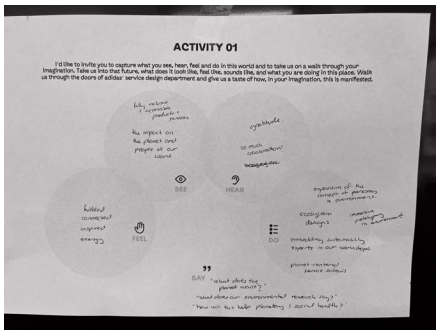
growing and influencing team
have you tried the new adidas's ——? It's amazing!
PROUD
CREATIVE
POWERFUL
INNOVATIVE
ACCOMPLISHED
We solve product's needs and envision future's experience
We solve pain points in the present and improve customer's experience
We envision new services and help creating them
We explore the future and change paradigms
SEE
HEAR
FEEL
DO
SAY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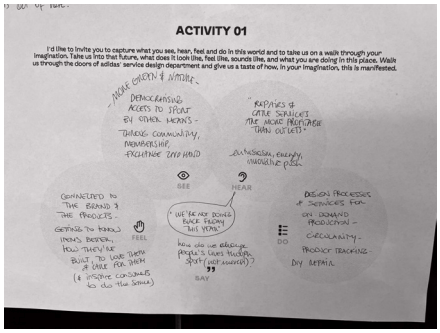
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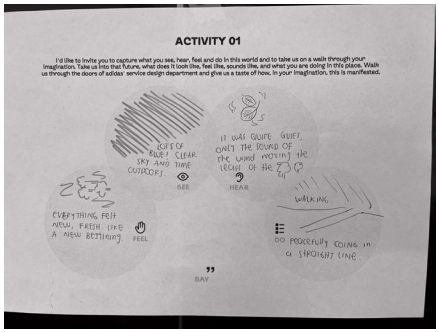
MORE GREEN & NATURE
DEMOCRATIZING ACCESS TO SPORT BY OTHER MEANS - THINKING COMMUNITY, PARTNERSHIP, RELATIONS AND HOLD
"RATIO OF CITY SUBURBS ARE MORE PRECIPITATE THAN OUTLETS"
ENTHUSIASM, ENERGY, MOVEMENT, PASS
CONNECTED TO THE BRAND & THE PRODUCTS - GETTING TO KNOW HOW, WHERE, HOW THEY'RE BUILT, TO LOOK THEM & LIKE FOR THEM (& INSPIRE CONSUMERS TO DO THE SAME)
WE'RE NOT DOWN BLACK FROM THE YEAR
HOW DO WE ENERGIZE PEOPLE'S SOUL TO GET SPORT (NOT WORK)?
DESIGN PROCESSES & SERVICES FOR ON-DEMAND PRODUCTION - CIRCULARITY - PRODUCT TRACKING DIY REPAIR
SEE
HEAR
FEEL
DO
SAY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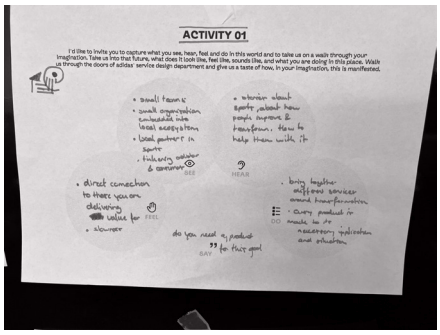
LOTS OF BLUE / CLEAR SKY AND TIME OUTDOORS
IT WAS QUITE QUIET, ONLY THE SOUND OF THE WIND MOVING THE LEAVES OF THE
WALKING
EVERYTHING FELT NEW, FRESH LIKE A NEW BEGINNING
POWERFULLY GOING IN A STRAIGHT LINE
SEE
HEAR
FEEL
DO
SAY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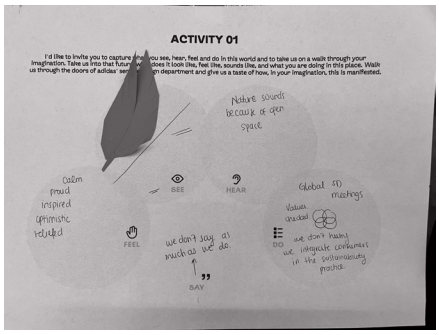
• small team
• small organization embedded into local ecosystem
• local partner in sports
• industry outsider & customer
• obsessed about sports, about how people improve & transform. How to help them with it
• direct connection to those you are delivering
• value for
• slowness
• bring together multiple services around transformation
• every product is made to be necessary, fabrication and production
do you need a product for this goal
SEE
HEAR
FEEL
DO
SAY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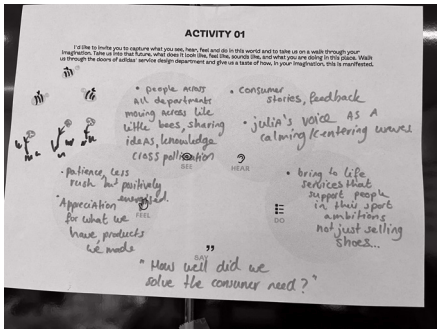
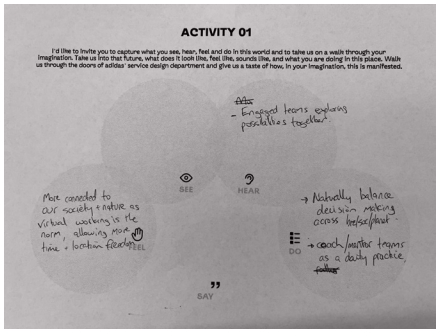
Nature sounds because of open space
Calm
proud
inspired
optimistic
relaxed
Global 50 meetings
values shared
we don't say as much as we do.
we don't paint, we integrate customers in the sustainability practice
SEE
HEAR
FEEL
DO
SAY


ACTIVITY 01
I'd like to invite you to capture what you see, hear, feel and do in this world and to take us on a walk through your imagination. Take us into that future, what does it look like, feel like, sounds like, and what you are doing in this place. Walk us through the doors of adidas' service design department and give us a taste of how, in your imagination, this is manifested.
• people across all departments moving across like little bees, sharing ideas, knowledge cross pollination
• consumer stories, feedback
• julia's voice as a calming/centering waves
• patience, less rush but positively energized.
• Appreciation for what we have products we made
• bring to life services that support people in their sport ambitions not just selling shoes...
" How well did we solve the consumer need?"
SEE
HEAR
FEEL
DO
SAY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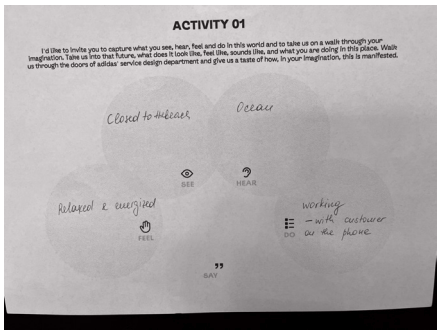
- Engaged teams exploring possibilities together.
More connected to our society + nature as virtual working is the norm, allowing more time + location freedom
→ Naturally balance decision making across teams/planet.
→ coach/mentor teams as a daily practice
SEE
HEAR
FEEL
DO
SAY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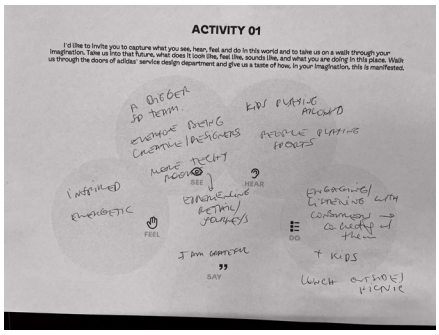
Closed to the beach
Ocean
Relaxed & energized
working - with customer on the phone
SEE
HEAR
FEEL
DO
SAY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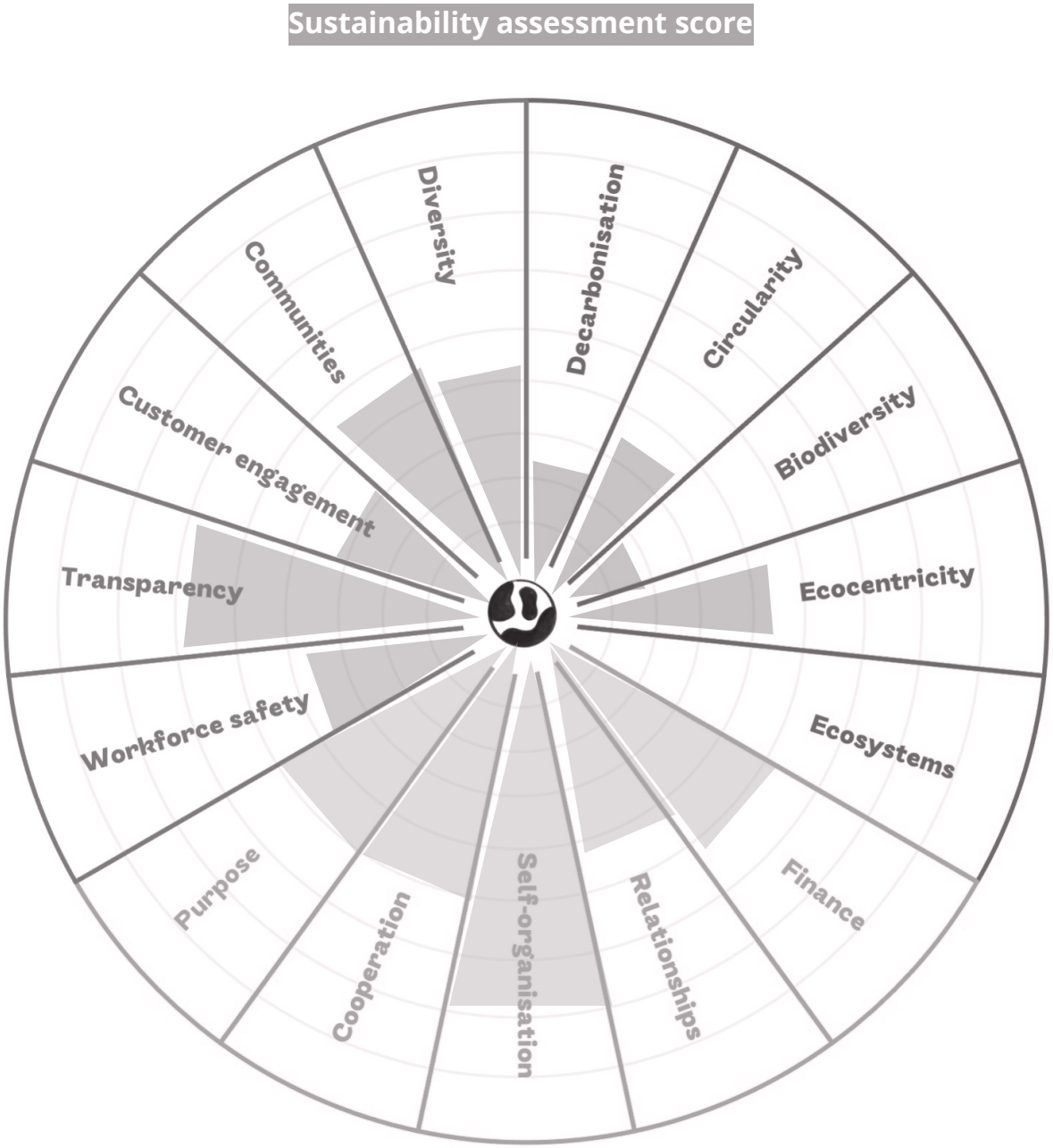
A BIGGER 50 TEAM.
KIDS PLAYING AROUND
ENERGIZE BRING CREATIVE DESIGNERS
PEOPLE PLAYING SPORTS
MORE TECH
INSPIRED
ENERGETIC
ENGAGED BETWEEN YOUNGS
ENGAGED LISTENING WITH CONSUMERS → CLOSER TO THE
I am CONTENT
+ KIDS
LUNCH OUTDOOR PICNIC
SEE
HEAR
FEEL
DO
SAY

Environmental, Social and Governance wheel and voting results (6.3.1.2)



Prioritisation of areas to further explore

As a next step, let's think about the next 6 months to come:

Which of the topics above would you like to address until the end of the year?

Using the stars up on the right, please vote for your top choice/s. You have three stars to vote with.

Unlock **Decarbonisation**	Transition to **Circularity**	Restore **Biodiversity**	Shift to **Ecocentricity**	Operate in **Ecosystems**
Support **Diversity & Inclusion**	Empower **Communities**	Create **Consumer Engagement**	Uphold **Transparency**	Care for **Workforce & Safety**
Define **Purpose**	Strengthen **Cooperation**	Nourish **Self-governance**	Cultivate **Networks & Relations**	**Rethink Business & Finance**

Environmental, Social and Governance wheel, framework design (6.3.1.2)

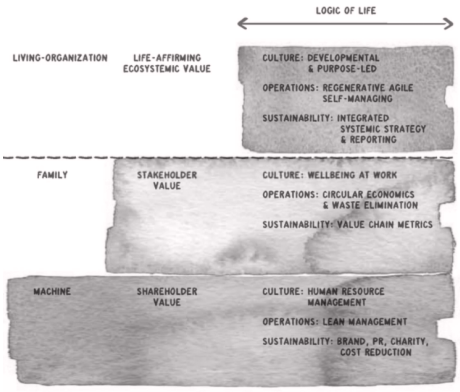
TOWARDS REGENERATIVE TRANSFORMATION BY DESIGN

We can reimagine not only how we increase environmental sustainability in products and solutions but also improve social sustainability that enable our teams to adopt more sustainable ways of working.

To figure out how your organisation can contribute to a more sustainable future, we must first understand our organisational strengths and weaknesses relating to sustainable practices:

- What practices are we good at?
- Where do we lack expertise, knowledge or tools? What can we prioritise moving forward?

Building on literature and (system, evolution, economic & ESG) theory, the people, planet and prosperity wheel is designed to help teams better understand organisational strengths and weaknesses by breaking down environmental, social and governance sustainability into a set of key components to assess yourself by.



Step 1
Review and refine the lenses

Review the lenses under environmental, social and governance and adopt, if necessary to your own context. You can read the definition of each lens on the right.

Step 2
Work through the topics in each dimension and rate yourself

Split into three groups or take enough time to work through all 3 dimensions - environmental, social and governance

As a Group go through the topics in each dimension on the right and rate yourself on each statement.

Add up your total points for each sustainability component.

If you have some time left, discuss the findings in your group:

- What surprises you?
- What did you expect?
- Which areas require most attention?

If you have replaced dimensions, make sure you create new statements to rate yourself on

GROUP 1 ENVIRONMENTAL DIMENSION

Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.

3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.

2 Points:
To some extent but plenty of room for improvement

1 Point:
No, this is not something we adequately address

0 Points:
On the contrary, our actions in this area are degenerative

Unlock Decarbonisation
Knowing about decarbonisation, greenhouse gas emissions and low carbon energy sources to inform our decision-making

a) Expertise on decarbonisation: Our teams have knowledge about unlocking critical opportunities in the transition to a low-carbon economy and we can use this insight to prioritise our work activities (i.e. We are aware of how our digital solutions can increase overall energy consumption and prioritise those that reduce energy demand.)

POINTS

b) Organizational awareness: Our teams are aware of organisational KPIs to reduce carbon footprints and we can access supportive infrastructures to aid design and decision-making in our projects that help us reduce gas emissions & supporting decarbonisation.

POINTS

c) Sustainable logistics & operations: We lead by example and have policies, guidelines and standards in place to help us assess our contribution to a low carbon economy and to reduce adidas' environmental and chemical footprints across digital solutions, logistical processes & operations.

POINTS

TOTAL SCORE:

Transition to Circularity
Seeing all resources as valuable nutrients to be recycled, up-cycled, reused, and reintegrated into the value chain

a) Waste & pollution: Our team is familiar with the principles of a circular economy and we prioritise circular solutions ahead of conventional ways of working.

POINTS

b) Life-cycle Assessments: We have access to value-chain wide social and environmental impact reporting to understand and design for a better value-chain footprint in our products and services (and for instance a life-cycle assessment tool we can run for our solutions)

POINTS

c) Strategy for net positive impact: We are aware of our operational plan to get to 'net zero' into 'net positive' (putting back more into society, the environment and the global economy than it takes out) and envision moonshot solutions beyond circularity.

POINTS

TOTAL SCORE:

Restore Biodiversity
Protecting and regenerating nature to prevent further biodiversity loss by acknowledging nature as a key stakeholder and considering the effects of our solutions on water and land use.

a) Multispecies: We recognises nature and multi-species as a key stakeholder in our decision-making processes and take time to look to nature for inspiration on processes, structures and solutions).

POINTS

b) Water consumption: We have a baseline awareness of water risks and shortages including adidas' water reduction targets and know how to use this information to create digital solutions that reduce water consumption in water-stressed communities and max. water savings.

POINTS

c) Land & resource use: We prioritise creating digital sales solutions that lower energy usage to improve efficiency by minimizing emissions and waste in operations and coordinate with stakeholders to minimize life-cycle product costs.

POINTS

TOTAL SCORE:

Shift to Ecocentricity
Shifting mindsets from obsolete ego-centricity focused on human well-being to an eco-centric awareness that emphasizes the well-being of nature and humans as a whole.

a) Planet-centred design: Our team routinely uses planet-centred design approaches in our projects. (i.e. ecosystem mapping or lifecycle assessments)

POINTS

b) Nature as mentor: We take time to look to nature for advice and inspiration for the processes, structures and solutions that we create.

POINTS

c) Access to nature: Our work environment encourage a connection with nature – including outside areas for meetings, sounds or lighting that feels like nature, or an ability to immerse oneself in nature as part of the design process.

POINTS

TOTAL SCORE:

Operate in Ecosystems
Facilitating the flow of life through stakeholder networks and thinking holistically at every step of the design process

a) Awareness around ecosystemic design impact: It is ingrained within our team culture to always have the bigger ecosystem in mind when designing products and/or services. As such, we consider the effect our designs have beyond the immediate brief.

POINTS

b) Living-systems partnerships: We actively seek partners and collaborators in and outside the org and across our value-chain to reduce our environmental and chemical footprint.

POINTS

c) Organizational integration of ecosystems perspectives: Our teams regularly take time - out from the immediacy of the task to gain a systemic perspective and tap into the field of stakeholders potentially affected or influenced by our product solutions.

POINTS

TOTAL SCORE:

ual:

GROUP 2 SOCIAL DIMENSION

Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.

3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.

2 Points:
To some extent but plenty of room for improvement

1 Point:
No, this is not something we adequately address

0 Points:
On the contrary, our actions in this area are degenerative

Support **Diversity**
Valuing diverse backgrounds and perspectives as part of an inclusive values-rich culture

a) Diversity is a strategic priority: In our team diversity is a strategic priority. This influences all decisions across new hires, leadership team, board, partners and external experts as well as internal decision-making.

POINTS:

b) Celebration of differences: In our team we celebrate and respect differences in skillset, talents, backgrounds, perspectives, culture, nationality, age and gender and ensure that all perspectives are included in decision-making processes.

POINTS:

c) Strong focus on inclusion: We have a strong sense of inclusivity across our organizational culture. We lead by example by promoting a more inclusive and sustainable fashion industry through choosing the right partners, and providing open source tools and platforms for our communities to reflect their own cultural identity and make their own.

POINTS:

TOTAL SCORE:

Care for **Workforce & Safety**
Providing workers with a safe and healthy work environment (free from physical, chemical, biological, and radiological hazards) and choosing key partners (i.e. logistics) based on the same principles.

a) Stress reduction: In our team we monitor workplace stress with the aim to improve staff wellbeing. We address stress related factors by implementing organisational workplace standards and offering support programmes.

POINTS:

b) Workplace integrity: We view our workforce and organisational values as a key strength and reflect this in our workplaces. We regularly identify and prioritise interventions to maintain and increase employee wellbeing.

POINTS:

c) Labour relations: We value great relations between employers, employees and our partners and seek to build and maintain positive working relationships across the company ecosystem based on our organisational values.

POINTS:

TOTAL SCORE:

Create **Constomer Engagement**
Enabling consumers to act sustainably, breaking down barriers that impede upon consumers' good intentions.

a) Consumer & customer centricity : Our team takes into consideration the consumer and customer and the impact that our work has on their experience. We always start from the needs and expectations of our consumer and seek to improve their lives and sustainability expectations.

POINTS :

b) Conscious consumerism: Our teams actively seek ways to promote a shift towards a more conscious consumer behaviour through their work (i.e. buy less, expand lifecycle of garments, sustainable delivery options, etc) and know how and where their work impacts consumers.

POINTS :

c) Sustainable brand perception: Our work contributes to increasing the perception of adidas as an organisation that has a strong commitment towards sustainability and changing lives for the better (our purpose) while also taking care of the planet. This includes being transparent about the real impact of our products or services to show consumers we are trustworthy and help them make more informed decisions.

POINTS :

TOTAL SCORE:

Empower **Communities**
Unlocking resilience and agility through self-organizing principles and by holding space for our consumers, customers and staff to learn, grow and develop.

a) Distributed leadership: In our team, decision-making is characterized by distributed leadership where people at all levels can make appropriate decisions without the need for top-level approval. This means that strategic decisions are rarely made by a few behind closed doors and then disseminated top-down through the hierarchy.

POINTS:

b) Self-organizing teams: In our business area, there are plenty of examples of cross-functional non-hierarchic teams working on projects in self-organizing ways. That way, employees are not locked into specific departments but can easily work across, depending on where they see fit.

POINTS:

c) Developmental culture: We have dedicated processes in place for content co-creation, peer-to-peer learning and cross-functional exchange, providing tools, platforms and infrastructure to our staff and consumers helping them to develop their own solutions and guiding them in their transition to a more sustainable lifestyle.

POINTS:

TOTAL SCORE:

Upholding **Transparency**
Creating a trusting culture by being honest and open and being transparent to improve team relationships, improve our work and increase visibility for future improvements.

a) Culture of openness: Our teams celebrate a sharing culture and it is the norm to help each other learn and grow. Our culture is not dominated by a competitive, scarcity mindset but collective practices.

POINTS:

b) Trusting foundations: In our team we share information transparently. We build a trusting culture that demonstrates that each person is a valued member of the team and work toward a common goal.

POINTS:

c) Holding ourselves accountable: Our team creates an annual sustainability overview which focuses on where our efforts and impacts on environmental, social and governance issues intersect. It's how we keep score against the KPIs, goals and objectives we set in the space.

POINTS:

TOTAL SCORE:

ual:

GROUP 3 GOVERNANCE DIMENSION

Calculating your score:
For each statement choose from the options below. You can either agree a score in your group or give your own, add up your group scope and divide it by 3 to get to a result. For the total score add up all individual points.

3 Points:
Yes – this statement is true for us as a team. We are performing well in this area.

2 Points:
To some extent but plenty of room for improvement

1 Point:
No, this is not something we adequately address

0 Points:
On the contrary, our actions in this area are degenerative

Define **Purpose**
Making sure the team is contributing to something bigger than its immediate scope and that this is felt by individuals

a) Purpose-driven team: Our team is driven by a shared sense of purpose and our organisational sustainability mission that goes beyond financial success and values positive societal and planetary impact.

POINTS :

b) Lived values: The mission of our team is clearly articulated and supported by a core set of organizational values that are not only known, understood and lived by our teams but reflected in our work and impacting how we serve our consumers.

POINTS :

c) A culture of wholeness: Team members are encouraged be themselves - arriving at work and feeling at ease without the need for toughening up, wearing a mask or playing a role to fit in. We have a culture of wholeness, where we take time for reflecting, pausing and seeing the bigger picture.

POINTS :

TOTAL SCORE:

Rethink **Finance**
Delivering healthy financial results as an enabler for the business to thrive and invest more in sustainability

a) Business for future: We practice foresight and gear our offerings and ways of working toward a market with increasingly conscious and sustainability-led customers, expensive raw materials, stricter rules on working conditions, ethical sourcing and a low carbon and a circular economy.

POINTS:

b) Balancing risks: In our team, we recognise the connection between opportunity and risk, encourage a culture of failure and for individuals to embrace risk and experimenting with novel ways of working for instance.

POINTS:

b) Enabling long term thinking: We have a proactive desire to create long-term impact and sustainability-led projects supported by a healthy P&L and we begin to say no to work that might result in negative long-term planetary impact.

POINTS:

TOTAL SCORE:

Strengthen **Cooperation**
Collaborating and nurturing deep relationships - between colleagues, teams, business partners and consumers - making sure there is a sense of overall alignment.

a) Collective decision-making: Decision-making in our teams is characterised by a healthy level of distributed leadership where people at all levels can make appropriate decisions without the need for top-level approval. We aim to connect all parts of the business and stakeholder ecosystem to ensure that those affected by the decision are involved in the process.

POINTS :

c) Individual vs. collective benefits: In our work we balance self-interest (i.e. team KPIs and a narrow work focus) with collective interests (i.e. company-wide sustainability KPIs or EU taxonomy) to identify cross-functional goals, common ground and a bigger cause to work towards.

POINTS :

c) Conflict resolution: We plan for conflicts and their resolution from the beginning (i.e. through promoting listening and assertiveness skills or having a trusted impartial mediator) and accommodate differences in our ways of working that honour individuals' perspectives while seeking group alignment.

POINTS :

TOTAL SCORE:

Nourish **Self-organisation**
Tapping into the authority for teams to self-govern and take responsibility of their own affairs without outside interference

a) Fair & inclusive decision-making: We value and use quick and direct feedback loops about the consequences of decision-making to be able to course-direct quickly, if needed.

POINTS:

b) Self-organised teams: We support the creation of self-organised teams working together towards a common goal and give them full project ownership and responsibility to drive business results. Teams are flat and everyone is given an opportunity to take on leadership over tasks that are relevant to their expertise.

POINTS:

c) Sense & respond over Predict & Control: In our team, we look for the ways that as a system, it creates its own behaviours. We don't push for waterfall or strict agile working but hold space for restoring, adapting & sense-making. Before charging into 'making things happen', we pay close attention to the value of what's already there and view our team and organisation as a dynamic evolving system.

POINTS:

TOTAL SCORE:

Cultivate **Relationships**
Investing time and effort into creating well-connected governance structures to help us deal and navigate change and disturbance

a) Systems of relationships: We continuously seek collaboration and across teams (within the organisation and reaching outside the organisation, including competitors) to improve connectivity, knowledge exchange and learning across scales.

POINTS:

b) Rules for collective action: We are connected with other institutions and teams through a set of shared rules and guidelines that interact across hierarchies and structures so that problems can be addressed swiftly by the right people at the right time.

POINTS:

c) Tapping into the natural ecosystem: In our governance structure, we involve nature-based representatives (i.e. biodiversity experts) to explore future potential, help us navigate change and ensure non-human voices are heard, recognised and integrated into design decisions.

POINTS:

TOTAL SCORE:

ual:

Urgency alignment, Menti exercise participant responses (6.3.1.1)

"What does sustainability mean to you personally?"	*"What does sustainability mean for your business transformation/service design team?"*
• Taking into account the long-term effects that decisions and actions can have on unlimited resources like climate, environment, people's health, my family, relationships, etc. • A series of actions that will make life on this planet still possible in the future. • Consciously developing products and services that take into consideration the footprint that we are having and how to produce them in a more sustainable way. Understanding where we can make changes throughout the whole chain/system. • The choice one makes to fulfil the current needs without compromising the ability of the future self to attain what it needs. • Reducing our carbon footprint. • Sustainability is a variable that I want to introduce and make part of my life as much as possible. Considering how I consume, transport myself, etc. • To me, it's all about leaving the world in a better place for generations to come, and as one of the largest companies, we need to lead the change. • Being aware that resources are limited, so we cannot destroy them but rather find ways to live while taking care of those resources. • Acting in a way that we care for the environment, people and other stakeholders involved, without harming or sacrificing any of them for one's benefit.	• We, as a team, are leading our company into the future, and I believe sustainability is a great way to make it an even more company-wide focus going forward. • Business needs to find a way to transform itself to grow while maintaining a balance between economic growth, environmental care, and social wellbeing. • I think sustainability should be leading the way in business transformation and all processes should serve it. Designing from sustainability rather than adding it as a layer. • Sustainability is at the core of our team, and with the business transformation goals, we will be able to bring a positive change to the planet. • As we adapt to market, environmental, and people changes, we need to take care of the surroundings and the future we leave behind during these changes. • Creating solutions that help us do business and grow well while minimising negative impacts on climate, environment, people's health, relationships, etc. • Finding ways as a company to minimise our carbon footprint and incentivise our consumers to do the same. • An opportunity to bring this theme as a key subject in mindset and use it as a hands-on approach across the organisation to empower teams to think and create more sustainable products and services.

Environmental, Social and Governance wheel, meditation grounding practice script (6.3.1.2)

Grounding Practice on the Earth

Start by standing up or sitting down - making yourself comfortable whereever you are

If your sitting, put your hands on the ground hands - taking a moment to
connect with the earth underneath whatever you're sitting on

If you're standing, putting your weight evenly on both feet and
also connecting to the ground via your feet

Taking a moment to notice the temperature around you, and becoming aware of of what supports you.

Then close your eyes and straighten your back.

Allow your body to grow heavy and your chin to be high.

Taking a deep breath in and out

As you're breathing, feeling the earth and its energy rising up to meet your body and hold it.

As you're breathing out

With each breath you let out, visualize your 'roots' begin to sprout and grow into the ground.

Just a little bit on that first breath, but progressively bigger with each breath you take.

Growing your roots until you can gently wiggle your upper body and not pull your roots from the earth.

Finding your place and becoming still.

Becoming aware of the sturdiness of the earth beneath and
Remembering that it supports each aspect of you.

As you sit up a little straighter, imagine the earth's strength traveling up
through your roots, up across the spine, steadying it, reinforcing it.

Becoming aware that every day of your life, the earth has been here to catch you.

Reminding yourself that for each day that is to come, the earth will be here to catch you.

Now slowly taking another deep breath and opening your eyes again.

A warm welcome back to our second part of the sustainability session.

Participatory action research, Ecosystem mapping draft (4.2.4.1 and 6.3.2.3)
More detail cannot be shared due to NDA agreements

WHY THE VALUE OF ECOSYSTEM MAPPING

THE OVERALL VALUE

Ecosystem mapping can help us understand complex systems and relationships within which our designs exist.

By mapping out the actors, resources, and flows that make up an ecosystem, we can gain a more holistic understanding of the context in which our ideas will be implemented and make more informed decisions that take into account the needs and perspectives of all relevant parties.

The output of ecosystem mapping is intended to better equip us to navigate the complexity and uncertainty that surrounds the strategic focus of our work and help us make more informed decisions around new opportunities for collaboration and innovation.

Key benefits:

1. **Understanding the ecosystem:** Ecosystem mapping helps us gain a deeper understanding of the ecosystem in which we operate. By identifying and analyzing the different components of the ecosystem, we can better understand the relationships and interactions between them, and how they impact the ecosystem as a whole.
2. **Identifying opportunities and improving collaborations:** Ecosystem mapping can help to identify new opportunities for collaboration and innovation within the ecosystem. By identifying gaps or areas of overlap between different components of the ecosystem, we can identify areas where new partnerships or collaborations could be beneficial.
3. **Mitigating risks:** Ecosystem mapping can also help to identify potential risks or threats to the ecosystem, such as competition or resource constraints. By understanding the relationships and dependencies between different components of the ecosystem, we can take steps to mitigate these risks and ensure the ecosystem remains healthy and sustainable.
4. **Supporting decision-making:** Ecosystem mapping provides a wealth of information that can be used to inform decision-making. By understanding the different components of the ecosystem and their relationships, we can make more informed decisions about how to allocate resources and prioritize activities.

HOW THE METHOD

STEP 1
Define the problem or opportunity
Clearly define the design problem or opportunity that the ecosystem mapping process will address. using the box below. This could include identifying a specific social or ecological issue, or identifying a specific design challenge that needs to be addressed.

PROTOTYPE ECOSYSTEM MAPPING AS A WAY FOR THE TEAM TO UNDERSTAND THE BIGGER PICTURE OF THE SUSTAINABILITY LANDSCAPE AND IDENTIFY KEY STRATEGIES OF HOW TO POSITION 5D IN THE CONTEXT OF PLANET-CENTRICITY INSIDE THE ORG. INCLUDING:

- HOW DO WE STRATEGICALLY ALIGN OUR ACTIVITIES WITH OTHER STAKEHOLDERS IN THE COMPANY, INCLUDING RELEVANT ACTORS AND INITIATIVES?
- HOW CAN WE IDENTIFY OR MANAGE RISKS THAT COULD AFFECT OUR BROADER SUSTAINABILITY GOALS?
- HOW CAN WE DRIVE INNOVATION BY IDENTIFYING GAPS FOR NEW APPROACHES OR SOLUTIONS TO OUR SUSTAINABILITY CHALLENGES?

STEP 2
Map the ecosystem components

1. **Actors**
   Identify the key stakeholders and actors that are involved in or affected by the design problem or opportunity. This could include individuals, communities, organisations, and government agencies.
2. **Resources**
   Identify the natural and human-made resources that are important to the functioning of your ecosystem and the wellbeing of actors who depend on it.
3. **Governance**
   Identify the structures and processes that govern the use and management of resources within your ecosystem.
4. **Social, economic and political factors**
   Identify the social, economic, and political characteristics of a particular area or population. These can include but are not limited to:
5. **Environmental factors**
   Identify other natural ecosystems that are linked or have an impact, or are impacted by your ecosystem

How to identify system components?

Ecosystem components can be identified through several methods, including:

- Conduct **literature reviews** and synthesising existing knowledge on the specific system being studied. This can provide information on the resources that are important to the system and how they are currently being managed.
- **Interview stakeholders**, such as colleagues, community members, local leaders, and resource managers, to gather information, perceptions and experiences
- Observe and collecting data on the ecosystem during **ongoing projects and initiatives**, including data on resource use, governance structures, and decision-making processes.

Before holding a group session, you might want to think about gathering first datasets using these methods.

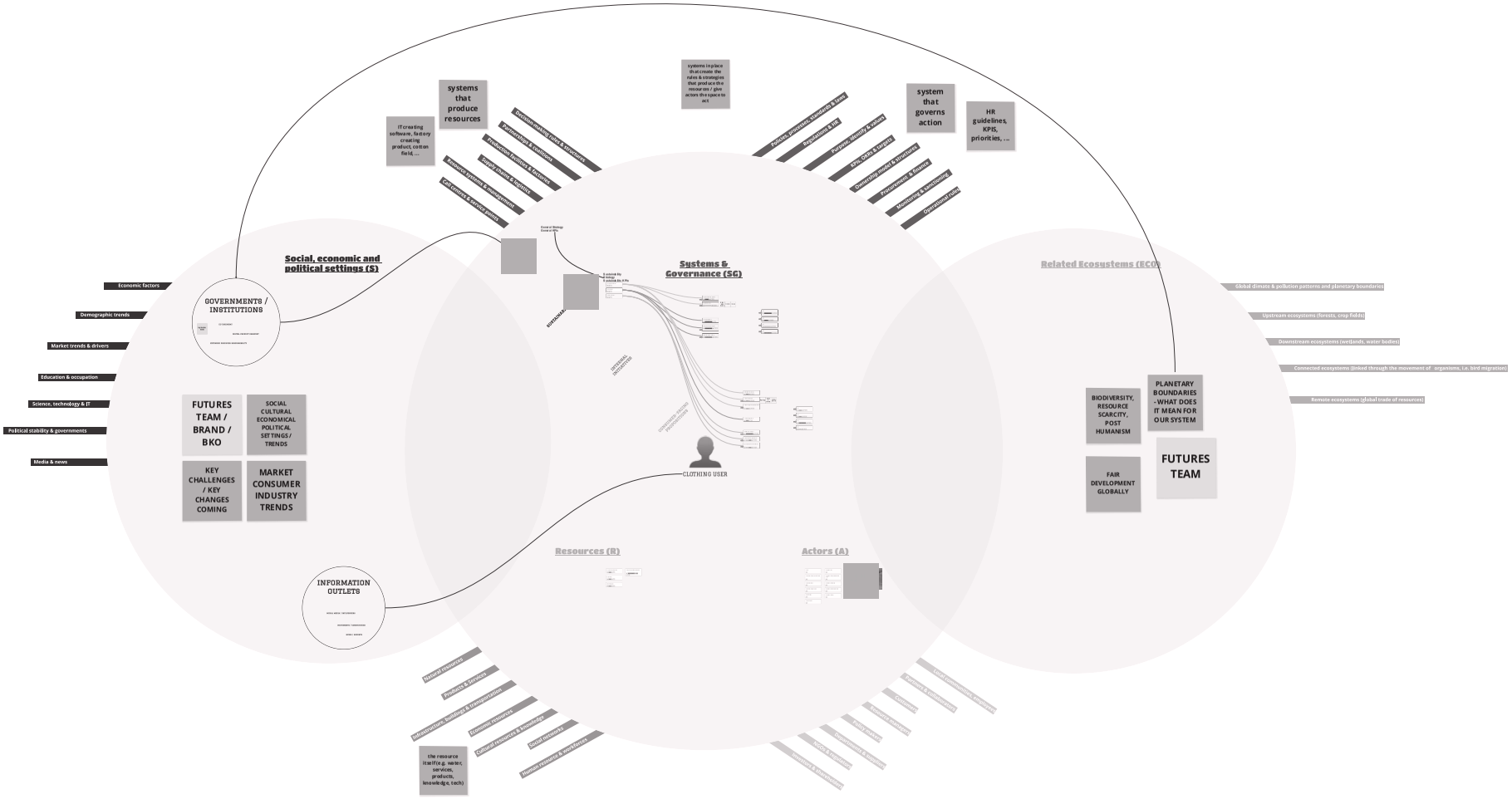
STEP 3
Create a visual representation on the map
Identify and map the connections between them. This could include a map of the physical and biophysical environment, as well as a diagram of the social and institutional components.

STEP 4
Identify drivers and leverage points
Analyse the ecosystems map to identify the key drivers of system behaviour and potential leverage points for change. This could include identifying the key interactions and flows within the system, as well as the relationships between different actors and stakeholders that need improving. Use colours, arrows and lines to visualise this.

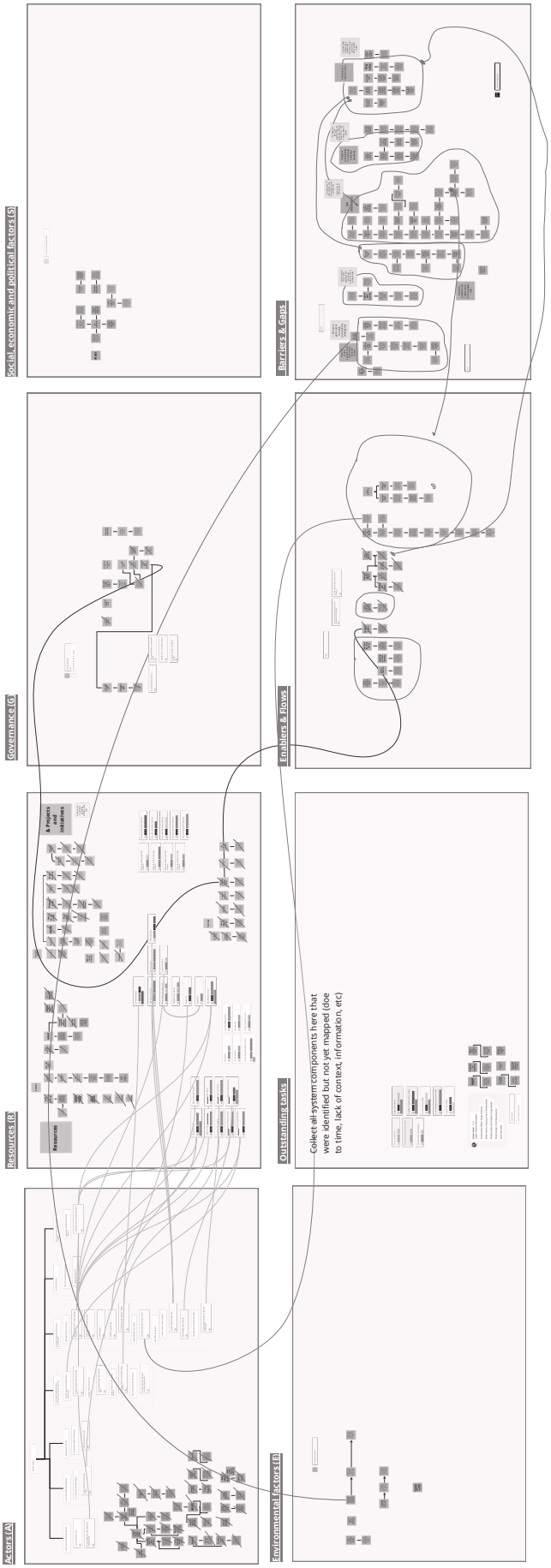
Next you might want to summarise some key insights, based on the data you gathered (which you may want to highlight as future opportunity areas that need addressing)

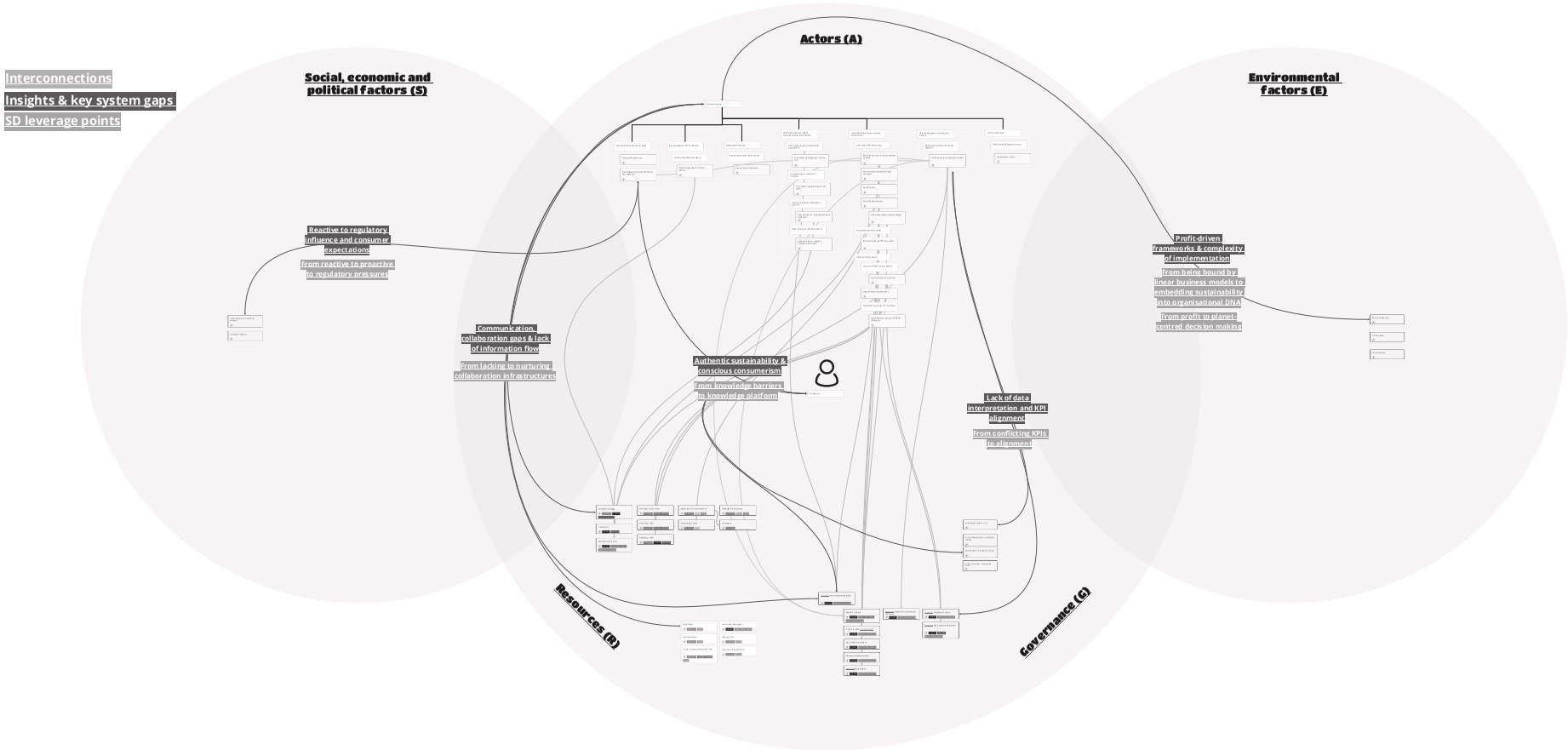
STEP 5
Develop solutions, monitor and evaluate
Use the information gathered through the ecosystem mapping process to identify strategies, priorities or, if possible, design solutions that take into account the complex interactions within the ecosystem. These solutions could evolve your insights based on the identified barriers, drivers and leverage points.

Monitoring and evaluation are an integral part of the ecosystem approach. It is important to regularly assess the ecosystems map and its resulting and make necessary adjustments. Think about who is 'owning' this map, updating it and in which work routines you may want to refer back to it.

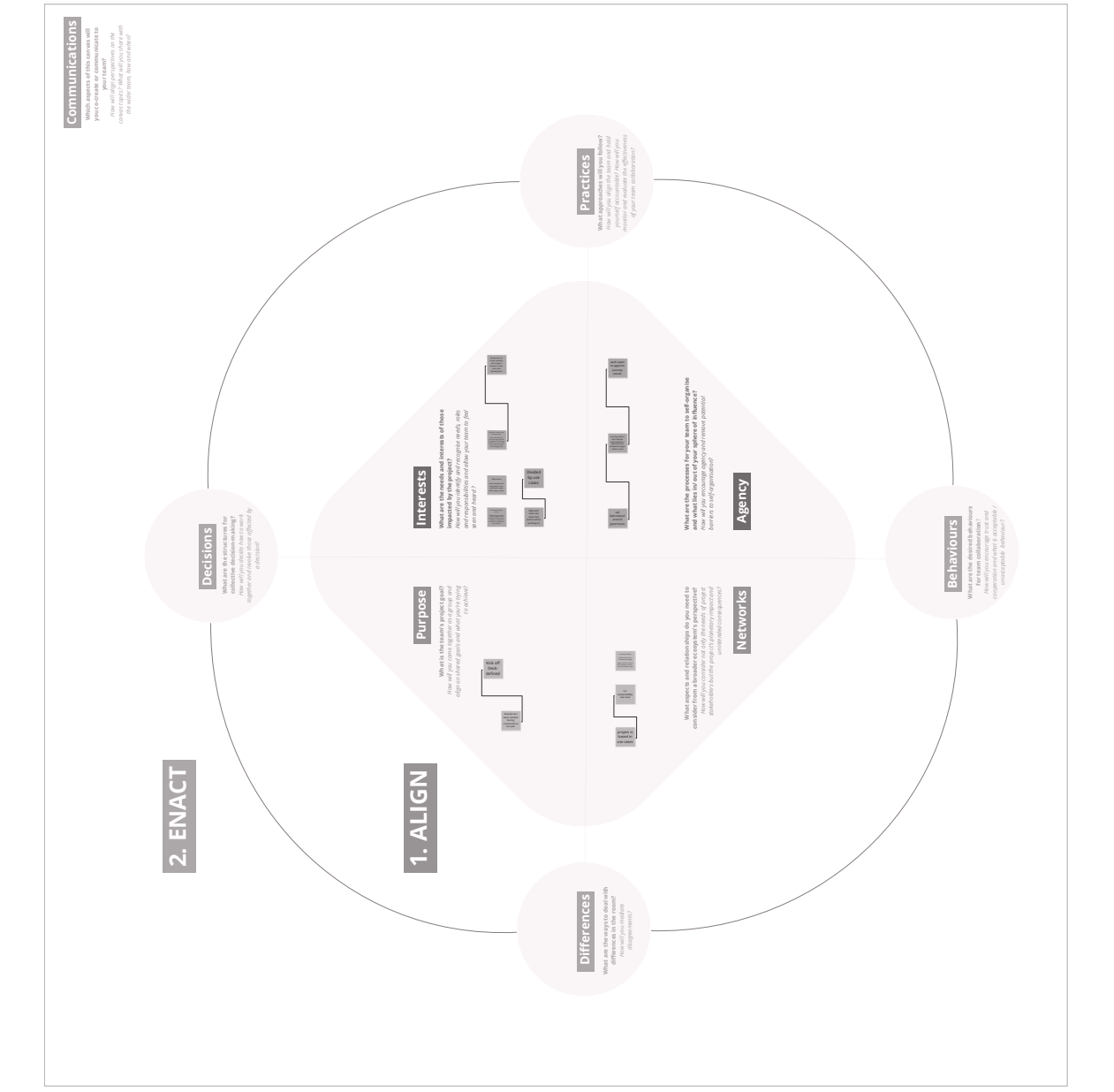

Economic factors
Demographic trends
Market trends & drivers
Education & occupation
Science, technology & IT
Political stability & governments
Media & news
Social, economic and political settings (S)
GOVERNMENTS / INSTITUTIONS
FUTURES TEAM / BRAND / BKO
SOCIAL CULTURAL ECONOMICAL POLITICAL SETTINGS / TRENDS
KEY CHALLENGES / KEY CHANGES COMING
MARKET CONSUMER INDUSTRY TRENDS
INFORMATION OUTLETS
IT creating software, factory creating product, cotton field, ...
systems that produce resources
Industry-specific laws & guidelines
Transaction & conditions
Production Options & Choices
Supply Chains & Actors
Science, Research & Innovations
Certifications & Industry Codes
systems in place that create the rules & strategies that produce the resources / give actors the space to act
Focus, Positions, Goals & Aims
Regulations & Bill
Professional Identity & Values
Ethic Codes & Laws
Orientation Basics & Structures
Requirements & Barriers
Motivations & Aversions
Operational Rules
system that governs action
HR guidelines, KPIS, priorities, ...
Systems & Governance (SG)
CLOTHING USER
Resources (R)
Actors (A)
Related Ecosystems (ECO)
Global climate & pollution patterns and planetary boundaries
Upstream ecosystems (forests, crop fields)
Downstream ecosystems (wetlands, water bodies)
Connected ecosystems (linked through the movement of organisms, i.e. bird migration)
Remote ecosystems (global trade of resources)
BIODIVERSITY, RESOURCE SCARCITY, POST HUMANISM
PLANETARY BOUNDARIES - WHAT DOES IT MEAN FOR OUR SYSTEM
FAIR DEVELOPMENT GLOBALLY
FUTURES TEAM
Human resources
Politics & opinion
Infrastructure, buildings & transportations
Economic resources
Cultural resources & knowledge
Food products
Human resources & workforce
the resource itself (e.g. water, services, products, knowledge, tech)
Local economic & societies
Nations & governments
Institutions
Business sectors
Media & news
Consumers & citizens
Investors & financiers
Suppliers & manufacturers

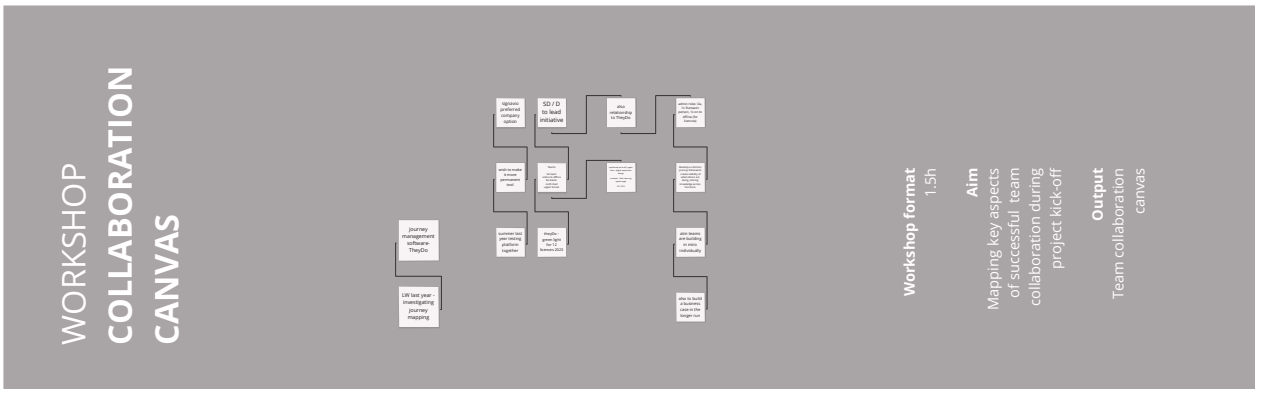
Final SES ecosystem map, Case study ecosystem map (6.3.2.3)
More detail cannot be shared due to NDA agreements




Interconnections
Insights & key system gaps
SD leverage points
Social, economic and political factors (S)
Actors (A)
Environmental factors (E)
Reactive to regulatory influence and consumer expectations
From reactive to proactive to regulatory pressures
Communication, collaboration gaps & lack of information flow
From lacking to nurturing collaboration infrastructures
Authentic sustainability & conscious consumerism
From knowledge barriers to knowledge platform
Lack of data interpretation and KPI alignment
From conflicting KPIs to alignment
Profit-driven frameworks & complexity of implementation
From being bound by linear business models to embedding sustainability into organisational DNA
From profit to planet-centred decision making
Resources (R)
Governance (G)

Participatory action research, Collaboration canvas iteration 2 & 3 (4.2.4.1 and 6.3.2.4)
More detail cannot be shared due to NDA agreements





WORKSHOP **COLLABORATION CANVAS**

Workshop format
1.5h

Aim
Mapping key aspects of successful team collaboration during project kick-off

The workshop could involve a series of exercises and discussions to help teams define each of these elements. For example, team members could work together to define clear boundaries and rules for project goal, and to identify ways to build relationships of trust and reciprocity when zooming out of the immediate project context. The team could also work together to identify metrics for success and to develop plans for sustaining the collaborative structure over the long term.

Output
Team collaboration canvas

AGREE **BEHAVIOURS**

Define team approaches, behaviours, team and project boundaries and other 'rules' to go by, including metrics for success. This could include defining who has access to the work, what behaviours are desired or prohibited, and what the consequences are for non-compliance.

- *What are the desired behaviours for team collaboration?*
- *How will you encourage cooperation and identify/discourage unhelpful behaviours?*
- *What approaches, practices and principles will you follow?*
- *How will you align the team and hold yourself accountable during the project?*
- *What are your agreed deliverables?*
- *How will you regularly assess progress?*

MAKE COLLECTIVE **DECISIONS**

Encourage participation and communication: Identify ways to make (collaborative) decisions in the team and encourage participation and open communication among all participants.

- *What are the structures for collective decision-making?*
- *What are the ways that team members participate?*
- *How will you openly communicate with all team members?*
- *How will you decide how to work together?*
- *How will you involve those affected by a decision?*

BUILD **ACCOUNTABILITY**

Encourage actors to remain responsible for their actions and to contribute to the collaboration.

- *How will you recognise unhelpful behaviours?*
- *What mechanisms can you put in place to know people are following what you previously agreed on?*
- *How can you anchor all the other points into practice and ensure you review progress regularly?*
- *How will you create ways to encourage cooperation?*
- *How will you regularly evaluate and assess progress to adjust the collaborative structure?*

ALIGN **PURPOSE**

Identify the project or team purpose that requires collaboration.

- *What is the team's project purpose?*
- *How will you come together as a group and align on shared goals and what you're trying to achieve?*
- *What challenges or problems are you trying to resolve?*

BALANCE **INTERESTS**

Capture needs and interests that should be addressed through the project, including of those collaborating with you.

- *Who is impacted by the collaboration?*
- *Which needs and interests are addressed through the project?*
- *How will you identify and recognise needs, roles and responsibilities?*
- *How will you allow your team to feel seen and heard?*
- *Are there unintended consequences your project may have?*

Map potential different approaches coming together in the project. Think about how you would like to deal with any conflicts arising and what roles and behaviours might be needed.

- *What are the ways to deal with differences in the room?*
- *How will you mediate disagreements?*

EMBRACE **DIFFERENCES**

Help foster a sense of agency among system actors, review capacity and instil commitment

- *How will you clarify roles and responsibilities? Who will adopt which role and how will you ensure everyone is aware of this?*
- *How will you instil commitment in each team member?*
- *How will you establish structures of self-organization?*
- How will you encourage agency and remove potential barriers to self-organisation?

ENABLE **AGENCY**

Take a whole systems approach. Develop ways to build relationships of trust and reciprocity among participants or to nurture new relations. Develop plans to sustain the collaborative structure over the long term.

- *What aspects and relationships do you need to consider from a broader ecosystem's perspective?*
- *How can you build trust and reciprocity?*
- *How will you consider not only the needs of project stakeholders but the project's planetary impact and unintended consequences?*

NURTURE **RELATIONS**

Participatory action research, Planetary actor cards (4.2.4.1 and 6.3.2.5)

AIR

"I am a vital gas enveloping Earth, facilitating life through oxygen exchange, shaping

AGE & DESCRIPTION

TAir, as we perceive it, has no distinct age, constantly cycling and renewing itself. Composed primarily of nitrogen, oxygen, and trace gases, air is an ever- [illegible] and dynamic mixture [illegible] fundamental [illegible] heric [illegible] years.

PLANTS

"I am a living organism with intrinsic worth and rights. I only exist once but humans consume as if I exist three times"

AGE & DESCRIPTION

The planet is approximately 4.5 billion years old.

It encompasses a rich biodiversity that includes forests, deserts, grasslands, coral reefs, and oceans.

KEY ATTRIBUTES

1: Majestic
Earth, with its awe-inspiring landscapes and celestial beauty, evokes a sense of majesty, reminding us of our place in the cosmos.

2: Diverse
Our planet boasts incredible biological and cultural diversity, with a multitude of ecosystems and human societies coexisting.

3: Dynamic
Earth's ever-changing nature is marked by geological processes, climate fluctuations, and the constant movement of life on its surface.

4: Life-Sustaining
A delicate balance of natural processes and resources sustains life, providing the essentials needed for the existence of all species, including humans.

5: Enigmatic
Despite centuries of study, Earth continues to reveal mysteries, from the depths of the oceans to the intricacies of our atmosphere.

6: Interconnected
Interwoven ecosystems, global economies, and the shared human experience emphasise our planet's interconnectedness, urging collective responsibility.

KEY NEEDS

1. **Environmental Conservation:** Preserving and protecting ecosystems, natural resources, and biodiversity.
2. **Sustainable Development:** Balancing human development with the conservation and responsible use of resources.
3. **Climate Stabilisation:** Mitigating the impacts of climate change and reducing greenhouse gas emissions.
4. **Clean Energy Transition:** Transitioning to renewable and sustainable energy sources to reduce environmental impacts.
5. **Ecosystem Restoration:** Rehabilitating degraded habitats and promoting the recovery of ecosystems.

KEY PAINPOINTS

1. **Biodiversity Loss:** The ongoing loss of species and habitats due to human activities, leading to imbalances in ecosystems.
2. **Climate Change:** Rising temperatures, extreme weather events, and sea-level rise that pose threats to ecosystems and human well-being.
3. **Pollution:** Pollution of air, water, and land, including plastic waste and harmful chemicals, impacting both ecosystems and human health.
4. **Deforestation:** Widespread clearing of forests for agriculture, infrastructure, and resource extraction, leading to habitat loss and carbon emissions.
5. **Unsustainable Resource Use:** Overexploitation of natural resources, such as water, minerals, and forests, without proper regeneration and management.

KEY GLOBAL /EU STRATEGIES TO CONNECT WITH

1. **EU Sustainable Development Goals (SDGs):** The EU aligns policies with SDGs, addressing climate action, clean energy, biodiversity, and responsible consumption.
2. **Paris Agreement:** The EU supports the agreement, committing to reduce emissions and transition to a low-carbon economy through initiatives like the European Green Deal.
3. **EU Biodiversity Strategy 2030:** A comprehensive plan to protect and restore biodiversity, integrating conservation objectives into agriculture, fisheries, and regional development.
4. **Clean Energy Transition:** The EU promotes renewable energy and energy efficiency through initiatives like the EU Renewable Energy Directive and the European Green Deal.
5. **Circular Economy Action Plan:** The EU aims to minimize waste, improve resource efficiency, and promote sustainable consumption and production through targets and measures.

RISKS & UNINTENDED CONSEQUENCES IF WE DON'T

1. **Ecosystem Collapse:** Loss of biodiversity and collapse of ecosystems, leading to a decline in ecosystem services that sustain human well-being.
2. **Climate Risks:** Increasingly severe and frequent extreme weather events, rising sea levels, and disruptions to agriculture, water resources, and livelihoods.
3. **Health Risks:** Increased pollution levels affecting human health, leading to respiratory problems, diseases, and reduced quality of life.
4. **Resource Scarcity:** Depletion of essential resources such as water, arable land, and minerals, leading to conflicts and socioeconomic challenges as well as increasing socio-economic disparities and inequalities (human / non-human)
5. **Environmental degradation:** Continued reliance on non-renewable resources and unsustainable practices leading to long-term environmental degradation and compromised future generations' well-being.

How does our project address the key needs and challenges of protecting the planet and what measures can we incorporate to minimize negative impact?

LAND

"I am the solid surface beneath your feet. Home to diverse ecosystems, I provide the foundation

AGE & DESCRIPTION

Shaped over millions of years through geological processes, land carries the scars of Earth's ancient history. From towering mountains to expansive plains, [illegible] of land varies widely, [illegible] and enduring [illegible] ems to [illegible]

ANIMALS

"I am the cradle of life. I guard Earth's mysteries. Treat me with respect, and I will thrive. Neglect me, and we risk losing the essence of life itself."

AGE & DESCRIPTION

The Ocean has been present for billions of years and continues to evolve.

It transcends age and demographics, as it affects every living being on Earth.

KEY ATTRIBUTES

1. Vast
The Ocean covers approximately 70% of the Earth's surface, making it the largest ecosystem on the planet.

2. Life-Giving
It supports a tremendous diversity of life, with estimates of over one million known species and potentially millions more yet to be discovered.

3. Biodiversity Hotspot
The Ocean is a treasure trove of biodiversity, containing around 25% of all known marine species, including vibrant coral reefs, majestic whales, dolphins, and an abundance of fish.

4. Fragile and Interconnected
The delicate balance of the oceanic ecosystems is easily disrupted, with human activities such as pollution, overfishing, and climate change threatening the health of marine life and the entire ecosystem.

5. Carbon Sink
The Ocean plays a vital role in mitigating climate change by absorbing approximately 30% of the carbon dioxide emitted into the atmosphere, reducing its impact on the climate system.

6. Cultural Significance
The Ocean holds deep cultural and spiritual significance for many communities around the world, influencing their traditions, livelihoods, and cultural practices for generations.

KEY NEEDS

1. **Protection:** Safeguard the ocean from pollution, overfishing, habitat destruction, and climate change to preserve its biodiversity and ecosystem functions.
2. **Conservation:** Implement effective measures for the long-term sustainability of marine resources and habitats.
3. **Awareness:** Increase public understanding and education about the ocean's importance and vulnerability to drive responsible actions.
4. **Collaboration:** Foster international cooperation to address cross-border challenges such as illegal fishing, marine debris, and climate change impacts on the ocean.
5. **Scientific Research:** Conduct ongoing research to deepen our knowledge of the ocean's ecosystems, species, and their interactions.

KEY PAINPOINTS

1. **Pollution:** The ocean suffers from various forms of pollution, including plastic waste, oil spills, chemical runoff, and marine debris, endangering marine life and ecosystems.
2. **Overfishing:** Unsustainable fishing practices, such as overfishing and bycatch, deplete fish populations and disrupt the delicate balance of marine ecosystems.
3. **Habitat Destruction:** Destructive fishing methods, coastal development, and climate change-induced coral bleaching harm crucial habitats like coral reefs, mangroves, and seagrass beds.
4. **Climate Change:** Rising temperatures, ocean acidification, and sea-level rise caused by climate change pose significant threats to the ocean's health and the species that depend on it.
5. **Illegal Fishing:** Illegal, unreported, and unregulated fishing undermines conservation efforts, exploits vulnerable species, and disrupts marine food webs.

KEY GLOBAL /EU STRATEGIES TO CONNECT WITH

1. **Sustainable Development Goals (SDGs):** The United Nations' SDG 14 calls for the conservation and sustainable use of the ocean's resources, providing a framework for global action.
2. **Paris Agreement:** The global climate agreement addresses the reduction of greenhouse gas emissions, which helps mitigate the impacts of climate change on the ocean.
3. **EU Marine Strategy Framework Directive:** This directive establishes targets and measures to achieve good environmental status for European marine waters, promoting the protection of marine ecosystems.
4. **EU Plastics Strategy:** The EU Plastics Strategy aims to tackle the issue of plastic pollution by promoting the circular economy, reducing plastic waste and marine litter, and supporting innovation in sustainable materials and packaging.
5. **International Maritime Organization (IMO):** The IMO sets standards and regulations for shipping to reduce marine pollution, promote safety at sea, and address the environmental impacts of maritime activities.

RISKS & UNINTENDED CONSEQUENCES IF WE DON'T

1. **Loss of Biodiversity:** Inaction may lead to the extinction of marine species, disrupting ecosystems and undermining their resilience.
2. **Declining Fish Stocks:** Overfishing and poor management can cause fish populations to collapse, impacting food security, livelihoods, and ecosystem health.
3. **Irreversible Habitat Destruction:** Failure to protect vital habitats like coral reefs and mangroves can result in their degradation or loss, reducing biodiversity and coastal protection.
4. **Amplified Climate Change Impacts:** Without protection, the ocean's ability to absorb carbon dioxide and regulate temperature will be compromised, intensifying climate change effects.
5. **Loss of Livelihoods:** Neglecting the ocean's health can result in severe economic consequences, directly affecting the livelihoods of coastal communities.

How does our project address the key needs and challenges of protecting the ocean and what measures can we incorporate to minimize negative impact?

MINERALS

'Earth's hidden treasures beneath the surface. Serving as essential building blocks, I contribute to the structure

AGE & DESCRIPTION

Minerals, shaped by geological epochs, embody Earth's ancient processes. From crystalline structures to essential elements, they form the bedrock of our [illegible] history and diverse

CLIMATE

'I'm one of earth's major ecosystem's, home of a big community of plants and animals who have adapted to my challenging habitat"

AGE & DESCRIPTION

Deserts, as old as Earth itself, endure through ages and showcase the planet's timeless geological and ecological wonders.

KEY ATTRIBUTES

1. Vast
The Ocean covers approximately 70% of the Earth's surface, making it the largest ecosystem on the planet.

2. Biologically rich
Contrary from the idea of them being lifeless, deserts are the home of a vast amount of plants and animals that have adapted to their harsh **conditions**.

3. Dry
Deserts can be both hot and cold. Existing under a "moisture deficit", they are defined as a piece of land that receives less than 25 centimetres of rain in a year. This means that there is more evaporation of moisture, than precipitations.

4. Source of minerals
The dry environment of deserts promotes the formation and concentration of 13 of the 15 mineral deposite types found in the earth.

5. Carbon Sink
The bacteria present in the sand plays a vital role in mitigating climate change by storing carbon dioxide and preventing it from entering the atmosphere, reducing its impact on the climate system.

6. Rich archeological source
The lack of moisture and bacteria has allowed the survival of ancient bodies and artefacts and other great archeological finds, making deserts a deeply significant source of knowledge of human history.

KEY NEEDS

1. **Cleaning:** Finding solutions to turn the million tons of discarded garments into new materials that can be use to make new clothes or other products. Giving back the land to its original ecosystem.
2. **Conservation:** Implement effective measures and policy to regulate human activity in deserts and ensure that clean energy projects can coexist with the local wildlife.
3. **Awareness:** Increase visibility of the consequences of overconsumption and the need to rethink the way we perceive and consume fashion.
4. **Regulation:** Implement policies that regulate the business model of fast fashion and help mitigate its over production and exploitation of communities and natural resources.
- **Climate stabilisation:** Mitigating the impacts of climate change and reducing greenhouse gas emissions. Deserts are often overlooked when it comes to climate change, but as temperatures rise they are among the most vulnerable places on Earth.

KEY PAINPOINTS

1. **Desertification:** Some of the world's semiarid regions are turning into desert at an alarming rate. This process is not caused by drought, but usually arises from deforestation and the demands of human populations settled in semiarid lands.
2. **Climate change:** The increased temperatures produce wildfires that alters ecosystems of plants, replacing them with fast-growing grasses, and living animals like birds and foxes at risk of lethal dehydration.
3. **Human intervention:** Industrial mining has multiple negative effects on the desert ecosystem, causing long-term and some times even permanent damage. Solar energy projects has paradoxically also endangered multiple desert habitats.
4. **Fast fashion:** Deserts, like the Atacama, have become the dumping ground for million tons of discarded garments as a direct consequence of the fast fashion culture.

KEY GLOBAL /EU STRATEGIES TO CONNECT WITH

1. **Sustainable Development Goals (SDGs):** The United Nations' SDG 14 calls for the conservation and sustainable use of the ocean's resources, providing a framework for global action.
2. **Paris Agreement:** The global climate agreement addresses the reduction of greenhouse gas emissions, which helps mitigate the impacts of climate change on the ocean.
3. **EU Strategy for a Circular Economy:** A strategy to help EU decouple economic growth from resource use, protecting natural resources, boosting sustainable growth, and doubling its circular material use rate in the next 10 years.
4. **Green claims:** New criteria to stop companies from making misleading claims about environmental merits of their products and services, empowering consumers to tackle green washing and make informed decisions.

RISKS & UNINTENDED CONSEQUENCES IF WE DON'T

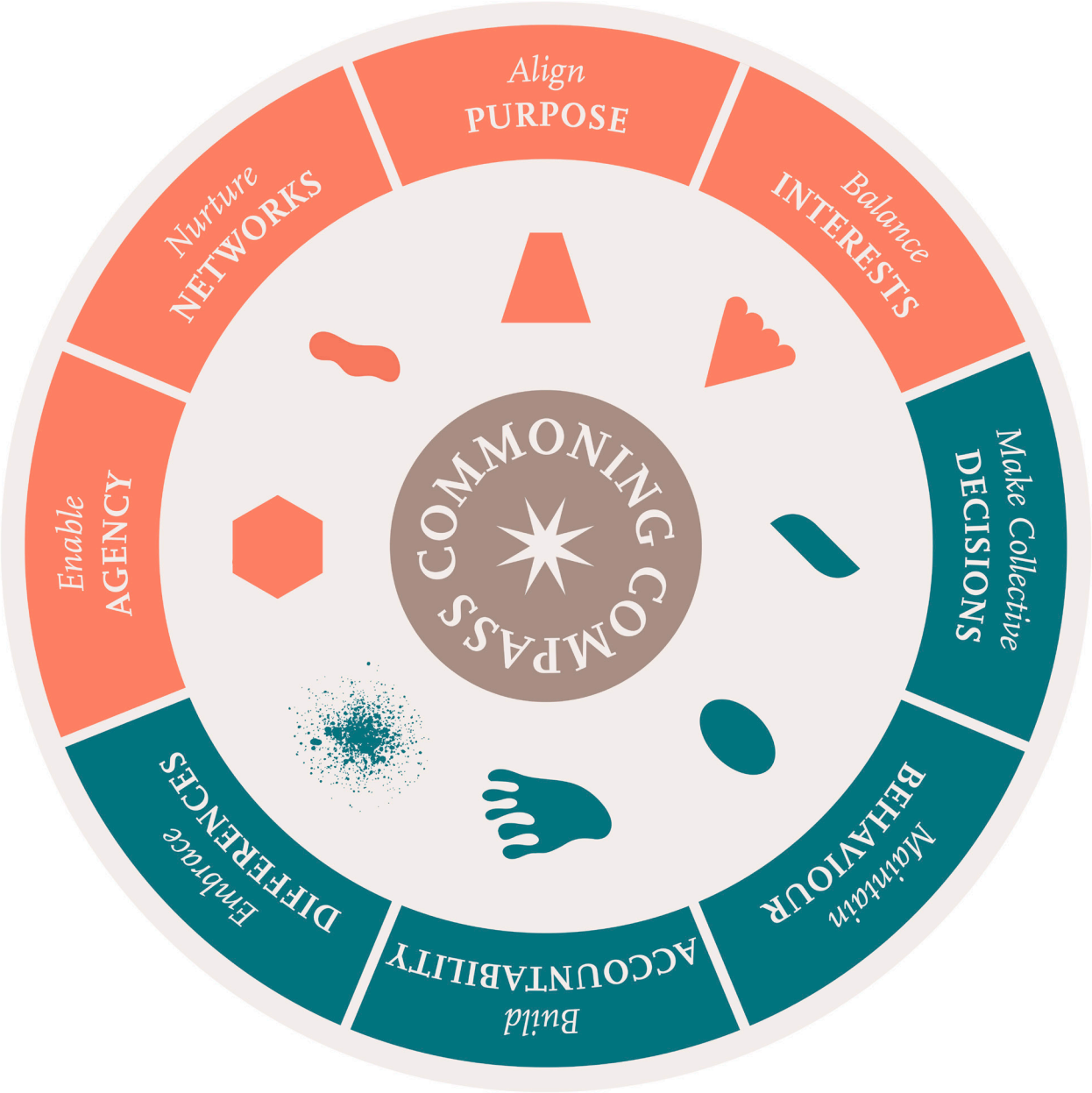
1. **Loss of Biodiversity:** Inaction may lead to the extinction of warm-blooded creatures, disrupting ecosystems and undermining their resilience.
2. **Loss of desert land:** Increased precipitation due to climate change will change the environment over time, putting deserts at risk of losing their ecosystems and becoming something else.
3. **Amplified Climate Change Impacts:** Without protection, the desert's ability to absorb carbon dioxide and regulate temperature will be compromised, intensifying climate change effects.
4. **Community impact:** The life of multiple communities surrounding the deserts will continue to be altered by the colossal piles of discarded clothes being dumped in their backyard.

How does our project address the key needs and challenges of protecting the ocean and what measures can we incorporate to minimize negative impact?

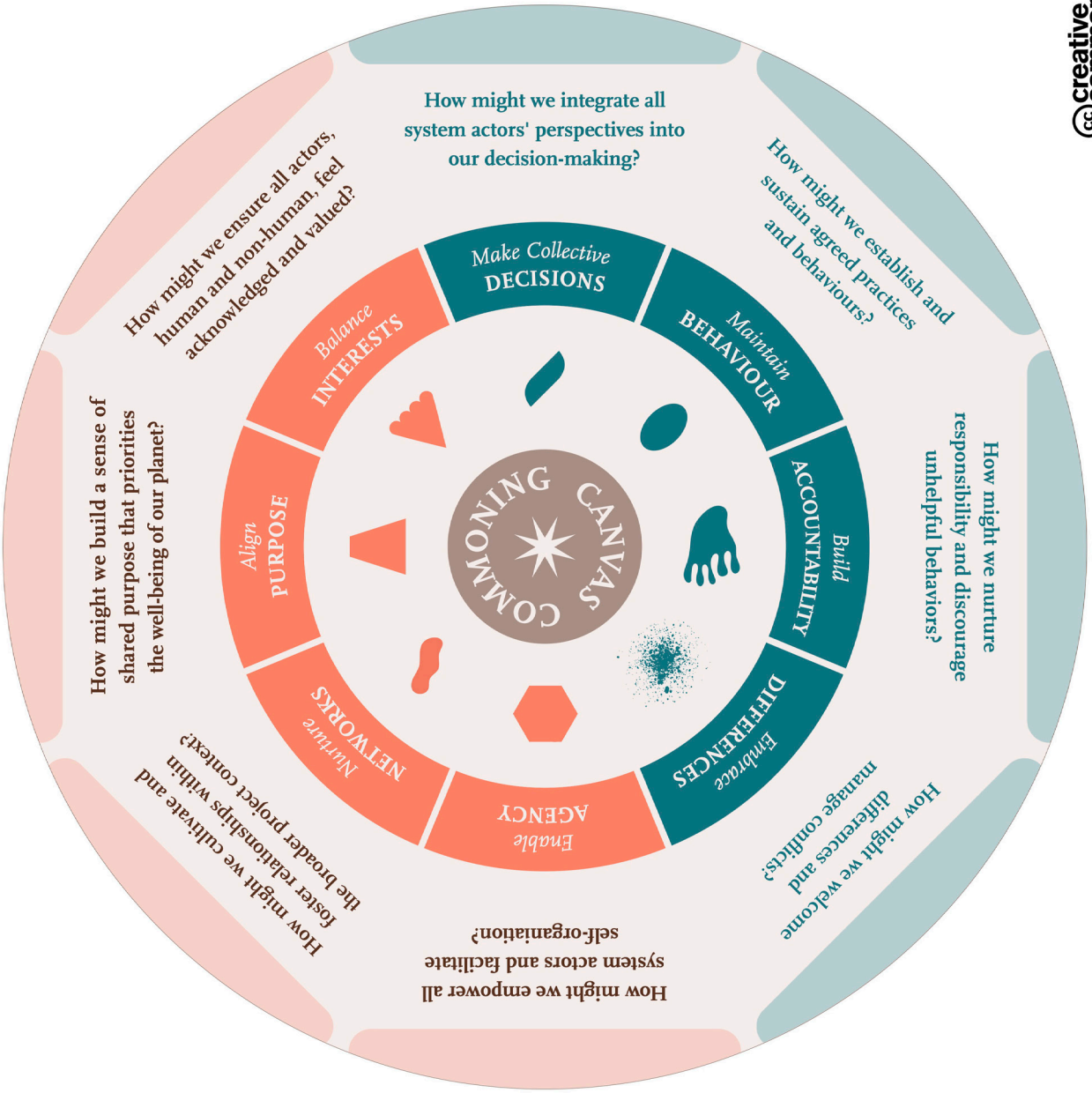
Commoning compass (7.1.2)

In addition, there is a separate Miro board that contains the framework overview and all research-based commoning activity templates:

https://miro.com/app/board/uXjVN8BoGV8=/?share_link_id=643164885665



Commoning canvas instructions (7.1.2)



creative commons
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Commoning by Design Instructions

The Commoning by Design framework guides design teams in transforming their approaches towards a collaborative, planet-centric and commons-based practice. It empowers teams to reimagine design, foster collaboration, align with ecological values and enhance cooperative behaviours. Teams can adapt the process to their unique needs, using the framework as a guide to foster collaboration and enact commoning principles.

1: Setup and Compass exploration

- Form a team and place the Commoning Canvas in a visible, central space. Cut out the canvas.
- Individually or collectively, explore each compass point and its description card

2: Brainstorm and prompt integration

- Begin at any compass point, collectively exploring the associated 'How might we' question.
- Use Commoning Prompt Cards to spark discussions and generate ideas for commoning activities.
- Encourage teams to generate their own commoning activity ideas aligned with the 'How might we' questions and fill in blank cards

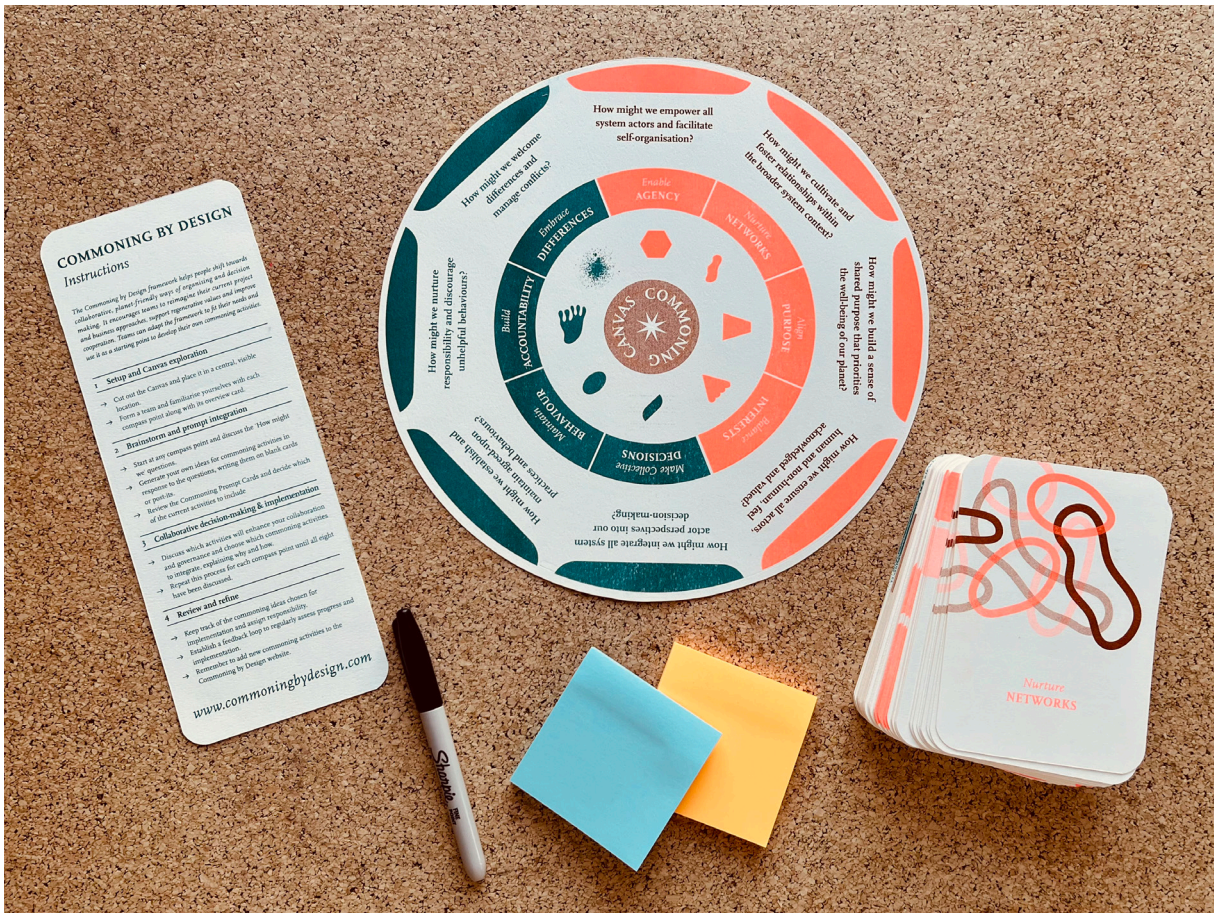
3: Collaborative decision-making and implementation

- Discuss and decide on commoning activities where your project is currently lacking and that could enhance collaboration.
- Use compass points to guide design work, prioritising collaborative infrastructures for planetary health.

4: Review and refine

- Keep track of decisions, chosen commoning activities and new ideas..
- Establish a feedback loop to regularly assess progress, implementation of agreed activities
- Identify improvement within the Commoning by Design framework and add commoning activities to the creative commons commoning by design website ***www.commoningbydesign.com***

Commoning canvas in use (7.1.2)


COMMONING BY DESIGN
Instructions
1 Setup and Canvas exploration
2 Brainstorm and prompt integration
3 Collaborative decision-making & implementation
4 Review and refine
www.commoningbydesign.com
How might we empower all system actors and facilitate self-organisation?
How might we cultivate and foster relationships within the broader system context?
How might we build a sense of shared purpose that prioritises the well-being of our planet?
How might we ensure all actors, human and non-human, feel acknowledged and valued?
How might we integrate all system actor perspectives into our decision-making?
How might we establish and maintain agreed-upon practices and behaviours?
How might we nurture responsibility and discourage unhelpful behaviours?
How might we welcome differences and manage conflicts?
Enable AGENCY
Nurture NETWORKS
Align PURPOSE
Balance INTERESTS
Make Collective DECISIONS
Maintain BEHAVIOUR
Build ACCOUNTABILITY
Embrace DIFFERENCES
COMMONING CANVAS
Nurture NETWORKS

Embrace DIFFERENCES
Build ACCOUNTABILITY
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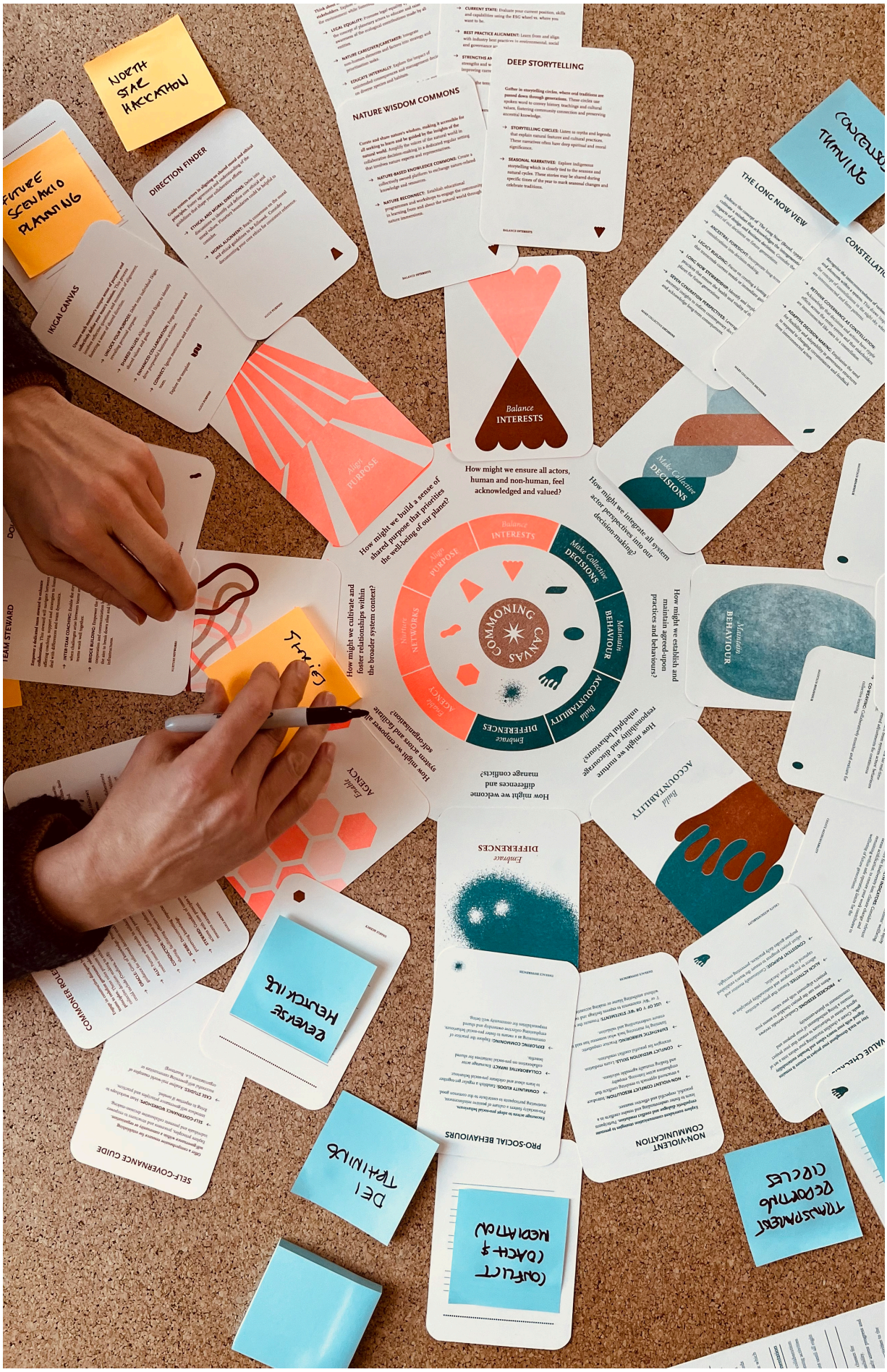
NORTH STAR HACKATHON
FUTURE SCENARIO PLANNING
DIRECTION FINDER
IKIGAI CANVAS
NATURE WISDOM COMMONS
DEEP STORYTELLING
THE LONG NOW VIEW
CONSTELLATIONS
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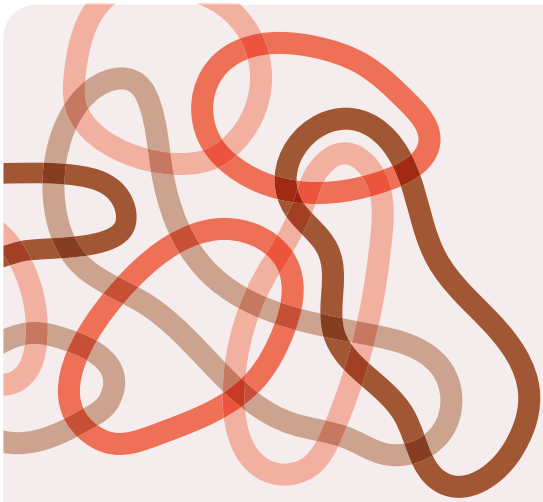
Embrace DIFFERENCES
Enable AGENCY
TEAM STEWARD
COMMONER ROLE
SELF-GOVERNANCE GUIDE
PRO-SOCIAL BEHAVIOURS
NON-VIOLENT COMMUNICATION
VALUE CHARTER
Reverse Heuristics
Del Training
Conflict Bach+ & Mediation
Transparent Governing Circles

Commoning cards in full (7.1.2)



Nurture
NETWORKS

This compass point helps you identify actors, visualise your ecosystem and cultivate relationships.

Through these activities, you will develop ecosystem awareness and identify key internal and external relationships that require attention.

NURTURE **NETWORKS**

ECOSYSTEM MAPPING

Identify internal and external relationships within your ecosystem. Enhance your team's understanding and engagement with all system actors in a more holistic context.

→ **CAPTURE ECOSYSTEM RELATIONS:** Explore interconnectedness among system actors.

→ **UNDERSTAND THE BIG PICTURE:** Highlight dependencies and opportunities. Identify potential collaborators and influencers.

→ **VISUALISE DECISIONS:** Identify opportunities to enhance decision-making structures through visual insights.

Explore the template

NURTURE **NETWORKS**

SPEAKER SERIES

Engage in a recurring series of expert talks and knowledge-sharing sessions. This can help to deepen ecosystem awareness and foster valuable connections with key system actors.

→ **BRANCHING OUT:** Invite experts to share valuable insights on topics such as ecology, regeneration, indigenous cultures and interconnectedness.

→ **PARTNERSHIP SHOWCASES:** Shine a light on successful collaborations and collaborative infrastructures.

→ **STRATEGIC DIALOGUE:** Engage in discussions to enhance strategic decision-making.

NURTURE **NETWORKS**

CROSS-FUNCTIONAL MEETUPS

Facilitate intentional interactions with a diverse range of system actors. This activity promotes open communication, builds trust, strengthens relationships and can include teams that may be challenging to work with.

→ **COFFEE CHATS:** Organise informal conversations over coffee to encourage relaxed interactions.

→ **PURPOSE-BASED SESSIONS:** Conduct sessions to align on shared purpose to bridge gaps and cultivate collaboration among stakeholders.

→ **RELATIONSHIP CULTIVATION:** Collaboratively build and nurture vital connections with stakeholders by sharing the responsibility for maintaining these relationships.

NURTURE **NETWORKS**

TEAM STEWARDING

Empower a dedicated team steward to enhance collaboration. This steward will navigate between teams, offering coaching, support and strategies to foster unity and deal with differences and team dynamics.

→ **INTER-TEAM COACHING:** Enable the steward to assist when challenges arise and to ensure the team work well together.

→ **BRIDGE BUILDING:** Empower the steward to improve cooperation and communication between teams with the aim to break down silos.

NURTURE **NETWORKS**

DOUGHNUT VIEW

Incorporate the principles of Doughnut Economics, aiming to balance social needs within planetary boundaries. Explore how to apply this framework to guide decision-making, fostering regenerative and equitable systems.

→ **REGENERATIVE PLANNING:** Collaboratively design regenerative projects aligned with the Doughnut model.

→ **EQUITY ASSESSMENT:** Assess the equity implications of your proposed solutions using the overall system of the Doughnut framework.

→ **PLANETARY IMPACT MAPPING:** Identify and address potential planetary impacts of design and management decisions.

NURTURE **NETWORKS**

PLANETARY BOUNDARY COALITIONS

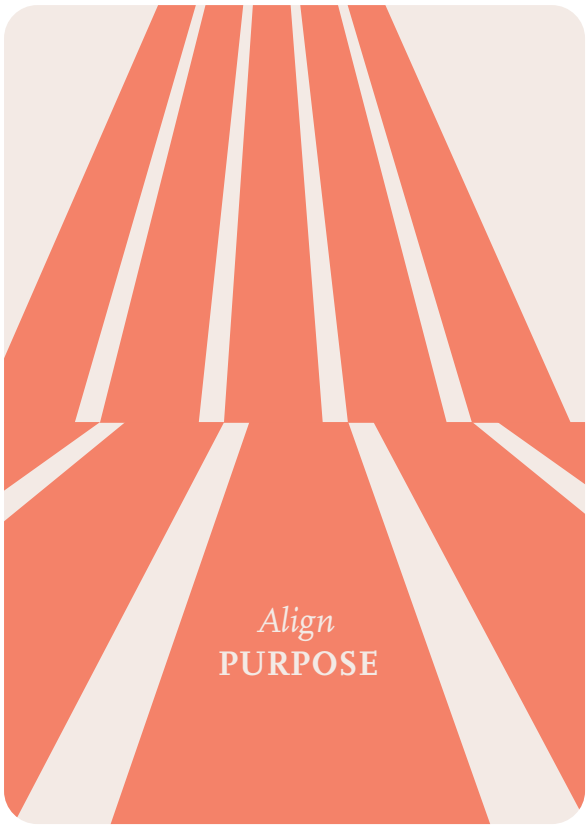
Unite a diverse group of actors, including residents, business proprietors, nature advocates and activists as a coalition. Collaboratively deliberate and shape initiatives that strive to operate within our planetary boundaries.

→ **BOUNDARY MAPPING:** Create visual representations of planetary boundaries and how they apply to your context, making it easier for actors to address ecological limits.

→ **BOUNDARY DASHBOARD:** Develop an interactive dashboard that provides real-time updates on key planetary boundary indicators, enabling informed decisions in response to changing conditions.

→ **TIPPING POINT SCENARIOS:** Use scenario planning to simulate your project impact on planetary boundaries, fostering a deeper understanding of potential consequences.

NURTURE **NETWORKS**



This compass point helps you identify a collective endeavour and facilitate group cohesion.

Through these activities, you will be able to establish common aspirations, goals and values, and communicate them effectively within the group.

CALL TO ACTION

Inspire and mobilise your team towards purposeful change with some dynamic sessions. Design and deliver engaging call-to-action sessions that not only emphasise the importance of adopting a purpose-driven approach within your team, but also underscore the critical urgency of addressing planetary boundaries.

→ **BRING IN EXPERT INSIGHTS:** Leverage the knowledge and experience of experts to enrich your sessions with data and insights.

→ **EDUCATE ON THE URGENCY OF CHANGE:** Convey the immediate need to take action to safeguard our planet's delicate balance and future.

→ **ALIGN TEAM ACTIONS:** Ensure that every team member's actions are in alignment with the broader purpose.

FUTURE FORWARD RECORDINGS

Foster purposeful change through engaging sessions that cultivate a purpose-driven mindset, while addressing planetary boundaries. Envision and embody future states to inspire a collective commitment to preserving our planet's delicate balance and ensuring a sustainable future for all.

→ **ENVISION YOUR FUTURE WORKPLACE:** Encourage teams to engage in guided meditation sessions to visualise their workplace in 2030, focusing on planet-centric practices.

→ **NATURE IMMERSION:** Immerse yourselves in the beauty of nature to encourage mindfulness and creative thinking during this exercise.

→ **EXPERIMENT WITH THE UNKNOWN:** Try out activities such as forest bathing and deep walks to expand on this exercise.

Explore the template

NAVIGATE TOGETHER

In this guided team exercise, participants work collaboratively to set a clear course and shared vision. They discuss perspectives, align their goals and collectively define the direction for their journey.

→ **COMMON PURPOSE:** Identify common objectives and prioritise them.

→ **CONTRIBUTIONS:** Discuss individual strengths and how they contribute to the team's journey.

→ **BEHAVIOURS AND RESPONSIBILITIES:** Define specific milestones and responsibilities.

Explore the template

ALIGN **PURPOSE**

SUMMIT VISUALISATION

Engage in a creative exercise that encourages teams to collectively visualise their future aspirations. Together, explore the peak of your goals, fostering a shared vision to drive purposeful design outcomes.

→ **SUMMIT OF GOALS:** Explore the summit of their goals and share personal stories of what success at the summit means.

→ **DEFINING THE JOURNEY:** Brainstorm actionable steps to reach the summit and journey together towards purposeful design outcomes.

→ **STRATEGIES:** Identify potential obstacles and strategies to overcome them.

ALIGN **PURPOSE**

IKIGAI CANVAS

Uncover each member's unique sense of purpose and collectively define the team's mission. This process involves reflective questions and moments of alignment, fostering a sense of shared direction.

→ **UNLOCK YOUR PURPOSE:** Delve into individual Ikigai, revealing personal purpose.

→ **SHARED VALUES:** Align individual Ikigai to identify shared values and goals.

→ **ENHANCED COLLABORATION:** Forge cohesion and drive purposeful service design projects.

→ **CONNECT:** Ignite motivation and creativity in your team.

Explore the template

ALIGN **PURPOSE**

WAYS OF KNOWING

Delve into diverse forms of knowledge, including cognitive, physical, intuitive and emotional ways of knowing. Explore different perspectives for designing future states.

→ **SENSORY IMMERSION:** Use sensory experiences to deepen understanding and empathy.

→ **INTUITIVE DECISION-MAKING:** Develop intuitive decision-making skills through exercises and discussions.

→ **MINDFUL MEDITATION:** Practice mindfulness to connect with inner wisdom and insights for future design.

→ **FOREST BATHING:** Connect with nature to deepen your understanding of your environment and its role in future design.

ALIGN **PURPOSE**

PLURAL FUTURES

Dive into plural scenario planning to create awareness, inspire creativity and explore multiple possible futures. Use the insights gained to inform strategic decisions and enhance resilience in your collaborative endeavours.

→ **EXPLORE POSSIBILITIES:** Analyse potential scenarios to identify emerging trends.

→ **INSPIRE CREATIVITY:** Encourage participants to envision alternative futures.

→ **INFORM DECISIONS:** Use scenario insights to shape decisions and collaborations.

ALIGN **PURPOSE**

DIRECTION FINDER

Guide system actors in aligning on shared moral and ethical principles. Foster agreement and understanding of the guidelines that shape your collaborative efforts.

→ **ETHICAL AND MORAL DIRECTIONS:** Delve into discussions to identify and define core ethical and moral values. Planetary boundaries could be helpful to consider.

→ **MORAL ALIGNMENT:** Reach consensus on the moral and ethical guidelines to be followed.

ALIGN **PURPOSE**

This compass point guides you in reconciling diverse actor needs and interests.

Through these activities, you will consider contributions, interests and needs of both human and non-human actors, while balancing short-term and long-term goals.

BALANCE **INTERESTS**

PLANETARY ACTORS

Explore and understand the needs, interests and perspectives of non-human actors, actively fostering empathy for one another. The cards are just a starting point to ensure the active involvement of non-human actors in crucial decision-making moments.

→ **ECOSYSTEM AWARENESS:** Use planetary actors to educate and promote awareness of ecological contributions.

→ **IMPROVED DECISION-MAKING:** Integrate non-human factors into strategy and prioritisation tasks.

→ **BIODIVERSITY FOCUS:** Explore the impact on diverse species and habitats, and unintended consequences of your design and management decisions.

Explore the template

BALANCE **INTERESTS**

ESG WHEEL

Align your capabilities with embedding regenerative approaches across environmental, social and governance practices. The ESG wheel is a visual guide to assess and harmonise decisions impacting human wellbeing, environmental health and economic prosperity.

→ **BEST PRACTICE ALIGNMENT:** Learn from and align with industry best practices in environmental, social and governance areas.

→ **CURRENT STATE:** Evaluate your current position, skills and capabilities.

→ **STRENGTHS AND WEAKNESSES:** Strategically identify strengths and weaknesses, focusing on nurturing and improving current operations and practices.

Explore the template

BALANCE **INTERESTS**

DEEP STORYTELLING

Gather in storytelling circles, where oral traditions are passed down through generations. These circles use spoken word to convey history, teachings and cultural values, fostering community connection and preserving ancestral knowledge.

→ **STORYTELLING CIRCLES:** Listen to myths and legends that explain natural features and cultural practices. These narratives often have deep spiritual and moral significance.

→ **SEASONAL NARRATIVES:** Some indigenous storytelling is closely tied to the seasons and natural cycles. These stories may be shared during specific times of the year to mark seasonal changes and celebrate traditions.

BALANCE **INTERESTS**

NATURE WISDOM COMMONS

Curate and share nature's wisdom, making it accessible for all seeking to learn and be guided by the insights of the natural world. Amplify the voices of the natural world in collaborative decision-making in a dedicated regular setting that involves nature experts and representatives.

→ **NATURE-BASED KNOWLEDGE COMMONS:** Create a collectively owned platform to exchange nature-related knowledge and resources.

→ **NATURE RECONNECT:** Establish educational programmes and workshops to engage the community in learning from and about the natural world.

BALANCE **INTERESTS**

PLANETARY HEALTH SWOT

Analyse your project's impact and influence on the health of our planet. Examine strengths, weaknesses, opportunities and threats, shaping a comprehensive approach.

→ **PLANETARY STRENGTHS:** Identify strengths within the initiative that contribute positively to planetary health.

→ **PLANETARY WEAKNESSES:** Analyse weaknesses that could hinder progress towards planetary health.

→ **PLANETARY OPPORTUNITIES:** Explore opportunities to align the initiative with planetary health goals and devise measures to counteract potential adverse impacts.

→ **PLANETARY THREATS:** Assess potential threats that may undermine planetary health improvements.

BALANCE **INTERESTS**

BIAS AWARENESS

Uncover and address potential biases among stakeholders. This activity fosters a more inclusive and equitable collaborative environment.

→ **BIAS EXPLORATION:** Identify and acknowledge biases held by team members. Engage in activities that reveal hidden biases.

→ **BIAS EXAMPLES:** Examine real-life scenarios to understand bias impact.

→ **SPEAKER INSIGHTS:** Invite a speaker to share experiences and perspectives that promote empathy and open-mindedness.

→ **BIAS ACTIONS:** Develop action plans to minimise the influence of bias on decisions.

BALANCE **INTERESTS**

PLURAL VOICES

Identify and amplify shared voices among human and non-human actors, through actor representation and contextual immersion. This promotes understanding across species, celebrating the diversity of voices within the collective.

→ **OBSERVATION AND STUDY:** Study non-human behaviours, communication and social structures in their habitats.

→ **ENVIRONMENTAL SENSING:** Monitor environmental changes affecting non-human life.

→ **INTERDISCIPLINARY COLLABORATION:** Collaborate with ecology experts for holistic understanding.

INDIGENOUS KNOWLEDGE: Learn from indigenous communities about natural relationships.

STORYTELLING: Use creativity to convey non-human voices and foster empathy.

BALANCE **INTERESTS**

RIGHTS OF NATURE

Grants equal legal status to non-human stakeholders. Explore innovative ways to respect and protect the environment while fostering sustainable collaborations.

→ **LEGAL EQUALITY:** Use planetary actors to educate and promote awareness of ecological contributions.

→ **NATURE CAREGIVER/CARETAKER:** Integrate non-human factors into strategy and prioritisation tasks.

→ **EDUCATE INTERNALLY:** Explore the impact on diverse species and habitats and unintended consequences of your design and management decisions.

→ **ETHICAL CONSIDERATIONS:** Reflect on the moral implications and how this changes your business model.

BALANCE **INTERESTS**

This compass point helps you foster a sense of agency among system actors.

Through these activities, you will be able to clarify roles, responsibilities and establish structures of self-organisation.

ENABLE **AGENCY**

COMMON ROLES

Engage in constructive dialogues between leadership and teams to redefine roles according to commons principles. This redefinition promotes transparency, equity and collective decision-making to enhance collaboration. These roles (Onafuwa, 2018) could include:

→ **ORACLE:** Giver of knowledge. Providing expertise and guidance for informed decision-making.

→ **ALLY:** Partner who stands in solidarity helping to resolve issues and proactively prevent them.

→ **CONDUCTOR:** Mediator of information and knowledge sharing, facilitating effective communication.

→ **SCRIBE:** Documenting important decisions and preserving knowledge.

→ **STEWARD:** Guardian of community values, aligning actions with core principles to ensure responsible resource management.

ENABLE **AGENCY**

AUTONOMY INFRASTRUCTURES

Empower your team with self-organising infrastructures and processes. These should enable team members to foster autonomy and decision-making authority.

→ **DECISION-MAKING GUIDELINES:** Develop guidelines for effective decision-making within self-organising teams.

→ **AUTONOMY ASSESSMENTS:** Autonomy assessments: Evaluate the degree of autonomy within the existing structure.

→ **PEER LEADERSHIP:** Encourage peer-to-peer development and mentorship.

ENABLE **AGENCY**

SPHERES OF INFLUENCE

Encourage proactive engagement by highlighting the team's ability to enact meaningful changes through focused, manageable actions they have control over. Foster a sense of empowerment and agency within the team.

→ **VISUALISE TO EMPOWER:** Show participants what they can control, enabling them to take meaningful action.

→ **SYSTEM NAVIGATION:** Help them understand different system dynamics, guiding their role within system transitions.

→ **SUSTAINING HOPE:** By focusing on manageable actions and influence, encourage a sense of hope and agency.

ENABLE **AGENCY**

SELF-GOVERNANCE GUIDE

Offer a comprehensive resource for establishing self-governance within a community or organisation. Explore principles, processes and structures to empower individuals and promote collaborative decision-making.

→ **SELF-GOVERNANCE WORKSHOPS:** Host workshops to introduce self-governance principles and practices.

→ **CASE STUDIES:** Analyse real-world examples of successful self-governing communities or organisations (i.e. Buurtzorg)

ENABLE **AGENCY**

PANARCHY

Recognise the interconnectedness of governance systems. Actors are encouraged to explore panarchies and self-governance at various scales and levels, fostering a deeper understanding of flexible and adaptive governance structures.

→ **NESTED HIERARCHIES:** Illustrate interconnected governance levels, e.g., from local to regional to national.

→ **ADAPTATION AND RESILIENCE:** Underline the importance of adaptability in order to effectively respond to dynamic changes.

→ **CROSS-SCALE INTERACTIONS:** Emphasise managing governance interactions across various scales.

ENABLE **AGENCY**

ADAPT & EVOLVE CYCLES

Introduce an adaptive management framework, promoting iterative decision-making and constant adaptation to feedback and new information. Explore strategies for fostering a culture of flexibility and learning within your team or organisation.

→ **DYNAMIC GOALS:** Set flexible, adaptive goals that can evolve with changing circumstances.

→ **DECENTRALISED AUTONOMOUS ORGANISATIONS (DAOS):** Discover principles of DAOs – blockchain-based organisations governed by smart contracts and consensus, enabling decentralised decision-making and resource allocation.

→ **MINDFUL OBSERVATIONS:** Engage in mindful observation of industry trends, competitors and emerging technologies, fostering proactive adaptation of strategies in harmony with evolving circumstances. resource management.

ENABLE **AGENCY**

HOLACRACY

Replace hierarchy with a distributed authority system, enabling employees to make decisions within their roles. Discover the power of self-management and distributed leadership.

→ **CASE STUDY:** Review real-world Holacracy implementations and their outcomes.

→ **REDEFINING ROLES AND STATUS:** Collaboratively define roles, responsibilities and accountabilities.

→ **GOVERNANCE SIMULATION:** Conduct a mock Holacracy governance meeting to experience distributed decision-making.

→ **POWER (RE)DISTRIBUTION:** Explore power distribution dynamics within the organisation through a strategic game.

ENABLE **AGENCY**

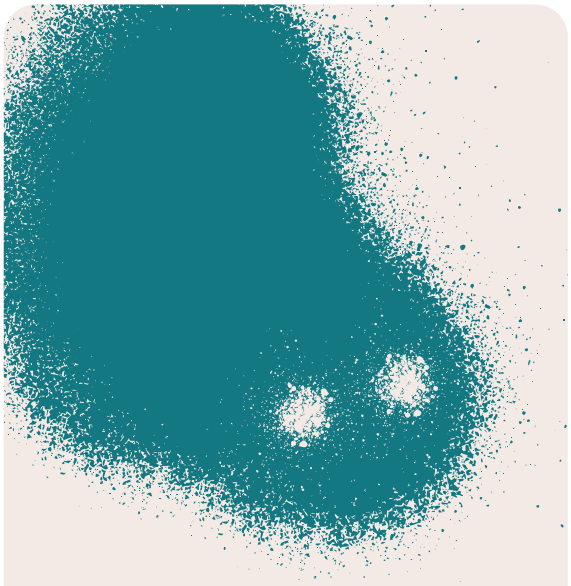
EMPOWERMENT CHALLENGES

Empower employees to take ownership of projects or decision-making processes. Foster a culture of autonomy and leadership development.

→ **SHARING DECISIONS:** Gather to collectively make strategic decisions for a specific project. Each team member contributes by making decisions in a round-robin format, encouraging diverse perspectives and distributing ownership across the team.

→ **LEADERSHIP ROUNDTABLES:** Come together to discuss projects or challenges. During these sessions, participants take turns leading discussions and proposing solutions, promoting cross-functional collaboration and individual leadership development.

ENABLE **AGENCY**



Embrace
DIFFERENCES

This compass point aids in proactively addressing organisational and team differences.

Through these activities, you can sensitise individuals to welcome differences and establish conflict-resolution mechanisms.

EMBRACE **DIFFERENCES**

NON-VIOLENT COMMUNICATION

Explore nonviolent communication strategies to promote empathetic dialogue and conflict resolution. Participants learn to foster understanding and resolve conflicts in a peaceful, respectful and effective manner.

→ **NON-VIOLENT CONFLICT RESOLUTION:** Introduce a structured approach to resolving conflicts that emphasises active listening, empathy and finding mutually agreeable solutions.

→ **CONFLICT MEDIATION SKILLS:** Learn mediation strategies for peaceful conflict resolution.

→ **EMPATHETIC MIRRORING:** Practice empathetic listening by mirroring back what someone has said to ensure understanding and validation.

→ **USE OF 'I' STATEMENTS:** Promote the use of 'I' statements to express feelings and needs without attributing blame or making accusations.

RESTORATIVE JUSTICE

Prioritise repairing the harm caused by conflicts, emphasising accountability, reconciliation and restoration of actor relationships. Engage in activities that foster healing, understanding and conflict resolution.

→ **RESTORATIVE CIRCLES:** Regular gatherings for affected parties to discuss harm, express feelings and collaboratively plan repair actions.

→ **RESTITUTION AGREEMENTS:** Discussions to create specific amends, like community service or apologies for those responsible for harm.

→ **COMMUNITY DIALOGUES:** Organised conversations addressing underlying issues and finding ways forward.

EMPATHY ROLE-PLAY

Foster empathy and embrace diversity through role-playing, encouraging participants to step into different perspectives. This activity cultivates understanding and inclusivity within the group.

→ **CONFLICT ESCALATION RETRO:** Introduce educational scenarios as part of a retro to teach conflict escalation stages, helping participants gain a deeper understanding of conflict dynamics and resolution strategies.

→ **CONFLICT MAPPING:** Identify potential triggers and patterns within your team's conflicts.

→ **RESOLUTION STRATEGIES:** Develop approaches to de-escalate conflicts and promote resolution.

CONFLICT ESCALATION LADDER

Represent the stages of conflict escalation, from latent conflict to resolution. This activity can help teams understand, discuss and strategise around conflict dynamics.

→ **RETRO:** Introduce educational scenarios as part of a retro to teach conflict escalation stages, helping participants gain a deeper understanding of conflict dynamics and resolution strategies.

→ **TENSION MAPPING:** Identify potential triggers and patterns within your team's conflicts.

→ **RESOLUTION STRATEGIES:** Develop approaches to de-escalate conflicts and promote resolution.

SAFE SPACES

Conduct regular meetings designed to foster inclusivity. Participants actively address biases and authority issues to create a safe and supportive environment for open discussions.

→ **BIAS AWARENESS:** Hold sessions to raise awareness of biases and explore ways to mitigate their impact.

→ **AUTHORITY REDISTRIBUTION:** Discuss and implement strategies to distribute authority more equitably within the group.

→ **CONSTRUCTIVE FEEDBACK:** Provide training on delivering and receiving constructive feedback to maintain a safe and productive atmosphere.

EMBRACE PROTEST

Create a space where stakeholders can express dissent openly and explore the consequences of various protest methods. Emphasise the significance of providing room for diverse voices and perspectives.

→ **CIVIL RESISTANCE:** Examine non-violent strategies to instigate social or political change.

→ **PROTEST SIMULATION:** Role-play various protest scenarios to underscore the significance of open dissent and its potential impacts.

CONFLICT RECONCILIATION

Capture a just and constructive process, promoting open communication, empathy and cooperation. Encourage parties in dispute to work together towards resolution and reconciliation through understanding and cooperation.

→ **PEER GUIDED SESSIONS:** Community members trained in conflict resolution guide disputing parties through structured conversations. This peer-to-peer approach promotes empathy, cooperation and sustainable resolutions within commons.

→ **CONFLICT COACHES:** Conflicting parties engage in facilitated, empathetic dialogues. Community members act as mediators, fostering open communication and cooperation for mutual understanding and resolution.

PRO-SOCIALITY

Encourage actors to adopt pro-social actions. Pro-sociality fosters a culture of positive reinforcement, motivating participants to contribute to the common good.

→ **COMMUNITY KUDOS:** Establish a regular get-together to celebrate pro-social behaviour.

→ **COLLABORATIVE IMPACT:** Encourage actor collaboration on pro-social initiatives for shared benefits.

This compass point helps to establish the foundations for collective decision-making.

Through these activities, you will consider those likely to be affected by a decision.

COLLABORATION CANVAS

Discover, align and implement essential collaborative structures using the commons-inspired collaboration canvas. Enhance team collaboration through collective decision-making and the application of commons principles.

→ **COLLABORATION MAPPING:** Teams use the Commoning compass questions to identify collaboration infrastructures, covering all eight aspects.

→ **DEFINE MODES OF COLLABORATION:** Align team members around project purpose, needs, working methods and ecosystem actors.

→ **BRING IT TO LIFE:** Specify how to integrate agreed approaches into daily practices by allocating resources, responsibilities and accountability mechanisms.

Explore the template

EMBASSY OF NATURE

Seek wisdom from nature's representatives and incorporate these insights into your collective decision-making. This can involve giving nature a voice at the board level or exploring alternative methods to prioritise nature alongside traditional stakeholders.

→ **NATURE ON THE BOARD:** Appoint a 'Nature Representative' role to advocate for ecological interests during decision-making.

→ **ECOSYSTEM CONSULTATION:** Consult local ecologists or environmental experts to inform decision processes.

→ **BIOMIMICRY BRAINSTORM:** Explore how nature's solutions can inspire innovative approaches.

→ **REGENERATIVE ECONOMY:** Explore regenerative economic practices to enhance sustainability and regeneration.

UNINTENDED CONSEQUENCES

Collectively consider your impact within planetary boundaries, encouraging sustainability and alignment with environmental limits. It provides a framework for integrating planetary health considerations into decision-making, promoting sustainable principles.

→ **PLANETARY BOUNDARIES CRITERIA:** Define a set of criteria for decision-making, ensuring alignment without further surpassing planetary boundaries.

→ **IMPACT VISUALISATION:** Visualise your organisation's ecological footprint and its potential consequences on the planet.

→ **SCENARIO PLANNING:** Explore different scenarios and their impact on planetary health to inform strategic decisions.

LONG NOW VIEW

Embrace the concept of 'The Long Now' and cultivate a mindset that acknowledges the intergenerational impacts of design decisions. Consider the impact of our decisions on future generations.

→ **INTERGENERATIONAL THINKING:** Incorporate long-term considerations into decision-making.

→ **LEGACY BUILDING:** Focus on creating a lasting legacy that transcends current trends or immediate gains.

→ **LONG NOW STEWARDSHIP:** Identify and implement practices that ensure the health and vitality of the planet for future generations.

→ **ANCESTRAL PERSPECTIVE:** Leverage ancestral insights to inform contemporary decisions and acknowledge long-term consequences.

CONSTELLATION THINKING

Recognises the interconnectedness of various actors, factors and elements within a system. This draws inspiration from the concept of constellations in the night sky, where stars are interconnected and form patterns.

→ **RETHINK GOVERNANCE:** Acknowledge that decisions and actions have ripple effects across the entire system and that stakeholders are interconnected like stars in a constellation.

→ **ADAPTIVE DECISION-MAKING:** Emphasise the need for flexibility and adaptability in governance structures to respond to changing circumstances and feedback from interconnected actors.

MULTISPECIES EMBODIMENT

Co-create and refine solutions with both human and non-human entities, nurturing balance in our coexistence. This iterative approach prioritises inclusivity and adaptability, ensuring all species are considered in our shared habitat.

→ **CO-CREATE WITH NON-HUMANS:** Collaborate with experts in fields like ecology and biology to thoroughly research and comprehend the needs, preferences and vulnerabilities of non-human actors.

→ **INCORPORATE BIOMIMICRY:** Look to nature for inspiration. Biomimicry involves emulating natural processes, forms and systems in your design.

→ **INDIGENOUS RITUALS:** Seek inspiration from indigenous cultures to strengthen your bond with nature and celebrate important ecological events, such as planting seasons or animal migrations.

DISTRIBUTE DECISIONS

Create the infrastructures for distributed decision-making. Empower system actors to make choices that directly affect them and their environments.

→ **DECISION PLATFORMS:** Develop platforms that allow actors to vote on local decisions, ensuring inclusivity and transparency.

→ **ECOSYSTEM COUNCILS:** Establish councils comprising representatives from various ecosystem components (animals, flora, fauna, landscapes) to guide decisions with holistic environmental perspectives.

→ **COMMUNITY-LED PROJECTS:** Encourage local communities to propose and lead projects that address their specific barriers, fostering a sense of ownership and responsibility.

This compass point helps you establish shared rules and team behaviours.

Through these activities, you can define and uphold shared approaches.

COMMONING COMPASS

Guide teams toward collaborative, planet-centric practices, fostering deep collaboration and systemic change. Rooted in Elinor Ostrom's commoning principles, the compass and starter questions aid in identifying and addressing practice gaps.

→ **REDESIGN DESIGN:** Encourage creating systemic conditions over problem-solving for lasting change.

→ **CULTIVATE COLLABORATION:** Use starter questions to explore current practice gaps and new ideas for collaboration infrastructures that facilitate partnerships with diverse system actors.

→ **EMBRACE REGENERATIVE VALUES:** Promote designing in balance with the planet.

Explore the template

COMMONING CARDS

Facilitate intentional interactions with a diverse range of system actors. This activity promotes open communication, builds trust, strengthens relationships and can include teams that may be challenging to work with.

→ **CULTIVATE COLLABORATION:** Use prompt cards based on Ostrom's principles to explore and decide on collaboration infrastructures, which facilitate partnerships with diverse system actors.

→ **PURPOSE-BASED SESSIONS:** Conduct sessions to align on shared purpose to bridge gaps and nurture collaboration among stakeholders.

→ **RELATIONSHIP BUILDING:** Collaboratively build and nurture vital connections with stakeholders by sharing the responsibility for maintaining these relationships.

Explore the template

MAINTAIN **BEHAVIOUR**

TEAM BEHAVIOURS

Create a cohesive set of agreed behaviors to foster a shared foundation for effective collaboration and mutual understanding. This ensures that team members align their actions to cultivate a harmonized and productive work environment.

→ **BEHAVIORAL WORKSHOP:** Define team behaviors collaboratively, ensuring a shared foundation for effective collaboration.

→ **CODE OF CONDUCT:** Actively shape a unified code of conduct, promoting harmony among team members.

→ **REAL-TIME ALIGNMENT:** Foster immediate alignment in team activities for a continuously aligned work environment.

MAINTAIN **BEHAVIOUR**

ECHO-SYSTEM

Build structures for understanding, monitoring and analysing (non-) collaborative behaviours from all system actors. Cultivate continuous communication and collaboration to enhance feedback mechanisms and adjust to agreed behaviours.

→ **BEHAVIOURAL HUB:** Develop space for teams to reflect upon and analyse their behaviours.

→ **FEEDBACK NODES:** Build a network for real-time feedback nodes to learn from system actors' behaviours and make informed adjustments for continuous improvement.

→ **CO-EVALUATION:** Collaboratively monitor and evaluate for collective learning.

MAINTAIN **BEHAVIOUR**

PRESENCING

Guide participants in deepening their presence, sensing emerging possibilities. Foster dialogue to collaboratively shape and agree upon behaviours for collective change.

→ **PRESENCING LABS:** Establish dedicated space where teams experiment with new behaviours in real-world contexts. Encourage ongoing feedback and adaptation to refine collective behaviours.

→ **PRESENCING DIALOGUES:** Host regular dialogues inspired by the Presencing methodology to deepen collective presence, sense emerging possibilities and co-create behavioural guidelines.

MAINTAIN **BEHAVIOUR**

PROJECT STANDARDS

Translate the team purpose into a project standard for easier application. Make sure your project embodies the team's values and aligns with broader sustainability goals by establishing it as such.

→ **PURPOSE REALIGNMENT:** Evaluate project goals against your shared purpose, transforming team purpose into project standards.

→ **PURPOSEFUL BEHAVIOURS:** Align team actions with purpose and sustainability principles, promoting regenerative practices.

MAINTAIN **BEHAVIOUR**

Build
ACCOUNTABILITY

This compass point fosters collective responsibility and active contribution from all actors.

Through these activities, you will be able to recognise unhelpful behaviours and encourage cooperation.

BUILD ACCOUNTABILITY

PROJECT STANDARDS CHECKLIST

Stay on track throughout your project to ensure it remains aligned with your team's values and broader sustainability goals. The checklist ensures that your project remains a living embodiment of your purpose and commitment to planet-centricity.

→ **PROGRESS SESSIONS:** Conduct periodic reviews where you use the project checklist to assess your project's alignment with your project standards.

→ **ALIGN ACTIVITIES:** Ensure that project activities adhere to your purpose and sustainability principles as captured in the project standards.

→ **CONSISTENT PURPOSE:** Continuously monitor and adjust project progress to ensure the team's established purpose guides daily practices, preventing oversight.

CREATE ACCOUNTABILITY

COMMITMENT PLEDGE

Teams commit to personal commitment pledges, encompassing shared rules and objectives. These pledges align individual objectives and key results with the team's purpose and project standards, reinforcing a culture of responsibility and accountability.

→ **PERSONAL PLEDGE:** Create team rules and guidelines aligned with project values. Let individuals craft personal pledges based on these guidelines.

→ **ACCOUNTABILITY PARTNERS:** Assign accountability partners within the team to ensure adherence to the pledge and provide mutual support.

→ **REGULAR PLEDGE REVIEW:** Periodically review and update the commitment pledge to adapt to changing circumstances and goals.

CREATE ACCOUNTABILITY

CONDUCT CODE

Co-create shared guidelines for expected behaviour and consequences, promoting a positive and respectful environment. Use these guidelines to set a foundation for collaboration and ensure mutual respect.

→ **CODE CREATION:** Collaboratively develop a behavioural code tailored to your group's values and needs.

→ **CONSEQUENCE CONSIDERATION:** Deliberate on fair consequences for code violations.

CREATE ACCOUNTABILITY

PEER ACCOUNTABILITY

Foster a culture of mutual responsibility within your team. Team members openly share their commitments and progress, while providing support and feedback to one another, cultivating a sense of collective ownership.

→ **ACCOUNTABILITY PAIRS:** Team members pair up and act as accountability partners. They meet regularly to discuss their goals, challenges and progress based on the project standard, offering each other guidance and support.

→ **'POWER WITH' RATHER THAN 'POWER OVER':** Prioritising collaboration, equitable decision-making and shared responsibility over traditional hierarchical 'power over' structures.

→ **FLATTEN ORGANISATIONAL HIERARCHY:** Remove organisational layers and promote a culture where employees can make decisions that affect them.

CREATE ACCOUNTABILITY

INCIDENT SHARING

Foster an open environment where rule-breaking or unhelpful behaviour can be shared without fear of consequences. This promotes a culture of restoration, encouraging individuals to come forward with concerns and contribute to the collective wellbeing.

→ **WHISPER WALL:** Individuals can confidentially share incidents by whispering their concerns into the wall, providing a safe outlet for sharing.

→ **ACCOUNTABILITY MURAL:** A community mural where anonymous stories can be shared to hold us accountable for restoration and continuous dialogue.

CREATE ACCOUNTABILITY

WELLBEING INDICATORS

Shift to seeking holistic impact , exploring diverse indicators emphasising social and govenerance contributions. Encourage discussions on evaluating wellbeing, regenerative activities, social responsibility and ethics within your organisation.

→ **SEVEN GENERATION INDICATORS:** Assess long-term impacts of decisions on wellbeing and planetary health. Prioritise choices that honour intergenerational equity principles, safeguarding future generations' wellbeing.

→ **PLANETARY HEALTH INDICATORS:** Consider relevant indicators for biodiversity loss, climate change and ocean acidification, to ensure your work contributes to remaining within safe operating limits for the wellbeing of future generations.

CREATE ACCOUNTABILITY

EMBRACE FAILURE

Engage in a reflective activity where they sit with failure, recognising that it's OK to make mistakes. Encourage a culture of acceptance, learning and resilience in the face of setbacks.

→ **FAILURE SHARING:** Create a safe space for sharing personal failures and embracing vulnerability.

→ **FAILURE JOURNALLING:** Encourage actors to journal their feelings and insights when facing failure.

→ **FAILURE ACCEPTANCE:** Discuss strategies for accepting and learning from failures, promoting a compassionate approach.

CREATE ACCOUNTABILITY