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Tschavgova, Elisabeth, Talgorn, Elise, Kobus, Charlotte, Van Engelen, Jo, Bakker, Conny and van Dam, Sonja

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CONTEXTS

SYSTEMIC DESIGN ASSOCIATION

An Intervention Framework for a Business Context: A systemic design case of sustainable parenthood

Elisabeth Tschavgova
E.Tschavgova@tudelft.nl
Elise Talgorn, Charlotte Kobus, Jo van Engelen, Conny Bakker, and Sonja van Dam

Abstract

This study explores the application of systemic design approaches used in a complex commercial context to create positive and sustainable change. The case study was a business case on sustainable parenthood, in which the company tried to balance its ambitions for environmental sustainability with the need to survive in a highly competitive market. In close collaboration with the internal business company stakeholders, a causal-loop diagram was created. The diagram mapped relations between global relevant trends for emerging young adults within the DACH market, sustainability, and parenting as a business. Leverage points for systemic change were identified which were explored through in-depth user interviews (n=10). This process eventually identified ten systemic insights, translated into insight cards to facilitate business actions.

Based on these combined approaches, the MINT framework (Mapping Interventions and Narratives for Transformation) was developed, with a strong emphasis on co-creation, iteration, translation, and communication of systemic interventions. However, while the internal business stakeholders and company representatives appreciated the bird's eye view that systemic design gave them, they were challenged by the methods' abstract language and translation of systemic insights into concrete action. To address this, the developed framework utilized systemic design artefacts such as a storytelling map and user-centred insight cards to facilitate a more comprehensible systemic design approach.

Overall, this study provides a first attempt at creating an actionable systemic design framework that can be used in commercial settings to promote positive systemic change. Future research will require further validation.

Keywords: parenthood, commercial context, storytelling, sustainability transitions, systemic design artefacts

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Introduction

Society is facing a range of complex problems on a global scale. Climate change, distressed migration, equitable economy, housing, public policy, and health care are just a few examples of the major challenges we are confronted with (Jones, 2018b). Or, in the words of Russell Ackoff, "the situation the world finds itself in is a mess" (Ackoff, 2004). These problems shaping today's world are interdependent, thus complex by nature and falling into Rittel and Webber's (1973) definition of wicked problems. This complexity makes it difficult to predict outcomes, and any intervention, therefore, risks potential failures (Schueler, 1996). Thus, operating in this complex world as a public or private organisation is a challenge, let alone addressing these complex problems. However, recent research shows that despite rising complexity, organisations across different public and private sectors are showing increasing ambitions to contribute to systemic change (Mair & Seelos, 2021).

A systemic design methodology was developed for a consulting project, and the purpose of the research is reported in this paper. Systemic design approaches combine systems thinking and design thinking to drive system change through a range of diverse methodologies and tools (Bijl-Brouwer & Malcolm, 2020; Jones, 2018; Jones & Van Ael, 2022; Ryan, 2014). It is an interdisciplinary approach that provides the necessary theory and tools for creating positive change in complex systems (Bijl-Brouwer & Malcolm, 2020; Jones, 2014b). Despite this promising outlook, the practice of design projects remains a challenge when it comes to systemic change. This gap between academic theory and the practical application of systemic design is being addressed in this research by exploring the application of systemic design methods in a commercial consulting project as a case study.

The case study provided by the commercial partner focuses on understanding the specific challenges faced by environmentally conscious parents. Existing literature has provided insights into green consumer behaviour, yet the complexities introduced by parenthood remain underexplored (Migheli, 2021). Understanding the specific issues faced by environmentally conscious parents is crucial for developing targeted strategies to support sustainable behaviour through business innovations. While parenthood has been identified as a key predictor of demand for socially and environmentally conscious products, its impact on other pro-environmental behaviours is less clear. The increased responsibilities and mental load associated with parenting often diminish parents' willingness to engage in green behaviours that are logistically challenging or mentally taxing (Shrum et al., 2023). This case study aims to deepen the understanding of these dynamics and develop strategies to better support sustainable parenthood from a business perspective.

The aim of the research is to develop a systemic design framework for business contexts for further exploration and development by both academics and practitioners. The commercial context was chosen due to commercial organisations' crucial role in social transitions, given their control over vital resources, inter-organisational relationships, and ties to policymakers and other influential actors (Magnusson & Werner, 2023). The case study of sustainable parenthood was chosen to explore the application of systemic design in a commercial environment, focusing on its applicability and potential for design interventions.

The case study seeks to facilitate design interventions that support parents in transitioning to a more sustainable form of parenthood.

Based on the research aim, the research question was formulated as: "How might a systemic design process feasibly enable commercial organisations to facilitate complex societal transitions?"

Background

Systemic Design in Organisational Contexts

A recent literature review found differences in the application of systemic design between commercial and non-commercial environments (Tschavgova et al., 2024). An increasing number of public and social context organisations are aiming to tackle complex societal challenges through systemic design, such as in case studies focusing on healthcare (Barbero & Pallaro, 2017), policymaking (Nohra et al., 2020), gender inequality (Jacoby & Van Ael, 2021), racial equality in school (Ko et al., 2024) and social enterprises (Rosini & Barbero, 2023). These recent examples reflect the broad applicability of systemic design in non-commercial settings, where the focus often extends beyond economic outcomes to include social and environmental impacts.

However, systemic design case studies in commercial contexts often focus on local circular economy transitions by small to mid-sized (social) enterprises. Two cases include using the waste (output) of local coffee bars as input to grow mushrooms in the region of Turin (Barbero & Toso, 2010) or to the advance circularity in the local wool industry based on the inputs and outputs involved in the production (Battistoni & Barbero, 2019). Thus, with commercial organisations addressing complexity beyond the circular economy in a regional context, there is a lack of sufficient case studies exploring systemic design approaches (Tschavgova et al., 2024).

It's important to note that this review primarily analysed academic articles that explicitly used "systemic design" as a keyword in their titles, abstracts, or keywords. Consequently, additional commercial case studies in the grey literature or industry reports may not explicitly identify with the field or practice studies that have not been documented in academic scholarship.

Case Study Description

The case study of sustainable parenthood was conducted in collaboration with a leading consumer healthcare brand interested in investigating sustainable impact through design. The working definition of sustainable impact for this research project was established in alignment with the company, following its strategic plan and annual reports. We ascertained through the annual report that the case company is compliant in integrating environmental, social, and governance (ESG) principles into their operations, aiming to enhance long-term viability and societal impact. This includes actively collaborating with company participants, aligning corporate strategies with the United Nations' Sustainable Development Goals (SDGs), and leading initiatives that promote transparency and responsible leadership.

The objective was to analyse sustainability issues and needs of first-time parents of the so-called Generation Z (Gen Z) demographic—the generation born between 1995-2010 (Rue, 2018)—in the DACH (Germany-Austria-Switzerland) market through a systemic lens and provide directions for design interventions addressing these issues. The DACH market was chosen due to the feasibility of conducting in-depth user interviews with parents without any language barrier. Furthermore, the DACH market has proven itself to the collaborating company as a market with early adopters. It is, therefore, a common space to explore sustainable innovations that match the company's target group. The study targeted young first-time parents embarking on their journey of parenthood, with a focus on Gen Z and their upcoming parental needs. Since sustainable interventions developed from this research will be introduced to the market further in the future, the focus was on Gen Z and their evolving parental needs.

The time frame of the case study was five months, with two in-house strategic designers and one external strategic designer leading the project. Three internal stakeholders leading the business unit on parenthood, alongside five senior-level stakeholders from the company's management, sustainability, design, and research teams, were involved in co-creation and mapping activities. Additionally, company experts from various business domains were occasionally involved, depending on the expert input required. These listed internal company stakeholders will be referred to in this article as company representatives.

Method Development

Systemic design is known for its unit of analysis and operation for social systems and is considered to require a "soft systems" approach. Soft systems methodology is known for creating multiple "rich pictures" (Checkland & Scholes, 1999) of a problem based on worldviews rather than analysis of objective reality (Foster-Fishman et al., 2007). High stakeholder engagement is essential to encourage stakeholders to move away from purely structural or mechanical frameworks and to consider social, cultural and political elements when approaching complexity (Checkland & Scholes, 1999; Foster-Fishman et al., 2007). Since stakeholders define the systems that need to be analysed, there is no prescribed design method or toolkit in systemic design; rather, the methods and strategies adopted are best when accepted and understood by these stakeholders (Jones, 2014a).

The starting point of the framework development is a preliminary "systemic design framework" (Figure 1). Considering the different views on systemic design, which provide diverse approaches with no fixed methods, a sequence of methods considered fitting to the case study of sustainable parenthood was chosen.

Six conventional and well-established methods were selected based on literature and input from the company representatives and combined sequentially into an iterative framework based on co-creation. The sequence of methods follows a soft systems perspective and applies aspects of the work of Jones (2014b) and Jacoby & Van Ael (2021). Employing a research-through-design approach (RtD), this preliminary framework was then applied to the case study of sustainable parenthood for further development and iteration. RtD is a research approach that employs methods and processes from design practice for knowledge

inquiry, such as creating new products, experimenting with new materials, developing processes, and other artefacts (Godin & Zahedi, 2014). In this section, each of the selected methods will be described in detail by first providing a justification for adopting a specific method and how the method was applied in the case study.

It is essential to note that continuous input and review from the company representatives facilitated iterative improvements to the framework. Yet, limitations in time and workload of the company representatives required reductions in essential collaborations concentrated on understanding the complexity and the context of enabling sustainable parenthood.

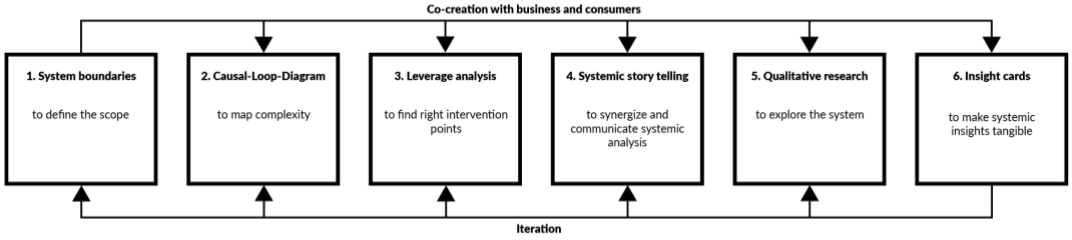


Figure 1. Preliminary systemic design framework.

Method 1: System boundaries to define the scope

In order to address the broad topic of sustainable parenthood, it was necessary to establish boundaries. The well-known method of defining system boundaries by framing the system (Midgley, 2000) was applied. This involved working closely with the company representatives to collaboratively define the scope of the problem area. Boundary critique is a well-established approach within system theory and was beneficial for the company collaboration because it provided an opportunity to align with the company representatives, gather input on the next steps, define the research scope collaboratively based on diverse perspectives, and align expectations.

Boundary discussions with the company representatives were guided through the research question, “How can we create and deliver solutions where Gen Z parenting needs and planet needs are both satisfied?”. This resulted in the definition of (1) global trends relevant to Gen Z within the DACH market, (2) general sustainability, and (3) parenting as a business as boundaries. These boundaries entailed data gathering about societal, demographic, and social issues that affected Gen Z, parenthood, and sustainability. Additionally, information about current business operations and internal trend knowledge related to the problem area were also identified as crucial.

To learn about the predominance of trends and behaviours, two research approaches were employed to gather information within the defined system boundaries: internal business knowledge and external desk research. First, industry insights were gathered by reaching out to various company experts with varying backgrounds such as marketing, research, and

design. This resulted in the collection of 16 internal documents and six expert interviews. Second, online desk research was conducted using the PESTEL (Political, Economic, Social, Technological, Environmental and Legal) analysis. Over 70 online documents, such as academic articles, trend reports, and blogs, were reviewed during the desk research.

Once the boundaries were defined and data was gathered from diverse sources and perspectives, the content was mapped and clustered into topics using a Miro board (digital whiteboard). Each topic was condensed into a summary to make the gathered data comprehensible and effectively communicate the broad research findings to the company representatives,

Method 2: Causal Loop Diagrams to map complexity

We used the output of the data gathering to provide input for mapping the dynamics of sustainable parenthood. This approach builds on systems thinking and systems mapping (Sedlacko et al., 2014). In soft systems, Causal Loop Diagrams (CLD) are a commonly applied approach and are considered to be suited for systemic design as well (Murphy & Jones, 2020). A CLD describes and maps the dynamics of a complex system and is optimal for visualising cause-effect relationships between different variables (Elias & Davis, 2018). Considering this recommended mode of mapping based on literature, this case study applied a CLD to connect the causal relationships of the gathered data to map the system of sustainable parenthood.

However, given the dense information from the data gathering, it was decided to create subsets of the CLDs that demonstrated a particular dynamic that we named mini-CLDs. The mini-CLDs were co-created in a workshop, following Van Ael's method (Jacoby & Van Ael, 2021). The four-hour co-creation workshop required the eight company representatives to map the 17 topics into 17 individual CLDs (Appendix A). The participants were three company representatives from the business unit focusing on parenthood and five company representatives from the management, sustainability, design and research teams. In the workshop, the participants were divided into four groups, each mapping out three mini-CLDs. The company representatives were new to the CLD process, so facilitation throughout the process and an introduction to CLD was needed. The introduction entailed the basic rules of CLD and a previously mapped example. Additionally, a guide was displayed during the mapping workshop.

These 17 mini-causal loop diagrams were connected to generate the final CLD of sustainable parenthood. The three leading design strategists did this by connecting nodes based on the connections already established when creating mini-CLDs; a node in this work is defined as an entity which can vary over a scale and can be high or low, measurable or non-measurable. Further nodes, which are double or additional known causal relationships based on previous research, were connected as well. By establishing these new connections, some restructuring occurred, and new clusters were identified, or old clusters were renamed to convey messages more clearly.

Method 3: Leverage analysis to find intervention points

Using a CLD to visualise relationships between different variables was effective, but it did not provide insight into designing interventions to address complexity. Donella Meadows' concept of leverage points defined a way to determine effective interventions for systemic change; these are "places within a complex system where a small shift in one thing can produce big changes in everything" (Meadows, 1997). Or, as Murphy (2023) states, "gaining leverage is, therefore, about identifying the unique innovations changemakers can make in a system and applying those contributions in the best possible places." Therefore, leverage points were identified to make the development of systemic interventions feasible.

The concept of "leverage measures" for systemic design decisions, particularly in CLD, developed by Murphy and Jones (2020), was applied to do so. These measures use techniques from social network analysis and systems dynamics to uncover leverage points in CLDs. Hence, this approach is considered promising for pinpointing leverage points in the case study of this research. However, the CLD was mapped in Miro, a whiteboard tool not specifically supportive of loop diagramming. Therefore, a limited manual analysis of leverage points was conducted, and only a reduced set of leverage measures was applied, given the time and technological restraints.

Initially, nodes with more than five ingoing or outgoing arrows were identified, which are defined as high-degree nodes. Degree is a simple measure of the number of connections a node has, which indicates its importance based on its higher connectivity compared to less connected nodes (Newman, 2010). Furthermore, feedback loops were identified (Murphy & Jones, 2020), and a final set of nodes during the leverage analysis was chosen based on the selection criteria of trend knowledge, eigenvector and points where the company can have an impact based on current business development. Eigenvector is defined by Newman (2010) as nodes influencing other well-connected elements. During this step of leverage analysis, an overlap in the above-described selection criteria has been noted. Therefore, these nodes were characterised as "Eigenvector nodes connected to trends and company."

To validate and make the relatively abstract leverage points actionable, a co-creation workshop was held with the company representatives. In this two-hour workshop, the CLD and proposals from leverage analysis were discussed, and the leverage points were categorised. The same company representatives from the previous workshop were invited to ensure consistency and a general understanding of the systemic design process. The representatives were asked to reflect on the leverage analysis and provide feedback on feasible nodes to be addressed by the company. During the discussion, insights from the leverage analysis revolving around topics such as veganism, mental health, and sexuality were determined to be outside the company's sphere of impact and inconsistent with the brand and its current business operations. A co-creative exercise to rank the leverage points followed this discussion, where the company representatives were asked to dot-vote and explain the most relevant nodes based on their business expertise.

Method 4: Systemic storytelling to synergise and communicate systemic analysis

To make the results of the systemic analysis more accessible, a constructivist approach of a synthesis map was chosen to visualise the complexity parents encounter when striving towards sustainable parenthood. Synthesis is a fundamental skill for designers as it requires the ability to reframe, abstract, visualise, detect relationships, and define new values, among other core competencies (Whitney, 2015). According to Sevaldson (2022), visual thinking and communication are essential when dealing with complexity. Therefore, systemic storytelling (Talgorn & Hendriks, 2021) was used to develop the synthesis map. Systemic storytelling is a process that transforms a logical analysis into an intuitive and empathetic understanding of the system. This approach has several benefits such as the ability to incorporate different perspectives, enhance engagement, effectively communicate system insights, and generate ideas for future systems (Talgorn & Hendriks, 2021).

The application of storytelling was aiming to close the gap between the analytical and the emotional, in line with the holistic approach of systemic design. The development of the visual representation of the complex topic of sustainable parenthood applied an increased comprehension the findings (Jones & Bowes, 2017) in combination with basic storytelling elements, namely defining an initial challenge, conflict and resolution (Freytag, 1895). Illustrations were used to draw empathy from the company representatives for the challenges parents face when it comes to sustainable behaviour. The synthesis map was considered a tangible outcome of the systemic design process by the company representatives.

Method 5: Qualitative research to explore the system

Company representatives' feedback indicated that the synthesis map did not give actionable guidance for concrete follow-up steps for business actions. Therefore, semi-structured interviews with parents were conducted to provide the necessary follow-up steps. This qualitative research is grounded on the outcome of the systemic analysis and aims to further deepen the systemic analysis of sustainable parenthood from a parent perspective.

A convenience sample (Sousa et al., 2004) was chosen, and snowball sampling (Johnson, 2014) was utilised to recruit participants. This approach resulted in a sample size of 13 parents, consisting of three couples and seven individuals, making a total of 10 online interviews (n=10). To ensure that a Gen Z/Millennial perspective was obtained, participants were selected to represent the age range between 25-35 years. A recent study (Marks et al., 2021) highlights Gen Z's worries about climate change (84% are moderately worried, and 59% are very or extremely worried), which was considered part of the problem context. Therefore, an additional crucial criterion for sample selection was to include parents who expressed concern about climate change. The parents are based in the DACH market and represent either sustainability-aware parents who have not integrated sustainability into their daily lives or sustainability-practising parents who have integrated sustainability into their daily lives. The groups were classified based on their own reporting on the integration of sustainability into their daily life.

The semi-structured user interviews contained two exercises. The first exercise utilised the Zaltman and metaphor elicitation technique ZMET (Coulter & Zaltman, 1994). This technique aimed to uncover both conscious and unconscious thoughts by exploring non-literal or metaphoric expressions. Throughout the user research, laddering was used alongside ZMET. Laddering proposes that mental constructs are ordered hierarchically and interconnected through cause and effect, with constructs forming the basis of an individual's beliefs. At the top of the pyramid are the fundamental individual views, while the system of interconnected constructs fills the lower levels (Kadir et al., 2018; Kelly, 1991). To delve deeper into underlying needs, motivations, and values and to understand their possible consequences, "why" questions need to be asked. This allows us to move up the pyramid (Rugg & McGeorge, 1995). To move down the pyramid, researchers asked "how" questions, such as "How is this sustainable?" (Kadir et al., 2018). It was reasoned that ten interviews (n=10) would provide adequate and diverse accounts, based on Zaltman's (1997) assertion that ZMET interviews with 4 to 5 individuals can generate up to 90% of the key information.

The interview analysis involved reviewing each interview transcript, highlighting and coding relevant quotes on emerging areas of interest, including connections, preliminary interpretations, understanding parents' views, and identifying contradictions that could lead to the segmentation of findings. These quotes were then copied into the Miro board and labelled, grouped and connected to ensure consistency and intersubjectivity of the research narrative (Smaling, 1992; Sousa et al., 2004). In order to validate the interview analysis and initial systemic insights, a presentation was given to the company representatives after six interviews had been mapped and an intermediate mapping structure had been created. The aim was to validate the initial mapping approach and systemic insights based on triangulation with different judges familiar with the raw data and the methods used (Sousa, 2014).

Method 6: Insight cards to make systemic insights tangible

In collaboration with one of the leading researchers of the company, insight cards were agreed on as a favourable approach to communicating systemic insights. Insight cards were a tool developed within the company and were a growing practice for the company partner, with the goal of making research easily accessible for innovations. The insight cards were used during concept ideation and strategic discussions to anchor innovation in user-centred needs. They were uploaded to the internal data-sharing platform and articulated the experiential challenges of people across the care continuum. The aim is to identify the emotional, physical, and behavioural needs to address the challenges people face.

The developed insight cards were reviewed by one of the company's key design researchers to ensure they reflected current business practices. As a result, applicability was established, and the insight cards were validated based on common business practices, known language, and tools known to the company. Hence, according to the principal design researcher, the insight cards could be applied for upcoming developments of business innovations.

To ensure a holistic view of sustainable parenthood, the insight cards were mapped to the synthesis map, highlighting the necessary qualitative insight to address certain leverage points. As a final deliverable, an intervention model describing which interventions to perform on specific leverage points within the system was provided to the company.

Findings: Method Application

We present findings from applying a sequence of systemic design methods to the case study of sustainable parenthood. The systemic analysis reveals the dilemma parents face between eco-responsibility and consumerism. This dilemma was further examined through qualitative interviews with parents. A dilemma visualisation was created to illustrate this complex issue, incorporating systemic insights and identifying key leverage points. This integrated approach provides a comprehensive understanding of the problems of sustainable parenthood and provides actionable insights to address them.

Thematic Cluster Analysis

The information gathered and clustered was categorised into 17 topics. In alignment with the company representatives, it was decided that these topics provided sufficient holistic and new information about the problem area.

Overview of the 17 Mapped and Clustered Topics

The mapping of the topics, including their summaries, can be found in Appendix A.

1. Gen Z as parents
2. Postpartum sexual life
3. Gender roles and work life in new families
4. Food and diet for parents and babies (incl. breastfeeding)
5. Gen Z and wellbeing
6. Democratisation of healthcare
7. Gen Z online behaviour
8. Gen Z digitalisation and health
9. Gen Z and mental health
10. Gen Z and money
11. Gen Z and their sustainable attitude
12. Environmental footprint of families
13. Sustainability communication, branding & marketing (consumer perspective)
14. New business models in the sharing community
15. Positioning and strategy towards mother and childcare (of the business)
16. Positioning and strategy towards sustainability (of the business)
17. EU sustainable regulations

For effective communication of the broad research findings to the company representatives, each topic was condensed into a summary. This resulted in 17 topic summaries, which are the base for co-creation activities to generate mini-CLDs. An example of one of these summaries can be found in the example, Topic 13: Sustainability Communication, Branding, and Marketing (consumer perspective).

System Map

The co-creation workshop on mini-CLDs resulted in 17 mini-CLDs, of which each one represents a topic summary (an overview of the mini-CLDs can be found in Appendix B). For instance, for topic 13, Sustainability Communication, Branding and Marketing (consumer perspective), the summary text was analysed, and causal relationships between nodes were visualised using red or blue lines with arrowheads. Blue lines indicate a positive relationship, while red lines indicate a negative relationship. The arrowheads indicate the direction of the effect, with the tail node (beginning of arrow) and the head node (end of arrow with pointer). In Figure 2, we see that, for instance, greenwashing has a positive (increasing) effect on the confusion on how to purchase sustainable products. However, Gen Z's drive for investigation has a negative (decreasing) effect on the confusion on how to purchase sustainable products. During the mapping process, the company representatives reviewed connections between mini-CLDs and started creating connections between them. These connections between mini-CLDs are visualised as grey nodes in Figure 2.

The mini-CLDs were used as building blocks for the final full CLD. The final qualitative conceptual model has 293 nodes and 505 connecting arrows and can be found in Appendix C.

Paradigms in Sustainable Parenthood

The leverage analysis resulted in the identification of 22 nodes with a high degree (>5 connections), 17 feedback loops (7 balancing and 10 reinforcing loops) and 20 eigenvector nodes connected to trends and the company. The system map with the highlighted leverage areas can be found in Appendix D.

The node "confusion regarding the purchase of sustainable products" is an example of a highly connected node. This node had eight connecting arrows and was therefore marked as relevant. An example of a reinforcing loop can be found in Figure 2 as well, such as increased customer engagement with a brand (e.g. buying sustainable products), resulting in an active involvement with the brand (e.g. promoting brand to friends), which increases the feeling of the customer being part of the change (e.g. supporting sustainable products), leading to increased engagement with the brand, and so on. "Education on sustainable impact" in Figure 2 serves as an example for an eigenvector node connected to trends and the company. This node did not have a high degree nor was it part of a feedback loop. However, it had a negative (decreasing) effect on the high degree node of "Confusion on how to purchase sustainable products", showing its influence on other well-connected elements.

Furthermore, this node is connected to current business operations in developing solutions to educate parents on their parenthood journey in general. Therefore, this node has the

potential to be relevant due to its potential impact on high degree nodes and is within the sphere of impact of the company.

The co-creative leverage ranking activity with the company representatives revealed mental health and sustainable consumption as the two main areas of focus. The company representatives summarised their findings as “holistic (mental) health leading to self-empowerment and high expectations” and “confusion about how to be sustainable and sustainable information sources”. Ultimately, this co-creative discussion based on the leverage analysis identified the dilemma of parents who aspire to be environmentally responsible in a consumerist society as the core mindset or paradigm of sustainable parenthood. This dilemma falls into the second-highest leverage point, namely “the mindset or paradigm out of which the system arises” (Meadows, 1997).

Dilemma Visualisation

Figure 3 shows a simplified dilemma visualisation, which resulted from the leverage analysis. The basic structure of the visualisation includes the most critical or central nodes presented in a map, while the other nodes describing context, challenges, or opportunities are embedded in brief narratives and illustrations.

The dilemma visualisation employs a dramaturgic storyline of an initial challenge, which delves into conflicts and a final resolution. The dilemma of the parents is placed as the initial challenge on top of the visualisation and raises the question: How to act eco-responsibly while being immersed in triggers of overconsumption? At this point, the dilemma divides into two directions of conflict (a) wanting to be a holistic parent and the rising socially constructed pressure from this resulting in poor mental health, anxiety and stress for Gen Z; and (b) wanting to be a green parent in a world dominated by consumerism. Both conflicts are elaborated in the dilemma visualisation, diving deeper into the problems parents face, giving insights on helpful characteristics of Gen Z and mapping down opportunities within the system to act on. The two loops meet at the bottom of the dilemma visualisation and suggest that to resolve the dilemma a new balance and prioritisation is needed based on a systemic change.

A detailed dilemma visualisation can be found in the Appendix E, where further storytelling elements are embedded with the nodes, such as using icons of dragons to represent obstacles and wands for opportunities to address these obstacles. Additionally, perspectives of parents are more elaborated with short descriptions next to drawings

Example: Topic 13: Sustainability Communication, Branding, and Marketing (consumer perspective)

Gen Z seeks brands whose purpose, values, and mission align with theirs. They believe that brands and corporations should help them achieve their personal goals and aspirations.

As Gen Z is making it clear that protecting the environment and combating climate change are their priorities, companies are increasingly using sustainability-related marketing to the Gen Z audience. This leads to Greenwashing (the deceptive practice of branding a company as environmentally friendly without adopting legitimate, sustainable operations). Consumers' desire to "be greener" is not only being used to cover up past actions by companies that harmed the environment but also as a reason to charge more for products.

There is confusion from the consumer perspective when it comes to sustainable materials (regulations are not always clear, e.g. 'plastic-free' may mean compostable plastic but not plastic-free). They do not know what is right and find the topic difficult and overwhelming. Companies claim to sell green baby products, but there is ambiguity on their environment impact, durability and safety. This makes being an ethical parent difficult and frustrating. For consumers, sustainability mainly means plastic-free and reduction in single-use products—there is a need for the demystification of sustainable knowledge for the customers.

Gen Z are insatiably inquisitive and constantly investigating. They want to see behind the curtain. They value craftsmanship and want to be able to know the production process behind products and services. Increasingly, they want to see measurable, transparent and consistent actions backing up brands' ethical commitments. They want detailed data proving the sustainability of a product.

Transparency is the best way to differentiate between a truly green company and a superficial counterpart. If a product has a green label or an eco-slogan but does not have the information to back it up (such as clear statistics and information about sourcing, manufacturing and direct environmental impact), there is a risk that it is not actually a sustainable product.

To build trust with the conscious consumer, brands need to show their human side: the wins, the losses, the mistakes, and the learnings. When the conscious Gen Z consumer becomes loyal to a brand that goes the extra mile to drive change, they feel like a part of the change and will spread the word and talk about it on social media. As empowered creators and entrepreneurs, Gen Z does not simply want to be treated as passive viewers and consumers. They have ideas, feedback, and advice on how to improve the products, services, content and brands they love, and they expect their voices to be heard.

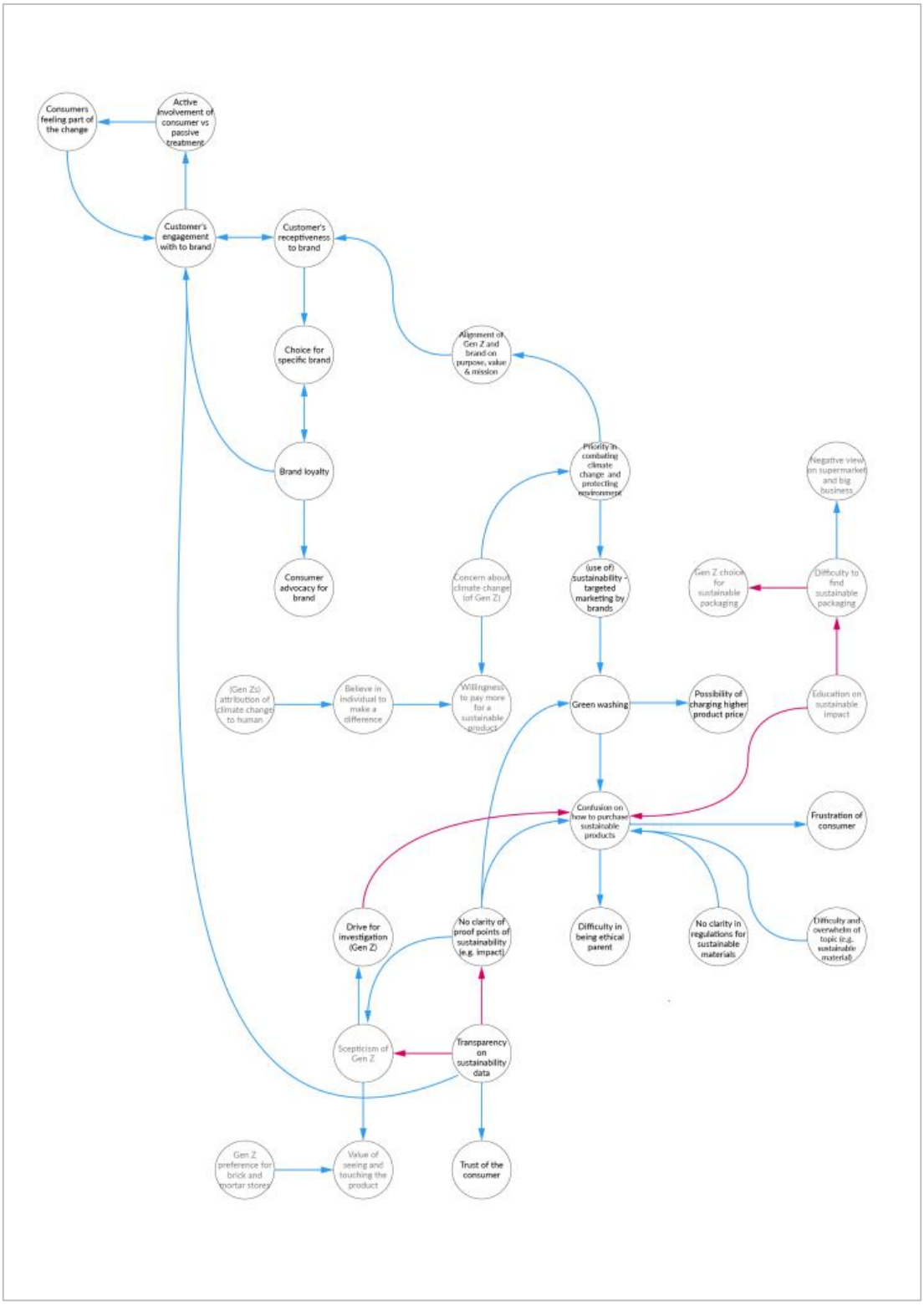


Figure 2. Mini-Map for Topic 13. Grey nodes are from Topic 12.

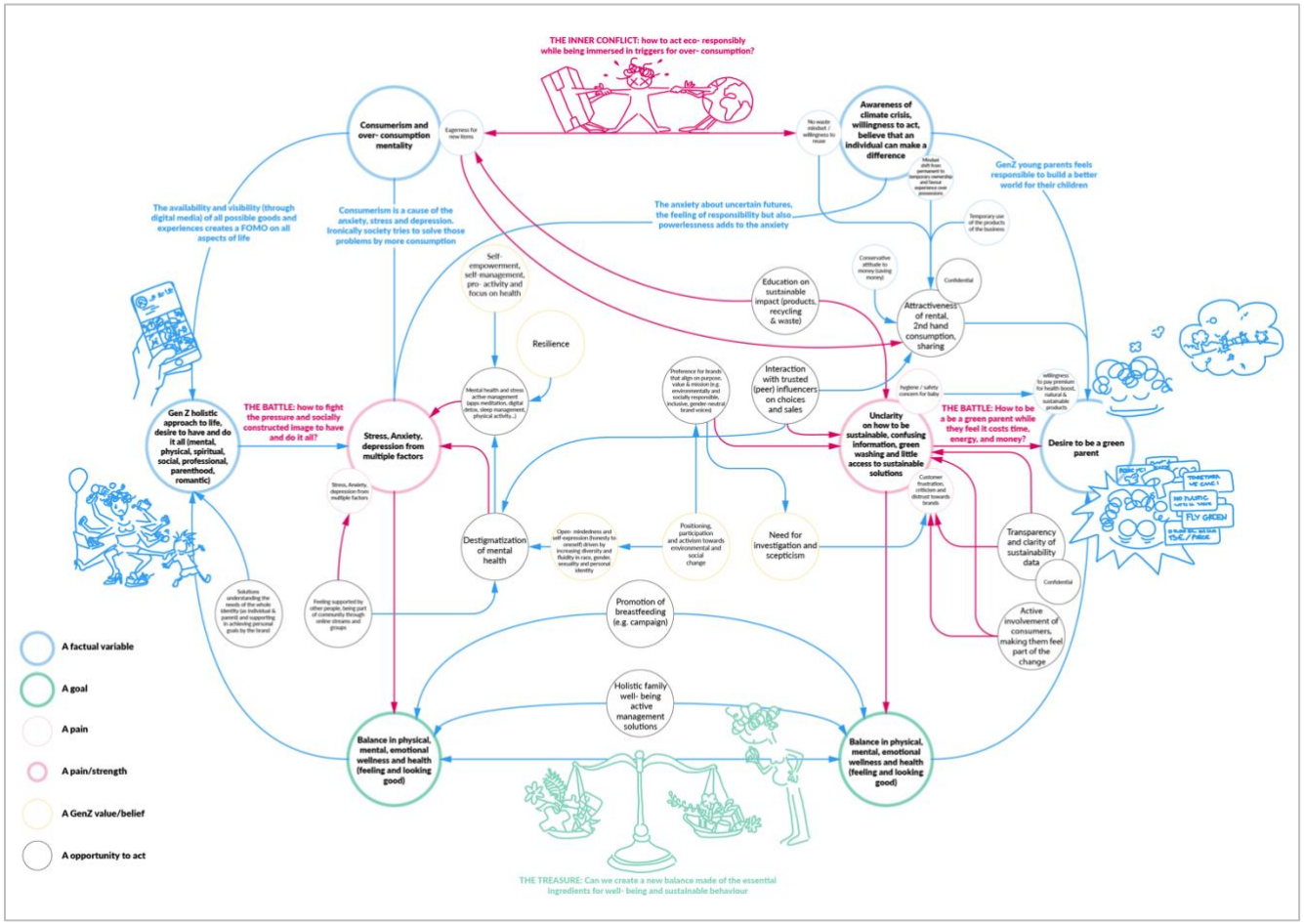


Figure 3. Simplified dilemma visualisation. Detailed version in Appendix H.

Systemic Insights from Parent Interviews

After the intermediate validation presentation with the company representatives on the interview analysis approach, the final interviews were conducted, transcribed and mapped accordingly (the interview mapping can be found in Appendix F). This resulted in ten systemic insights that explore and tie back to the systems dilemma and its leverage analysis from a qualitative consumer perspective.

1. Sustainability is perceived as a privilege for families who have time and money for a sustainable lifestyle
2. Parents are facing a huge choice and information overload
3. Everyday life for a first-time parent is overwhelming and stressful, and sustainability is seen as an addition to the workload
4. Sustainability is described as a process. It takes time and exploration on what works best for different families and requires space for trial and error
5. To the parents, sustainability means more than materials, they also consider the social aspects
6. Parents want to teach their children about sustainability and be a role model
7. Parents are open to the concept of second-hand products for their child and like to also give their used products to other parents
8. Parents often buy products without knowing if the products match their and their children's needs
9. Parents buy products in a preventive manner – to be well prepared for any situation
10. One of the most common strategies of parents to be more sustainable is to consume less and ask themselves: What do I really need?

Systemic Insight Cards

After embedding the systemic insights and their qualitative data based on the interview analysis into the insight card structure (Figure 4), a final set of ten insight cards was developed. The structure for these cards was provided by a leading design researcher from the company to ensure a comprehensive format for the systemic insights to base business actions on. The use of specific prompts in the card structure helped in filling in the insights from the parent interviews. Next to this, selected quotes were added for a personal and empathetic touch to the findings and a small visual icon to enhance the textual information and support a more intuitive understanding of the insights. Figure 5 shows an example insight card with additional cards in Appendix G.

As the insight cards represent the needed qualitative insights to address leverage points within the dilemma visualisation, the insight cards were mapped into the dilemma visualisation as green dots (Figure 6). This approach helps to maintain a holistic view of the system and develop effective interventions for specific leverage points. By that, an intervention model, which describes the insights for the required interventions on specific leverage points within the system was provided to the company as a final deliverable.

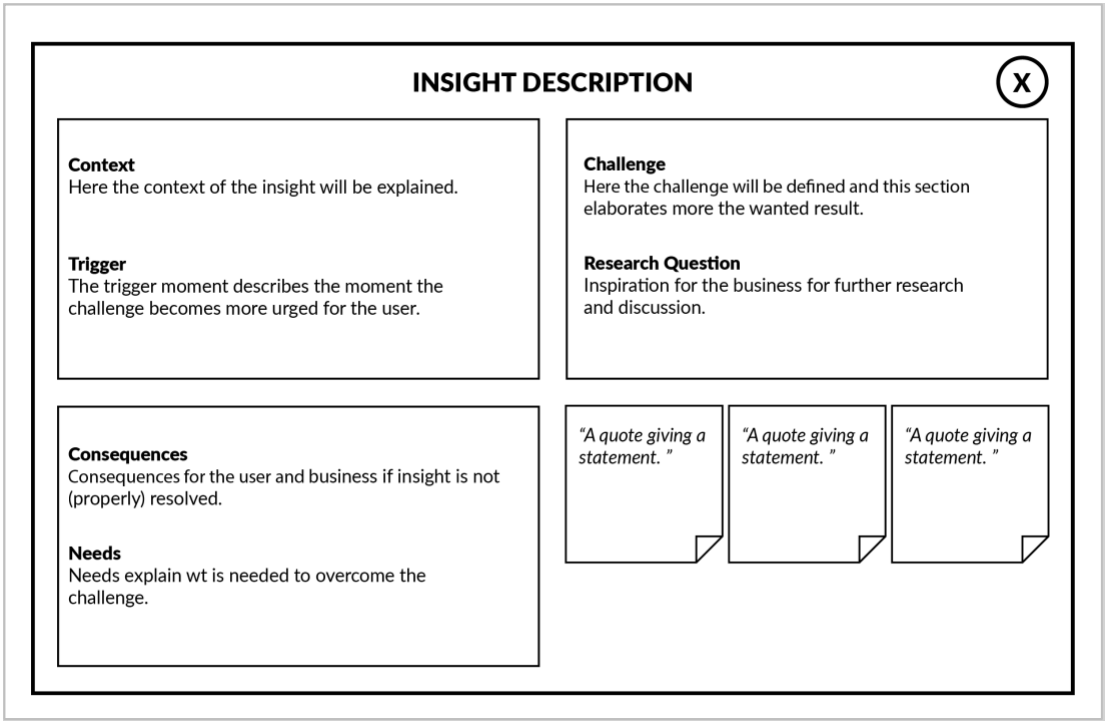


Figure 4. Structure Insight Card.

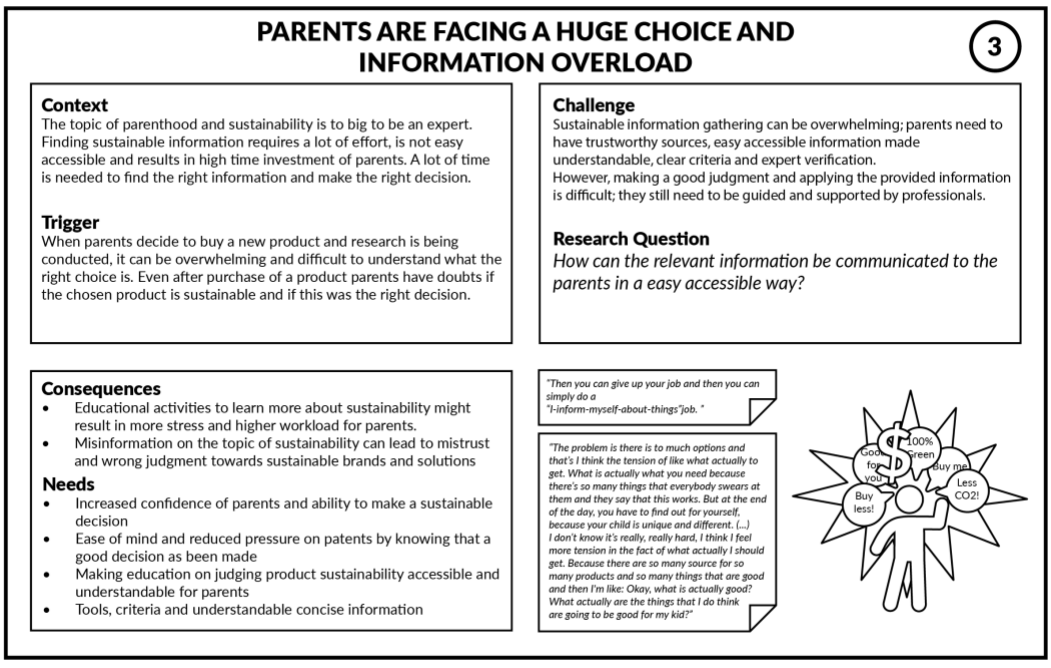


Figure 5. Example Insight Card

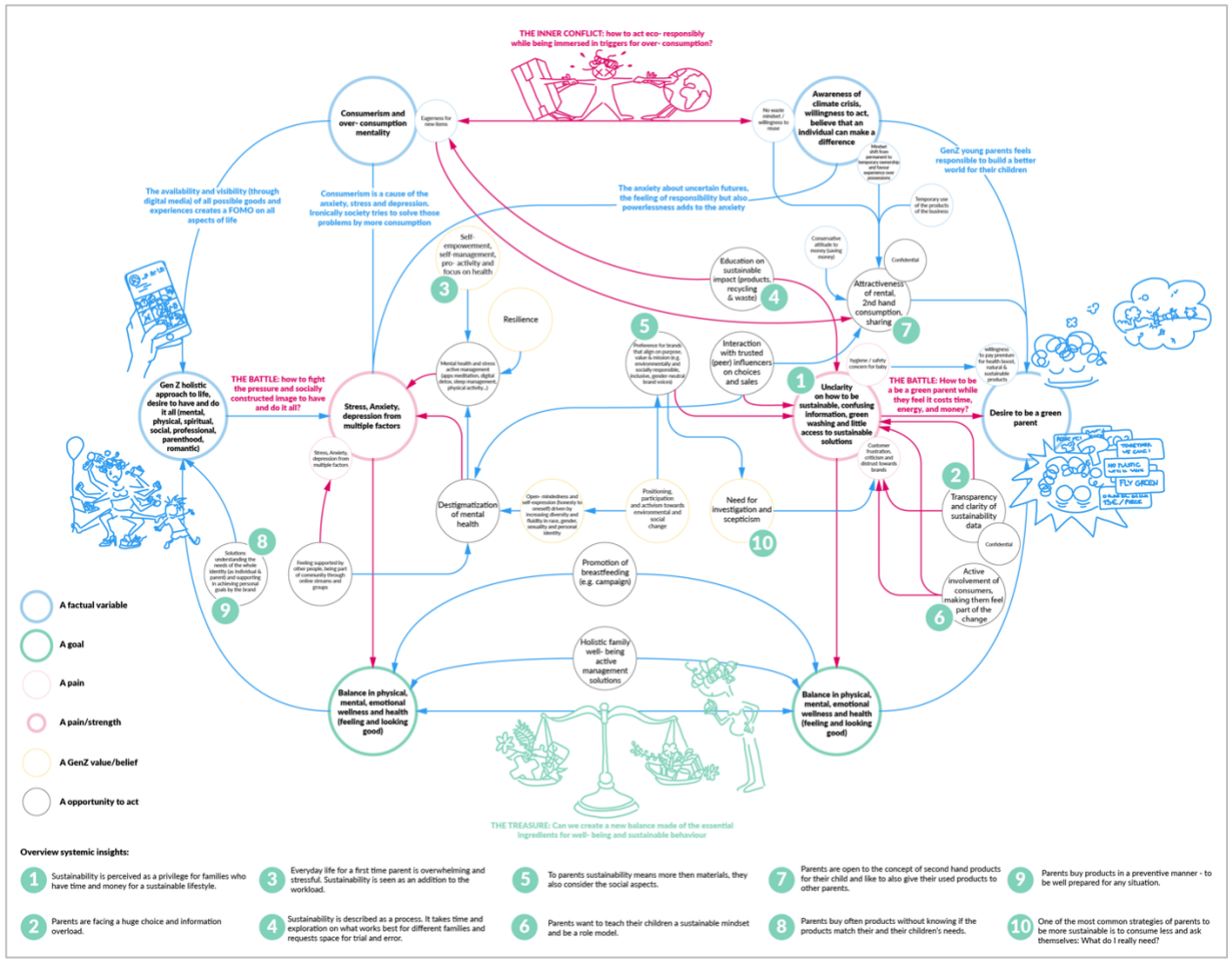


Figure 6. Dilemma visualisation with insight cards mapped down. Detailed version in Appendix H.

Framework Resulting from the Process

Reflection on the Systemic Design Process

Systemic design tools were helpful to enable the company representatives to think more holistically than accustomed to address the complex issue of sustainable parenting. The engagement of company representatives throughout the whole process suggested that currently applied systemic design tools and their outcomes were found relevant to advancing sustainability from a company perspective. However, some models were found too abstract for the current business mindset and approach. This was the case with the final CLD and insights from the leverage analysis. This reflects a broader challenge in aligning corporate epistemology with systems approaches.

Such an epistemological mismatch can potentially hinder the adoption of systemic tools in business contexts. A similar observation was made by Overdiek (2024) in the expectations found in user research, where the quantitative (positivist) epistemology of user research caused challenges to the interpretive approach of systemic design. Once the limitations of traditional systemic tools were acknowledged, a stronger emphasis on design artefacts for communication and translation of systemic insights was applied. This aligns with previous research (Talgorn et al., 2022) that highlights the significant challenge of making large quantities of complex system data tangible and meaningful. Understanding the complexity of a system requires methods that blend a logical and scientific approach with a narrative style of communication (Lorino et al., 2011). The application of systemic storytelling translated the abstract systems analysis into a concise, yet impactful design artefact tailored to the specific context of the company.

The company representatives found the dilemma visualisation to be a tangible outcome of the systemic analysis, and it was used as a tool to communicate systemic insights within the company. This enabled the company to have a clear problem statement and facilitated a comprehensive understanding of the complexity of sustainable parenthood. Further, the company representatives indicated that the translation of systemic design insights into insight cards made designing upcoming interventions more tangible and that the level of abstraction and complexity associated with system theory was reduced. Through the linearisation of systemic insights, the insight cards made it easier to understand and implement systemic design interventions.

Overall, it was noticed that the dilemma visualisation and usage of familiar methods such as insight cards and user interviews helped bridge the gap between research and communicating systemic design in a business context, providing a promising way to convey systemic insights and design interventions. Sevaldson (2022) argues that there is no established approach, and there are many tools that can be applied in a systemic design process. However, feedback from company participants indicated that creating design artefacts using storytelling and visual communication was crucial for enabling comprehension of the complexity of this project. The use of qualitative in-depth interviews and insight cards has been perceived positively since they are established and well-known approaches. The recognition of these approaches being valuable and methodologically sound

reflects an alignment with the company's corporate epistemology, allowing a greater acceptance and integration of systemic design approaches into business practices. Therefore, the creation of design artefacts for communication-based on storytelling and approaches the company is familiar with are fundamental for the framework development.

Resulting MINT Framework

Based on these learnings, the initial sequence of methods from Figure 1 was reviewed and communication steps were specifically labelled as such. The new overview identifies a combination of analytical methods to make a complex problem graspable to company representatives and communication methods to make systemic outcomes understandable for company representatives (Figure 7).

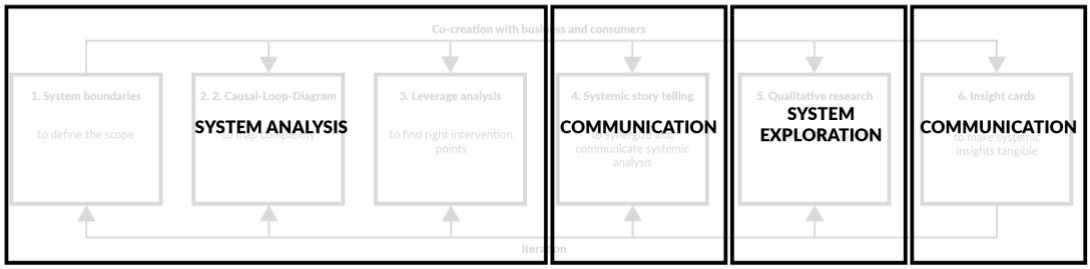


Figure 7. Clustering the initial sequence of the chosen methods into analytical, communication and exploration steps.

Peter Jones (2018a) has described the importance of co-creation in any systemic design process. In the current study the company representatives also emphasised the relevance of co-creation in understanding the process and provided their perspectives on the complex problem being addressed. Additionally, since systemic design is based on design and incorporates design thinking methods (Jones, 2014b), iteration is a fundamental element of the process. Considering all these factors, the MINT framework (Mapping of Interventions and Narratives for Transformation) was formulated (Figure 8) to address the research question.

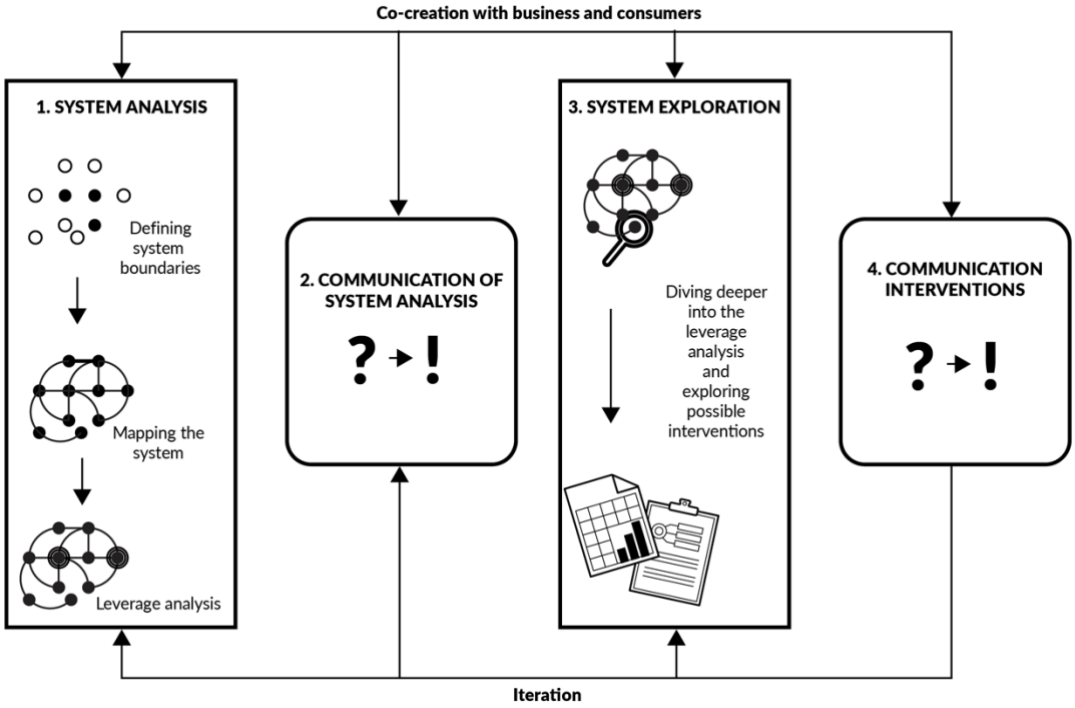


Figure 8. Overview of the MINT Framework.

Discussion

This research follows a dual narrative, one providing insights on the client project, while the other delves into the meta-research of the study. The research primarily focuses on the second narrative, discussing the lessons learned from the systemic design process for developing the MINT framework and its broader implications for systemic design in a commercial context.

Adaption of the Resulting MINT Framework to Other Contexts

The exploratory approach presented in this paper was tailored to the specific needs and contexts of the company in the case study. Therefore, the adaptability of the MINT framework to the complexity of other contexts may be limited, and further exploration through case studies in different contexts is necessary.

There are various other systemic design tools and methods that could be used in a business context. Therefore, further investigation and reflection on the applied methods and alternatives are required. For example, despite system boundaries being fundamental in a systemic analysis, scholars raise relevant critiques. Ulrich (Ulrich, 2000) argues that the boundaries of any system are predetermined as they are defined by social or personal constructs, thus representing a "social reality." Consequently, the establishment of boundaries reflects the interests of those who initially defined them (Midgley, 1992). It is essential for future research to follow a reflective and collaborative approach when making

boundary decisions to foster critical awareness and consideration of different potential boundaries. This highlights the necessity for further research in boundary setting within the systemic design process that allows for the inclusion of various perspectives in data gathering while still providing a practical framework for the research.

Moreover, despite Meadows' leverage typology being fundamental for current systemic analysis, little has been done to critique or substantially advance since the first publication of this work (Murphy, 2023). Therefore, since Meadows' work was, at the time, the most prominent and well-established, it was applied to classify and rank the identified leverage points. However, more research is required to explore other approaches in a systemic design process to identify leverage areas for systemic design interventions.

Additionally, regardless of the emphasis on the importance of co-creation, the co-creative sessions in this case study were primarily focused on company representatives. The only touchpoint with parents was through qualitative, in-depth user interviews. Therefore, further case studies exploring the suggested approach could benefit from conducting co-creation sessions with both the company representatives and consumers throughout the entire process.

Finally, instead of solely relying on in-depth user interviews, as was done in this case study, action-based research and distributed experimentation, as suggested by Kate & Entsminder (2023) to address post-conflict transitions systemically, could be a promising approach for the steps of system analysis and exploration.

Systemic Design Artefacts within the MINT Framework

Given the abstract nature of systemic design methodologies and the challenge of educating the company representatives on complex models and terminology, it becomes necessary to create artefacts that can effectively translate systemic outputs into a format that is practical and useful for the company representatives. This practical problem of designers working within complex systems and having to capture and communicate complexity to participants of the process is a known challenge and demands designers to act as systems leaders, mixed-methods action researchers, and design facilitators for systems changes (Jones & Van Ael, 2022). Therefore, creating systemic design artefacts for communication becomes crucial. An example of developing systemic design artefacts based on the complexity of a context and the needs of stakeholders is demonstrated in Robert Horn's (2024) process of mess mapping. Horn developed a "mess map" for a county service organisation for the elderly and disabled in Alameda County, California. This "mess map" provided diverse systemic design artefacts to communicate various aspects of the complexity that needed to be addressed. It was well received by stakeholders as it served as a practical and visual alternative to an extensive report.

Therefore, the MINT framework suggests two communication steps, where systemic design artefacts play a crucial role in facilitating communication by providing a format that aligns with the context and the company representatives' needs. In the case study, systemic artefacts have been developed with an emphasis on visualisation. Further research into design artefacts beyond two-dimensional formats would be valuable for exploring different ways of communicating complexity.

Strategic Thinking as a Necessary Enabler for the Resulting MINT Framework

It was out of the scope of this research to develop solutions based on the systemic design process. However, it needs to be noted that in the solution development, it is essential to consider strategic thinking. Systemic interventions are not a single solution (Bijl-Brouwer & Malcolm, 2020; A. Jacoby & Van Ael, 2021), so considering short-term and long-term opportunities when designing interventions is fundamental. A similar line of thinking can also be found in the Value Amplification Method (Rocchi, 2020), which suggests that first small-scale implementations are needed before amplifying in scale or geography.

While some interventions may be quick and feasible to implement, others may require more time and planning. Therefore, it is crucial to align actions that are mutually reinforcing and work towards a systemic impact while making efficient use of available resources. Creating a leverage point matrix that visually represents the selected problems or solutions along two axes—intervention effort versus effect in the short and/or long term—would be found strategically beneficial. A tactical roadmap can be devised using this matrix, mapping out the most strategic route encompassing potential leverage points that can achieve the greatest long-term impact with the least short-term effort.

Since systemic change takes considerable time and effort, episodic and continuous actions are crucial for designing an intervention strategy. Episodic actions are time-bound, planned interventions that are financially viable within a given period and aim for incremental improvements. These actions may be easily achievable goals or immediate issues that can be addressed relatively quickly, such as improving certain product features. However, these actions are not sufficient to address deeper, systemic challenges. In contrast, continuous efforts are long-term commitments aimed at addressing the underlying systemic issues, such as entrenched mindsets or cultural shifts within the company and at the societal level as well. These efforts require sustained engagement and adaptability, often focusing on core goals and beliefs.

Continuous actions might include initiatives such as implementing new company policies that support practices that nurture a culture of sustainability. This dual approach ensures that while quick, actionable improvements are made, there are also ongoing interventions targeting the root causes of a complex problem. An agile monitoring framework that includes a set of metrics allowing regular monitoring of the system's functioning will also be needed to demonstrate progress towards the long-term vision. Finally, when strategically planning systemic interventions, the process needs guidance over the time span in which the company representatives play a dominant role (Jacoby & Van Ael, 2021).

The Role of Businesses in Sustainability

Based on the systemic perspective of the identified dilemma parents are facing, the role of the company as a change agent for sustainability transitions was discussed. Overall, it was agreed that the dilemma undermines parents' attempts to be sustainable and that parents should not be held solely responsible for sustainable parenthood. As the dilemma falls into the second-degree leverage point, namely "the mindset or paradigm out of which the system arises," it is important to consider whose mental models have the most influence on system structure (Meadows, 1997). Thus, addressing the commercial system structure cannot be done without also looking at the mental models of all employees at every level within the company. This also entails questioning the role of product and service firms contributing to this dilemma. The issue is much more complex than can be addressed by individual parents or products alone. Parents are caught in a system that pressures them to be sustainable but, at the same time, offers consumption as a solution, which reinforces the dilemma instead of addressing it (Akenji, 2014; Princen et al., 2002). Thus, interventions are needed from businesses, which have fundamentally contributed to this dilemma, and new mental models and structures are required to support parents in overcoming this dilemma. Overall, this dilemma indicates a need to shift society's mindset, both for consumers and the businesses that market to parents and families.

However, it needs to be considered that there are limitations on how much businesses can contribute to sustainable systemic change due to the financial pressure of financial growth over sustainable impact. Such as in this case study, which was entangled in financially constrained contexts and the company representatives have indicated a strong focus on predictable short-term (e.g. annual) targets and quantifying results to ensure control of monetary and business development. Furthermore, the pressure of a return on investment may lead to a focus on downstream interventions implemented by siloed business units rather than early-stage sustainability considerations.

Recognising this, our holistic approach challenges multi-sectoral company representatives to collectively look deeper into complex problems, identify opportunities to leverage system changes and improve the coherence of their sustainable systemic impact at an early stage of solution development.

Still, by providing a holistic perspective, the company representatives stated the potential for developing solutions that address the climate crisis based on systemic considerations. Therefore, by guiding a company through a systemic design process and making the complexity comprehensible and actions feasible, companies may be enabled to address complex systemic challenges within their sphere of impact. Taking a holistic perspective on sustainability issues can raise questions about the company's role, impact, and responsibility.

Systemic Design Contributes to Sustainable Innovations.

Next to the reflection of the role of the company on sustainability, the adoption of a systems approach provided the company with further insights and new angles on a well-known problem. The dilemma visualisation provided a comprehensive overview and a story that the company representatives had not seen before. Through the systemic design process, the company gained a new perspective on the causal relationships between the challenges parents face and how its own actions are intertwined with and reinforce the underlying mental models and dilemmas that make sustainability a challenge for parents. The systemic design approach also highlighted that product innovations alone are insufficient to support parents in adopting sustainable practices, as they tend to address surface-level concerns. Instead, innovations focusing on addressing the leverage points to shift mental models and established behaviours are required. Furthermore, the research also explored trends that the company representatives were not aware of and could consider in future innovations. Topics such as veganism, mental health, and sexuality were highlighted, which usually are not considered, and stirred discussion on potential future business considerations.

Limitations of the Study

The limitations of the study need to be acknowledged to provide a clear understanding of the validity of the research and the effectiveness of systemic methodology in a business context for sustainable impact. Due to time limitations, the translation of insight cards to actual business solutions was out of the research scope. Therefore, validation by the company of the potential solutions was out of scope as well. Thus, this study provides valuable insights into the applicability of systemic methods in a business context but no finalised business solutions, resulting in a knowledge gap on the effectiveness of systemic interventions. Moreover, measuring systemic impact is an often-encountered obstacle in the field of system theory.

Problems resulting from a complex system are unlikely to change quickly and are unlikely to change in response to a single intervention, making the impact of systemic interventions challenging to measure (Nobles et al., 2022). Although measuring and evaluating systemic impact was not the primary focus of this case study, it is another knowledge gap which needs to be addressed in future research. This study provides a starting point for exploring the impact of systemic interventions, but more research on a comprehensive framework for their measurement and evaluation in a business context is needed.

Conclusion

This study aimed to bridge the gap between academic theory and the practical application of systemic design and advance the body of systemic design contributions through a case study in a commercial context. The case study resulted in the development of the MINT framework, addressing the overarching research question: “How might a systemic design process feasibly enable commercial organisations to facilitate complex societal transitions?” Once company representatives have identified a complex problem that they can influence

with their activities, expertise, and resources, they can apply the MINT framework in collaboration with designers.

In conclusion, this paper suggests that applying systemic design in commercial contexts can be an impactful approach to not only understand but also challenge current paradigms and mental models of the company representatives regarding their roles in addressing complexity. The researchers believe this case study is among the first ones to apply systemic design in a large-scale commercial environment and publish academically about the process of the case study. Therefore, practitioners and researchers are encouraged to further develop and explore the suggested framework.

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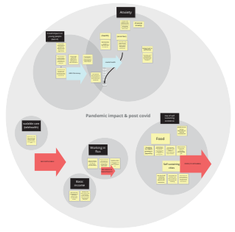
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Appendix A:

17 mapped and clustered topics

(covid - joker)



Parenting

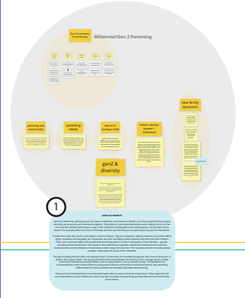
Healthcare

Digital

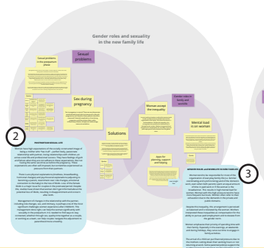
Planet

Gen Z/Mill people and society

Business

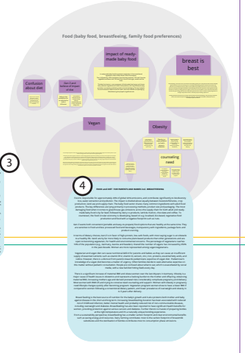


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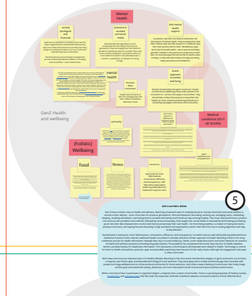


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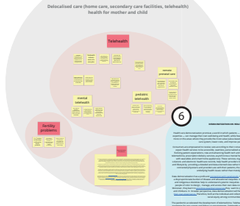
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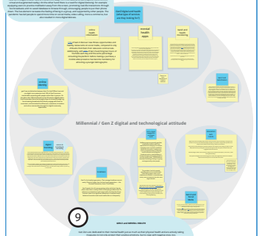
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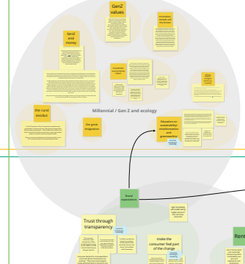
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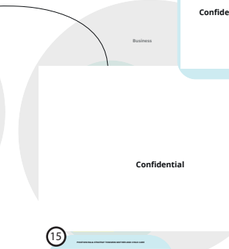
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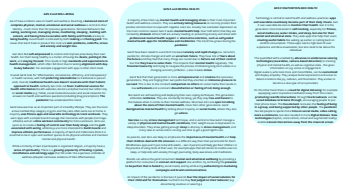


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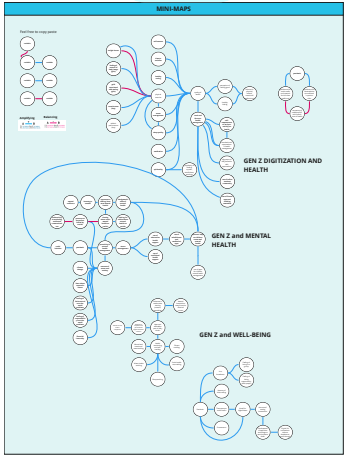
Appendix B:

Mini-Map Workshop

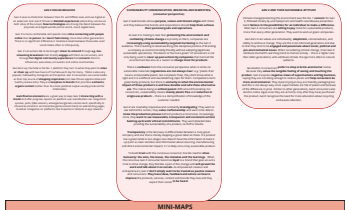
GROUP 1



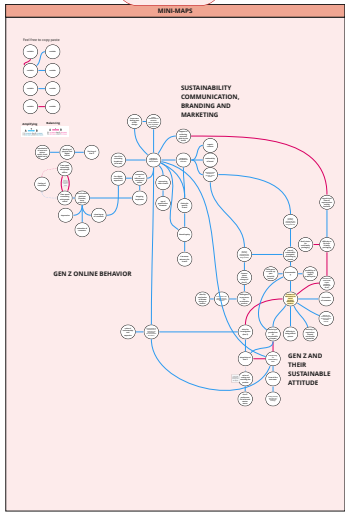
MINI-MAPS



GROUP 2



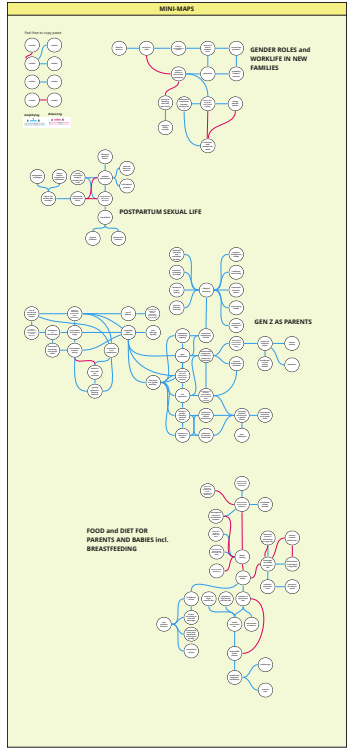
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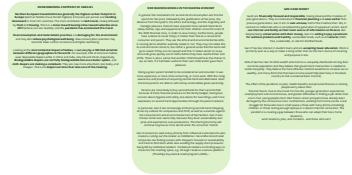
GROUP 3



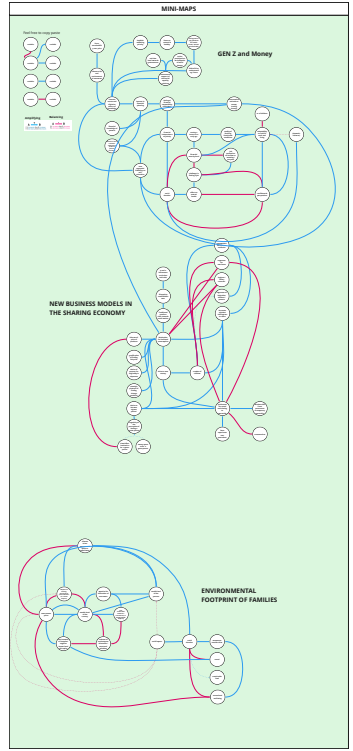
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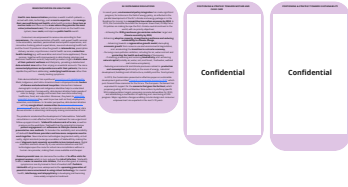
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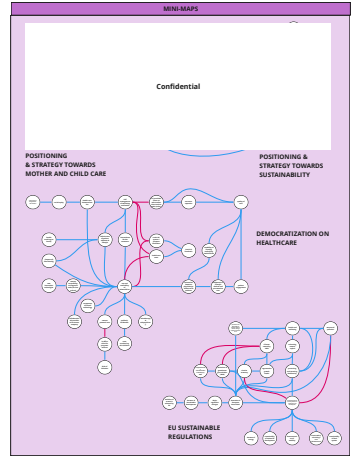
MINI-MAPS



Pre-work

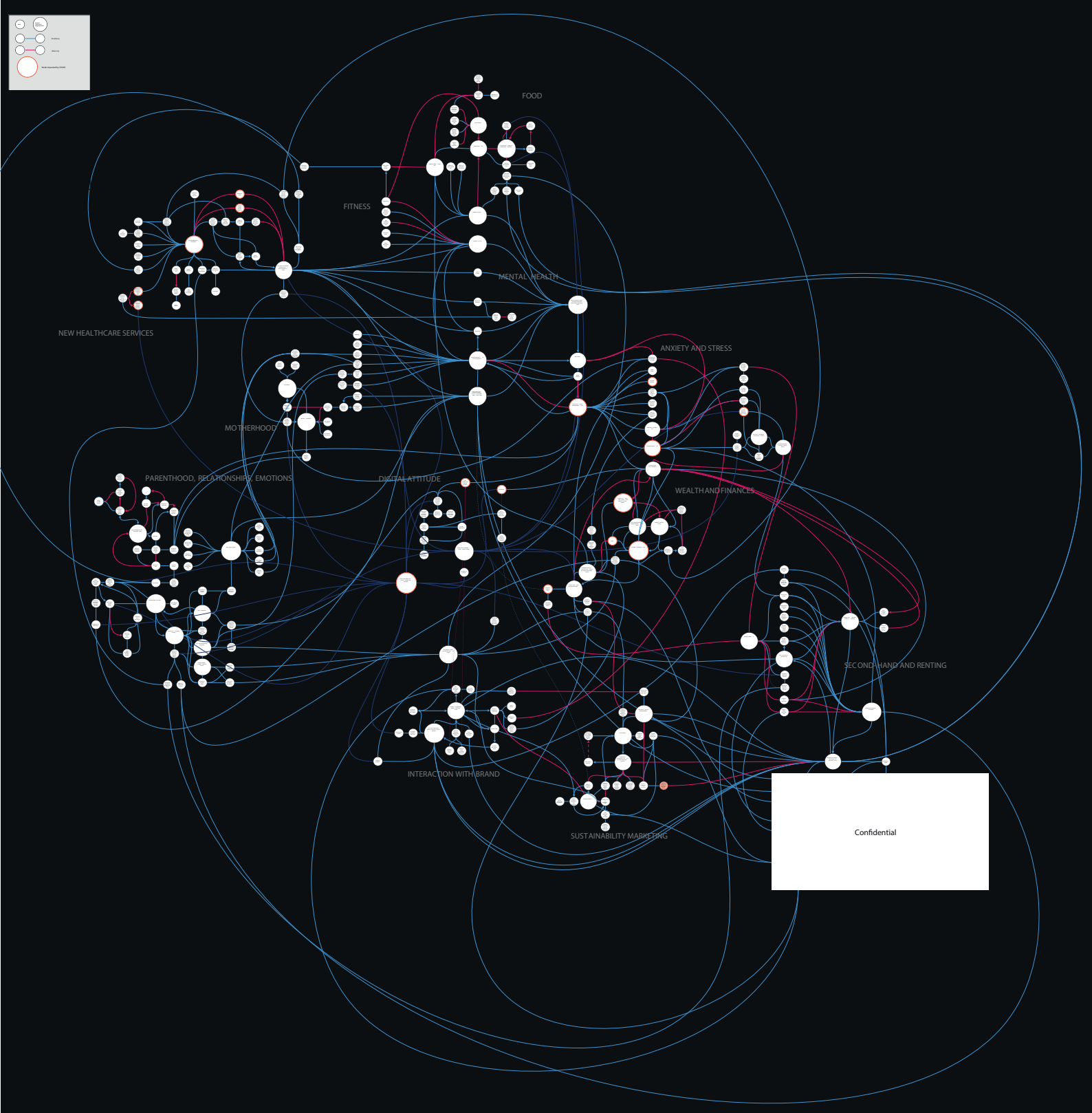


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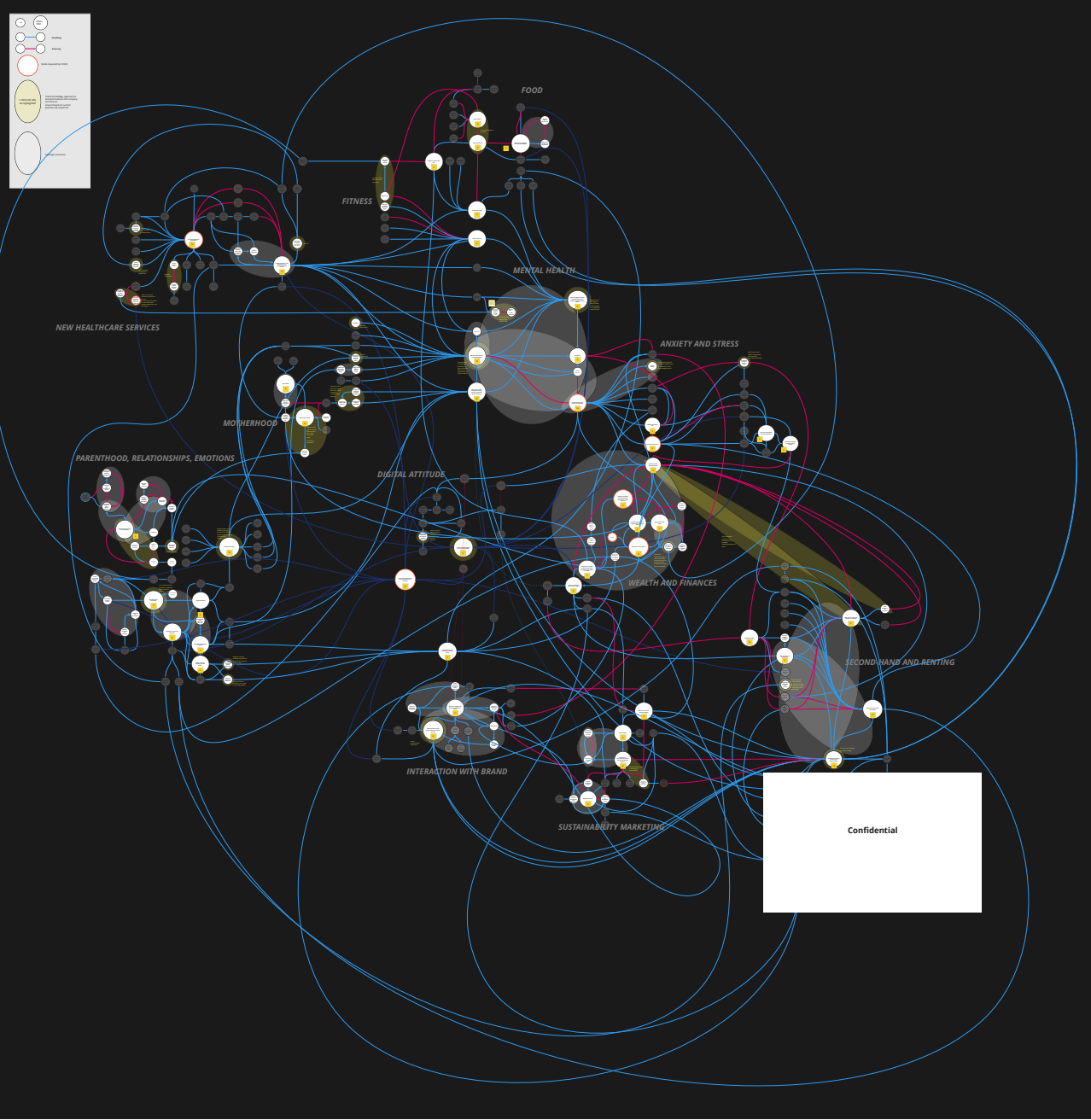
Appendix C:

Final CLD


FOOD
FITNESS
MENTAL HEALTH
NEW HEALTHCARE SERVICES
ANXIETY AND STRESS
MOTHERHOOD
PARENTHOOD, RELATIONSHIPS, EMOTIONS
DIGITAL ATTITUDE
WEALTH AND FINANCES
SECOND HAND AND RENTING
INTERACTION WITH BRAND
SUSTAINABILITY MARKETING
Confidential

Appendix D:

Final CLD with leverage areas


FOOD
FITNESS
MENTAL HEALTH
NEW HEALTHCARE SERVICES
ANXIETY AND STRESS
MOTHERHOOD
PARENTHOOD, RELATIONSHIPS, EMOTIONS
DIGITAL ATTITUDE
WEALTH AND FINANCES
SECOND-HAND AND RENTING
INTERACTION WITH BRAND
SUSTAINABILITY MARKETING
Confidential

Appendix E:

Dilemma visualization

Dilemma Visualisation

(Gen Z) trend — A factual variable

A treasure : a goal

A dragon: a pain

A joker: a pain/a strength

Armor: a Gen Z value/belief

A wand/Fairy: an opportunity to act

The digital story World

Gen Z are digital natives. For this generation, online platforms and social media are a primary source of connection and information on the topics of health care, mental health, lifestyle, sustainability, and parenthood. *(1)*

Technology and the digital world is central to Gen Z' s health and wellness practices: apps and wearables seamlessly become part of their daily rituals. Gen Z is the generation most interested in health monitoring and self tracking - for fitness, food and water intake, sleep, social media use, but also for their mental and emotional state. *(2)*
Advances in connected sensing and data sharing enable health care providers to have an holistic view of people's lifestyle and health to provide better care. *(3)*

Overall GenZ look for effectiveness, convenience, efficiency, and transparency in health services. Half prefer telemedicine to traditional in-person visits. *(4)*
Overall, traditional health care doesn't resonate with their holistic approach to health. Instead of traditional sources for health information (health websites, doctors and pharmacists), GenZ rather rely on social media (e.g. Tiktok, social media discussion) and social networks for answers to health and wellness questions (including drug prescription). The pandemic has accelerated this trend. *(5)*

The pandemic has led people to spend more time on social media, video calling, more e-commerce, but also resulted in more digital detoxes. New technologies (haptics, voice control, virtual and augmented reality) enable natural interactions away from the classical screen. *(6)*

Gen Z holistic approach to health and life

Gen Z have a holistic view on health and wellness: reaching a **balanced state of complete physical, mental, emotional and social wellness** is central to their identity. Personal behaviors like healthy eating, working out, managing stress, meditating, sleeping, building self-esteem, and having time to socialize with family and friends are seen as key to being healthy and happy.

Contrarily to millennials who seek fulfillment and identity through their professional life, more and more GenZ consider work as a mean to get income and focus on other aspects to reach a balance. For example, a majority of Gen Z show interest in **spirituality**. There is a growing popularity of healing crystals, mindfulness and astrology apps that fall under the expansive umbrella of wellness (despite conclusive evidence of their effectiveness).

GenZ feel **self-empowered** to control and improve proactively their own health. They have **high standards and expectations in health management**, which often fall short due to lacking alignment with day-to-day behavior.

The holistic approach to life reflects in the parenting style of Gen Z. They let the child explore and express their needs - an approach called '**baby-led parenting**'. This leads to high attention for the child's mental health and topics such as confidence, stress coping, emotional resilience and empathy.





The battle : anxiety, stress and social pressure

72% of GenZ say managing stress and mental health is their most important health and wellness concern. They are **constantly confronted with a socially constructed image of 'has it all and do it all'** (social, professional, relationship, identity&looks...) and pressure to be perfect, fueled by socials. The constant comparison to others results in low self-esteem and a constant unsatisfaction or feeling of not doing enough. Furthermore, over consumerism - pulled by socials - has also a negative impact on on individuals' psyche, resulting in developing a constantly unsatisfied state of mind. Finally, GenZ grew in a world of increased anxiety (i.e. shootings, terrorism, pandemic, climate change) and rapidly changing (fluctuating economy) over which they feel they have little control. The Covid pandemic has only amplified this anxiety. They fear for their future and that of their children, even to the point that many consider not having children.

If we focus on young parents, **the arrival of a child adds** tiredness, changes in the relationship with the partner and sexuality, and difficulties linked to parenthood. In particular, mothers who carry a high mental load and feel the pressure to successfully combine professional and family lives are subject to feelings of guilt and failure.

On the positive side, GenZ is a generation that embodies resilience, is pro-active in managing their mental health, and open to talk about it.

The inner conflict

Climate change and protecting the environment is No. 1 concern for Gen Z. They know the world is on fire, and that humans are responsible for it. They believe in the possibilities for an individual to make a difference, and take action - for example by working at green companies, purchasing from ethical brands, limiting waste, and eating vegetarian or vegan.

At the same time, they live in a **consumeristic society** shaped around the believe that happiness and well-being depend fundamentally on material possessions, which is the main cause for Earth resources depletion and negative environmental impact.

For GenZ, this is a fundamental dilemma: how to act responsibly while being immersed in triggers for over-consumption?

The paradox is that both awareness about climate issues and over-consumption go hand in hand with **wealth level**. The globally growing middle class increases this trend.



THE INNER CONFLICT: how to act eco-responsibly while being immersed in triggers for over-consumption?

Consumerism and over-consumption mentality

Eagerness for new items

No waste mindset / willingness to reuse

Awareness of climate crisis, willingness to act, believe that an individual can make a difference

Mindset shift from permanent to temporary possession, from experience over possession

The availability and visibility (through digital media) of all possible goods and experiences creates a FOMO on all aspects of life

Consumerism is a cause of the anxiety, stress and depression. Ironically society tries to solve those problems by more consumption

The anxiety about uncertain futures, the feeling of responsibility but also powerlessness adds to the anxiety

Products temporary use

GenZ young parents feels responsible to build a better world for their children

Conservative attitude to money (saving money)

Attractiveness of rental, 2nd hand consumption, sharing

Self-empowerment, self-management, pro-activity and focus on health

Resilience

Education on sustainable impact (products, recycling & reuse)

Mental health and stress management, emotional and alternative mental health support, apps, meditation, digital detox, sleep management, physical activity ...)

Interaction with trusted (peer) influencers as choices and sales

Unclarity on how to be sustainable, confusing information, green washing and little access to sustainable solutions

Hygiene / safety concern for baby

Customer frustration, criticism and distrust towards brands

Transparency and clarity of sustainability data

Payment

Active involvement of consumers, making them feel part of the change

Preference for brands that align on purpose, culture & mission (e.g. environmentally and socially responsible, inclusive, gender-neutral brand values)

Need for immigration and skepticism

Positioning, participation and engagement in socio-environmental and social change

Willingness to pay premium for health boost, natural & sustainable products

Desire to be a green parent

THE BATTLE: How to be a be a green parent while they feel it costs time, energy, and money?

THE BATTLE: how to fight the pressure and socially constructed image to have and do it all?

GenZ holistic approach to life, desire to have and do it all (mental, physical, spiritual, social, professional, parenthood, romantic)

Non-recourse or traditional HC with holistic view of health and preference for proximity for alternative medicines

Solutions understanding the needs of the whole identity (as individual & parent) and supporting in active coping and goal-setting (at home)

Stress, Anxiety, depression from multiple factors

Social isolation and feeling of loneliness (caused by use of digital/social platforms)

Feeling supported by other people, through online communities, through self-help streams and groups

Destigmatisation of mental health

Open-mindedness and self-awareness (of GenZ themselves) driven by increasing diversity and fluidity in race, gender, sexuality and personal identity

Promotion of breastfeeding (e.g. campaign)

Holistic family well-being action (tech-augmented) solutions

Balance in physical, mental, emotional wellness and health (feeling and looking good)

Enablement of being a green parent (time and effort)

THE TREASURE: Can we create a new balance made of the essential ingredients for well-being and sustainable behavior?



The treasure

On one side, we need to help GenZ in finding a balance in their health and well- being, particularly by supporting their fight against anxiety and stress. On the other side, we must enable them to be green parents with clear information, and convenient and affordable sustainable solutions.

How can these two goals link and synergize?

If green parenting becomes an intrinsic part of this holistic balance in the mind of GenZ, they will be more pro-active to implement low-carbon-friendly actions - remember that self-management and activism are GenZ's strong points. In turn, if GenZ become greener, they will step away from materialism, reconnect with nature, which will decrease stress and anxiety.

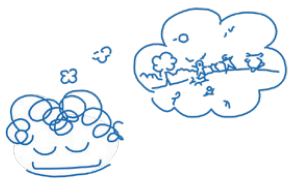
The main paradigm to transcend is the idea of GenZ that 'having it all and doing it all' will give them peace of mind. This is an unachievable goal. Rather, by embracing JOMO (joy of Missing Out), consuming less but better, they can reach a balance made of the essential ingredients for healthy people and a healthy planet.

New business models drivers

The main motivation for second-hand consumption is **fair pricing**. Also, people see the **ethical and environmental benefits** in reusing items even if they don't always explicitly stated it.

For parents 'it makes sense' to reuse, since kids quickly grow out of cloths before they have reached their end of life. There is also a sense that another child should have the chance to use an item, because it has been useful to their own child and gave them pleasure. **Parent networks** bring awareness of second hand opportunities. A barrier for buying second hand is **hygiene and safety** are a concern.

Gen Z in particular are increasingly embracing second-hand shopping, driven by a **desire for uniqueness and thrift**, as well as a **reaction against consumerism and the environmental impact of fast fashion**. As creators become **influencers**, Gen Z consumers seek to buy directly from them, cutting out the retailer as middleman. This opens new roads for business models and partnerships.





The battle: the difficulty to be a green parent

Gen Z are willing to protect the environment and combat climate change. At the same time, there is a preconception that green parenting costs money, time and energy. As young parents, they need convenient, safe and affordable products and services.

GenZ are inquisitive and actively looking for information on such solutions. However, the topic is overwhelming and companies are increasingly using sustainability-targeted marketing without providing proof points of sustainability. GenZ is very critical towards brands who do not take responsibility or use greenwashing to cover up past harmful actions and as a reason to charge more for products.

Consumers want to see measurable, transparent and consistent actions backing up brands' ethical commitments (choices about sourcing, manufacturing, durability, safety, and direct environmental impact data). GenZ value craftsmanship and want to see behind the curtain, to be able to know the production process behind products and services. To build trust and loyalty with the conscious consumer, brands also need to show humanity: the wins, the losses, the mistakes and the learnings. Additionally, as empowered creators and entrepreneurs, Gen Z don't simply want to be treated as passive viewers and consumers: they have ideas, feedback and advice on how to improve the products, services, content and brands they love and they expect their voices to be heard.

Appendix F:

Interview mapping

Pressure

Within this user research three different variants of pressure for parents were identified.

Pressure sustainability:
The pressure of sustainability, on the one hand, comes from the parents themselves since it is important to them. On the other hand, this pressure comes from outside influences as well, such as other parents.

Pressure time:
Parenthood requires a new and challenging time management. Especially in the first months after birth. The main challenge about this new time management is the lack of time for the individual parent, specifically the mothers. One major change when it comes to time for parents is that parents must learn to be present in the moment with the child.
Pressure parenthood: Pressure on how to practice parenthood comes not only from the society but also themselves. The fear to fail as a parent, to not live up to all the expectations also results in higher mental load, especially for women, who are challenged by all these expectations and tasks without appreciation but with constant criticism.

Pressure



Compromises

Where it comes to the difficulty of incorporating sustainable behaviour, both parent groups try to find compromises to make it actionable and feasible in their everyday life.

Two parents (M_KM_2102_2i_M_1602) specifically explained that they set sustainable ambitions, read into the matter a lot/ feel prepared. However, theory and reality are two different things. This is when compromises are necessary to make sustainability work in daily life. Combining sustainable and unsustainable actions was also a very frequent strategy of compromise identified. One returning example was cloth diapers. Parents had aimed to use them instead of conventional diapers to reduce waste. However, since the child needs to be changed a lot in the first months, using sustainable ones/ they require a lot of work and time. Therefore, parents tried to find a compromise. Some decided to get a CoZi neutral diaper with sustainable materials, others decided for a hybrid solution between cloth diapers at home during the day and conventional diapers when out and about. Also, the use of second hand products is very sustainable when it comes to diapers but integrate them in daily life in a feasible manner.
Another example mentioned explained that they try not to find compromises only in their own actions but also in their children's daily life. The most common example was toys. Parents listen to what their child would like to have and try to find the toy secondhand.

Compromises



Informing about sustainability

One of the major problems both parent groups seem to face when it comes to sustainability is related to information. The information gathering process for finding sustainable information requires a lot of effort and results in a high time investment. Some parents (M_KM_2102_2i_M_1602) specifically shared have difficult it is to identify if a product is sustainable, and even after to purchase they still doubt its sustainable status.

To better understand the struggles of information gathering, the parents were asked how they approach their product research. Internet research was the most frequently mentioned method. Information with reading reviews. Two couples (M_ZM_2402_4/ KW_2102) explained that one person is the research person and then shares an already filtered product to the other to make the final decision together. Internet research was also further used to investigate testing websites (e.g Stiftung Warentest) or specific sustainable mum forums. Another frequently mentioned approach was to rely on science such as reading scientific articles and speaking to experts about the articles or connecting to experts in the field. Additionally, some parents also mentioned certificates in their research and that they like to experience the product physically in the store.

Informing about sustainability



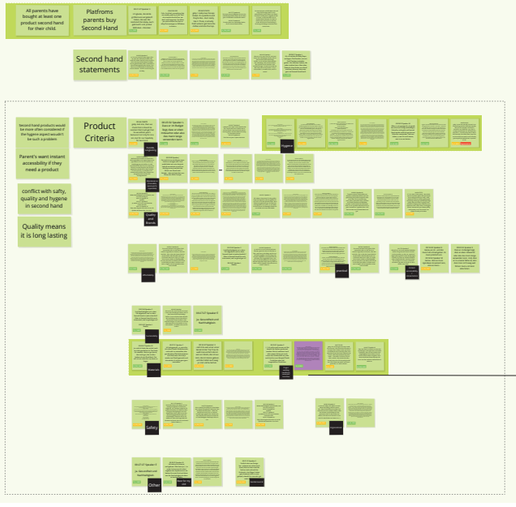
Buying sustainable products

All parents interviewed had experience with secondhand products for their children. However, there are limitations in products when it comes to secondhand purchases, specifically, hygiene and pump, including those which are in close contact with body liquids, e.g., pacifier, bottles, breast pump and mattresses.

In addition to that, in interview (I_ZM_2402), the parents raised a concern about buying electrical products second hand, since they are not experts and worry that the electrical products will break quickly.

When questioned about product criteria, the most frequently mentioned requirements were the durability of the product, easy maintenance (cleanable, spare parts, washable), and safety. Both parent groups had the knowledge that they like to use durable high-quality products for a long time to have a sustainable contribution. Another crucial criterion for the parents is the usage phase, which also includes instant accessibility of the desired product, which is not always available in secondhand purchase, since it is faster to order products online or the secondhand product needs to be picked up further away. Further, for parents the usage phase also includes the disposal, which considers the materials such as wood, reduction of plastic and toxin free materials, but also the origin and working conditions under which the product was produced. Safety was identified as the last crucial criteria for the products, but it has been seen that safety is not a problem when it comes to second hand, sustainability and includes ergonomic aspects

Buying sustainable products



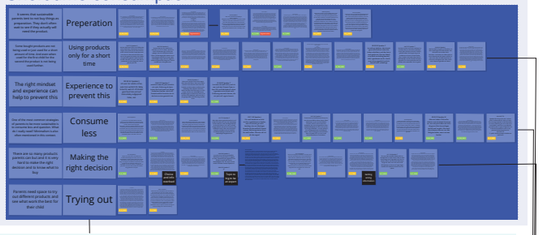
Short time consumption

One key insight from the interviews was the short time usage of products. SAP group respondents buy products in advance, not being certain if they will need the products. Safety and preparedness in case a certain product is needed were the reasons mentioned for this kind of "stock-piling" purchase. Such an act was most prevalent in parents who lacked experience with children. In interview 5_I_1102, the parent gave an example where she bought a breast pump in case she would need it, but ended up not needing it at all. Fortunately, there was no problem, but the product was already bought and not used. Also, some products, such as bottles, pacifiers, baby monitors, food processors, diapers and pushers, were bought with the idea that they would be useful but then turned out to not be used as much as expected. Another reason for unnecessary purchases was the lack of knowledge regarding the choice of products. It is very difficult to navigate through the mass of products and identify which ones are needed.

Consuming less or minimalism is one of the most common strategies of both parent groups to avoid short-time consumption. Most parents try to make sure that they only purchase products that they really need the products they are planning to get.
Consuming less has also shown an overlay with the definition of sustainability of some parents.

One major takeaway to handle short time consumption:
The parents interviewed have also shared that every child is different, which makes the selection of the products needed even more difficult. Such as one parent (M_KM_2102_2i_M_1602) said: *"Just bring joy to one's own child but maybe to another.* Also, parents handle the usage of products from previous children differently. Some parents say that children not liking the hand of the food processor, not wanting to use pacifiers. This all leads up to the need for a trial space for young parents with different products, helping them explore what products they like and which ones fit their child's parenting style a lot/what gives the biggest joy to their children.

Short time consumption



Every child is different



Social Media

Social Media has become a relevant tool for parents on the journey of parenthood. Representatives from both parent groups confirmed the influence of other parents they trust and influences in their decision making. The interviewees also mentioned, moreover than that, social media was being used by the interviewees to gather information and for inspiration as parenthood. A strong example can be found in the interview (I_ZM_2402), where the interviewee mentioned that she created a social media account specifically for education. On the other hand, some parents also showed a negative attitude towards social media. To conclude, for this set of interviewees it cannot be concluded that social media is unimportant to all parents and that it has influence on their parenting style and decision-making.

Lastly, the relevance of an offline parent community was also highlighted by multiple parents. Offline parent community, where parents go through the journey. They learn from each other about parenting styles, products, exchange information and even share products.

Social Media



Sustainable life

Difficulties:
There are several difficulties parents face when it comes to being a sustainable parent. The most frequently mentioned difficulty is the integration into daily life, which includes easier and more difficult days and a lot of preparation. Sustainability in terms of being zero waste and producing all the products on your own and using cloth diapers is too much work.

Being sustainable is perceived as energy and time consuming and, therefore, adds to the mental load as well. Parents before had high expectations on how to tackle sustainability in daily life and underestimated the challenges that they would face. Another difficulty is the fact that since the child didn't want to eat the food, leading to disappointment. Mobility was highlighted as another area where sustainability is difficult to integrate in the daily life of the parents. Lastly, the topic of sustainability is seen as too big for parents to be an expert on thus, making it impossible to achieve a sustainable life.

Keeping the difficulties in mind, sustainability is seen as a privilege among parents. In the interviews conducted, 2 main specifications of privilege could be identified.
Money: Having the money to be able to buy sustainable products and regionally produced food from farmers markets, which results in higher household expenses.
Time: Having the time to be able to do sustainable activities such as making their own baby food, but also, in terms of time investment, to conduct research on products and sustainable lifestyles. This topic shows a large overlay with "informing about sustainability" since parents have shared that they see access to the right information through having an expert in reach and the social environment to learn about sustainability.

Concerns about the climate crisis and their impact on parenthood
When it comes to concerns about the climate crisis, all interviewees showed concerns and concurred the need for more actions from the companies and the governments. Especially, SPP stored that the climate crisis is a topic of concern for the parents interviewed and that they have fears of the impact on their children and the future generation was the most frequently voiced concern among the parents regarding the climate crisis. One parent(M_ZJ_2402) elaborated his concerns that his child's generation marks the first generation which has worse prospects than the previous generations.

This concern results not only in parents wanting to be more sustainable but also in parents teaching their children about sustainability. Parents seek education and dialogue with their children on the topic of sustainability, meat consumption and resources. Additionally, parents are raising the awareness of their children by implementing sustainable habits in everyday life, such as growing plants together, and moments with animals. Furthermore, parents take their children for grocery shopping at the supermarkets and farmer markets, so, children understand local and seasonal food. Parents, in general, want to be role models to their children. One SPP dived deeper into the topic of education by explaining the difficulties she experienced by changing her lifestyle towards sustainability. She does not want her child to go through this process but instead have these sustainable behaviours internalized.

Sustainability as a process
Sustainability is seen as a process among both the parents' groups and is described as taking mini steps in different directions built on a sustainable journey with constant discoveries of new opportunities.

SPP are critical of their journey and have points they want to improve on. They consider this development as part of their process. Interview (F_M_1022 (SPP)) give an example of using cloth diapers, where the sustainable action has become a daily process of the routine.

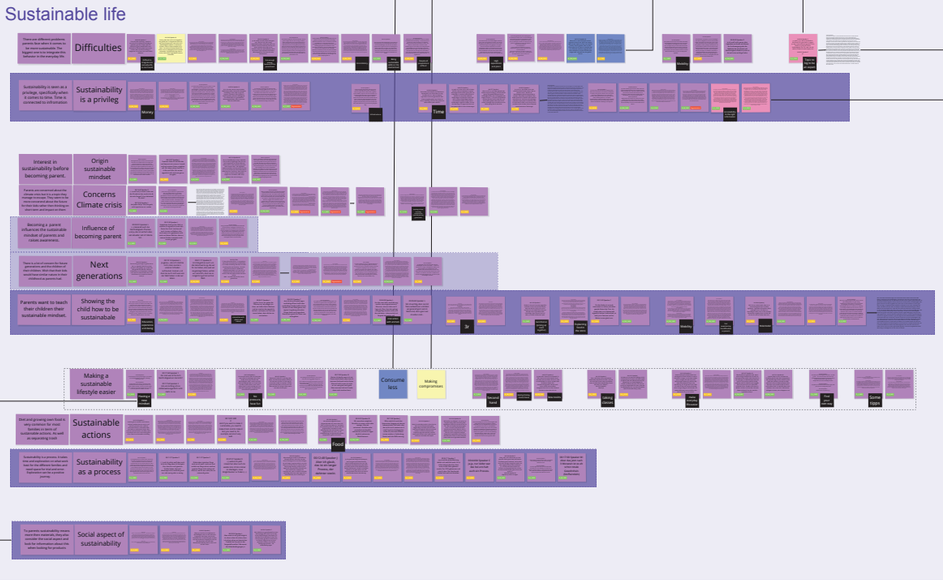
Sustainable actions both parent groups have integrated show a large diversity, such as reducing plastic packaging, separating trash, picking up trash, making things last, making own clothes, swapping shops, biking, growing own food, shopping packaging free, secondhand products, vegan and vegetarian diet, buying seasonal and regional products and going to farmers markets.

Further statements from both parent groups were collected to create an overview on the ways to make a sustainable lifestyle easier', resulting in the following insights: having a new mindset, integrating fun and not creating pressure to be sustainable, consuming less and questioning what is really needed, making compromises, buying second hand, education through courses, finding ways to overcome procrastination, and finding ways to "trick yourself" into being sustainable, e.g. "trick" your own personal approach and starting with the first small steps (e.g., bringing your own bag).

Social aspect of sustainability

Parents see sustainability as more than just materials. Multiple parents consider the social aspect as part of a sustainable product and investigate the country of origin, working conditions and corporate social responsibility in general.

Sustainable life



Others needs

Parents look beyond the child's needs when buying products for the child. Parents like to buy products they consider interesting and nice from their perspective and not only from their child's perspective. For example, they would buy products which are interesting for them, but they think their child would not have made the parents happy in their childhood.

However, the grandparent's perspective also plays a role in the products the children get. This has been identified as a conflict between generations, where the parents' perspective and the ideologies cause friction. When it comes to sustainability, SPP have disagreements regarding the presents their children receive from grandparents (F_M_1022 (SPP)). The interviewee explained that the mother-in-law perceives second hand as being poor. In #_KM_2302, the mother-in-law second hand as low in quality. Presents are a difficult topic to discuss, since quite some younger parents would prefer quality time over presents. Therefore, there is a need for communication of presents their children get from their grandparents.

Others needs (grandparents, parents, friends)



Appendix G:

Insight Cards

SUSTAINABILITY IS PERCEIVED AS A PRIVILEGE FOR FAMILIES WHO HAVE TIME AND MONEY FOR A SUSTAINABLE LIFESTYLE.

1

Context

Being sustainable is perceived as taking up to much time and money - adding up to the mental load. Therefore sustainability is seen as a privilege for families who are wealthy enough to afford spending money and having enough free time to inform about this topic.

Trigger

When sustainable ambitious parents are confronted with a product decision or a daily action, reality hits. Being sustainable takes more time then expected in the daily life, not only for activities but also information gathering. Further sustainable products are perceived to be a higher price-class and difficult to afford on a regular basis.

Challenge

Integrating sustainability in the daily life needs to change perception. Sustainability should be made accessible for every family by education on low price solutions, sustainable products should be made affordable and informing about sustainable parenthood should be easy accessible.
However, changing the perception of sustainability can be difficult and not all parents will have the motivation to do so, there is an additional incentive needed.

Research Question

How can sustainability be made accessible for everyone?

Consequences if insight not (properly) resolved

- Overloading parents with information and the complexity of sustainability might lead to feeling overwhelmed and frustrated
- Perception of sustainability being mainly accessible for wealthy families, might result in lower to middle class families not even trying to be sustainable

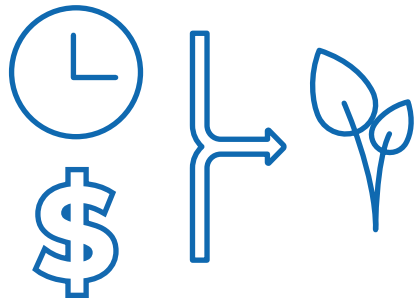
Needs

- A new narrative of sustainability in which sustainability is accessible and feasible for all families
- Creating additional value though saving money and time with sustainable parenthood
- Providing a trusted sustainable brand for parents where no additional time for information gathering is needed

"I can imagine that if you don't have the resources in terms of time. That at some point you say: "It doesn't matter, we'll just do it like the neighbour did it or like mom did it. We all grew up, it doesn't matter." Well, I can't imagine what it's like when you just have a few resources and not this totally protected space with all these people from whom you can learn. But I can imagine that it's not that easy and that you have to be very careful not to give up your energy. Then you're completely burned out and can no longer concentrate on the children."

"If you have a lot of time to think, then maybe it's still possible. But especially when you are stressed in everyday life, it is not always easy. Then you just go to the supermarket and buy food there, which is often plastic-packaged, instead of taking the further route which is sustainable because it is more regional."

"Yes I just had enough time during my pregnancy because I was on leave because of Corona. (...) I was able to think about it and you had the time and muse for it. Because if you are already pregnant and have to work, there is little time for all of this."



PARENTS ARE FACING A HUGE CHOICE AND INFORMATION OVERLOAD.

2

Context

The topic of parenthood and sustainability is to big to be an expert. Finding sustainable information requires a lot of effort, is not easy accessible and results in high time investment of parents. A lot of time is needed to find the right information and make the right decision.

Trigger

When parents decide to buy a new product and research is being conducted, it can be overwhelming and difficult to understand what the right choice is. Even after purchase of a product parents have doubts if the chosen product is sustainable and if this was the right decision.

Challange

Sustainable information gathering can be overwhelming; parents need to have trustworthy sources, easy accessible information made understandable, clear criteria and expert verification.
However, making a good judgement and applying the provided information is difficult; they still need to be guided and supported by professionals.

Research Question

How can the relevant information be communicated to the parents in a easy accessible way?

Consequences if insight not (properly) resolved

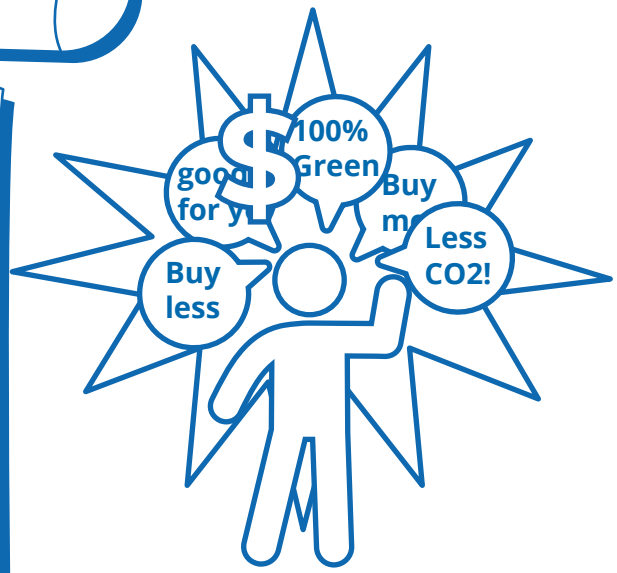
- Educational activities to learn more about sustainability might result in more stress and higher workload for parents
- Misinformation on the topic of sustainability can lead to mistrust and wrong judgement towards sustainable brands and solutions

Needs

- Increased confidence of parents and ability to make a sustainable decision
- Ease of mind and reduced pressure on patents by knowing that a good decision as been made
- Making education on judging product sustainability accessible and understandable for parents
- Tools, criteria and understandable concise information

"Then you can give up your job and then you can simply do a "I inform myself about things" job."

"The problem is there is to much options and that's I think the tension of like what actually to get. What is actually what you need because there's so many things that everybody swears at them and they say that this works. But at the end of the day, you have to find out for yourself, because your child is unique and different. (... I don't know it's really, really hard, I think I feel more tension in the fact of what actually I should get. Because there are so many source for so many products and so many things that are good and then i'm like: Okay, what is actually good? What actually are the things that I do think are going to be good for my kid?"



EVERYDAY LIFE FOR A FIRST TIME PARENT IS OVERWHELMING AND STRESSFUL. SUSTAINABILITY IS SEEN AS ADDITION TO THE WORKLOAD.

3

Context

Nowadays parents are facing difficulties when it comes to being a sustainable parent. The most frequently mentioned difficulty is the integration of sustainability in daily life even though there are easier and more difficult days.

Trigger

Once the parents start building up their daily routine, reality hits in. Parenthood is stressful and overwhelming and despite preparation sustainably is difficult to integrate. More than that, by trying to make sustainability part of daily life, the stress and daily workload is increasing.

Challenge

Integrating sustainability in the daily life of parents needs to be feasible and actionable. More then that, sustainable practices instead of being forceful squeezed in the daily life, need to support parents and reduce mental load.
However, creating and learning sustainable behaviors takes up time and space for exploration in the daily life as well. Solutions need to comply with overworked parents; actively support the unpredictable challenges of first time parents and serve the individual needs of parents.

Research Question

How can sustainability not add but actually release stress and workload?

Consequences if insight not (properly) resolved

- Creating too many fast paced and drastic changes might lead to counterproductive results and possible discouraged parents
- Perception of sustainability as additional workload might result in complete avoidance of sustainable actions

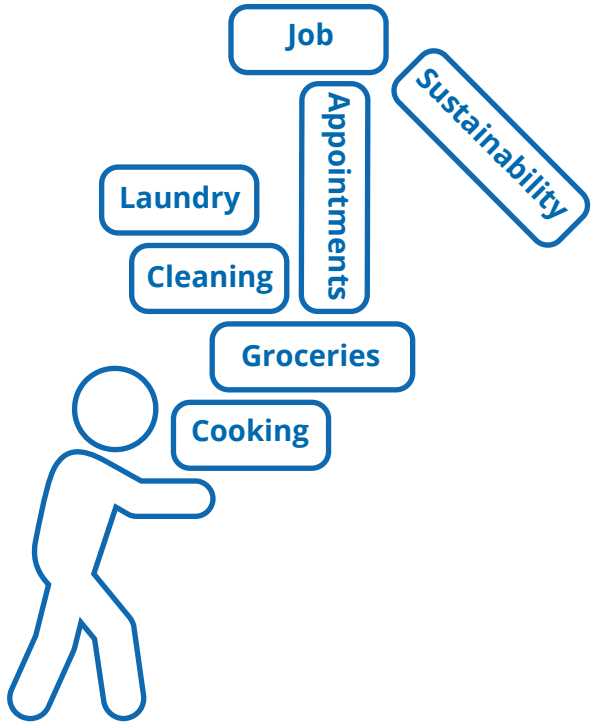
Needs

- A new narrative of sustainability, where sustainability does not add on workload and stress, but reduces it
- Alternatives that fit into young family patterns
- Solutions making sustainable daily activities feasible and actionable
- Encouragement of parents to adopt new personal sustainable patterns of behavior

"Not everything can go in the direction of sustainability... everyday life demands much. Such as cloth diapers, if you think about it. Especially in the beginning like the kid needs to be changed like 10 times a day... you don't actually do anything else but washing diapers then."

"I'm in for any change. It just has to be feasible and needs to make sense."

"Yes, we make excuses out of the fact that we just have very little capacity, even for thinking and for existing, because it hardly lets us sleep..."



SUSTAINABILITY IS DESCRIBED AS A PROCESS. IT TAKES TIME AND EXPLORATION ON WHAT WORK BEST FOR DIFFERENT FAMILIES AND REQUESTS SPACE FOR TRIAL AND ERROR.

4

Context

Sustainability is seen as a process among parents and is described as taking mini steps and trying in different directions. Resulting in the creation of a sustainable journey with constant discoveries of new opportunities.

Trigger

Successful integration of one sustainable task in the daily life can become a starting point and motivation for the process of becoming a sustainable parent.

Challenge

Sustainability as a process takes time and exploration on what works best for the individual needs, this requires space for trial and error. Solutions which easily integrate or improve daily life are required, but also need to be affordable and without commitment of ownership. What works for one family, child or parent might not work for another.

However, understanding what the best solution for the individual situation can be difficult and not all parents have the motivation to explore the process of sustainability on their own: guidance and support by professionals can ease the process.

Research Question

How can active support in this process look like?

Consequences if insight not (properly) resolved

- To much space for exploration increased probability of having negative experience and discouragement could rise
- Beginning the process of sustainability without guidance might result in parents feeling lost and overwhelmed

Needs

- Creating a positive and new experience of exploring the process of sustainable parenthood
- Solutions, which allow moving away from ownership and giving space for trial and error to understand what products or solutions work best
- Inspiration and guidance on which daily practices and products would be good to explore
- Making the impact of all the small steps in the process visible to parents

"I've always been a vegetarian and animal welfare and environmental protection have always been important to me. But the children made me change my mind and since then we have switched our diet to vegan. Except for the eggs that our hens lay. Also that the topic with the diapers... so I just looked for alternatives. From this they actually came up with more and more topics and...yes, there are always new ones being added."

"That's why I would take the picture on the right with the blue background, where he climbs these stairs. Yes, because I can learn more, that's the way for me. Step by step learning, I would say that is what he is doing. How can I then reach my goal that I can really live completely sustainably or let's say within a framework that is okay?"

"In the last 10 years we got more and more into the topic and that we want to made our lives as sustainable as possible. Of course we know that there is a lot of room for improvement. But and that's why it was also clear to us beforehand that living sustainably with a child is not necessarily easier than without a child."



TO PARENTS SUSTAINABILITY MEANS MORE THEN MATERIALS, THEY ALSO CONSIDER THE SOCIAL ASPECTS.

5

Context

Sustainability means to parents more than just materials, packaging and waste.

Trigger

When making a purchase decision parents conduct research on multiple criteria of the product. One of them is the social factor, this includes origin country, working conditions and cooperate social responsibility (CSR) in general.

Challenge

Trying to understand the social aspect of a product can be challenging; information needs to be transparent and easy understandable, parents don't want to be lied to and misguided by wrong claims.
However, the complexity of cooperate social responsibility is tricky to understand and see through, parents on their own are not able to properly judge the social aspects of a product and need guidance by professionals to judge transparency of brand.

Research Question

How can Social Cooperate Responsibility be made visible in the sustainable communication?

Consequences if insight not (properly) resolved

- If brands don't incorporate CSR in their communication reputation might get damaged or brands are missing out on a important differentiator for parents
- No proper communication of CSR might result in disappointment about product purchase once looking into the purchase

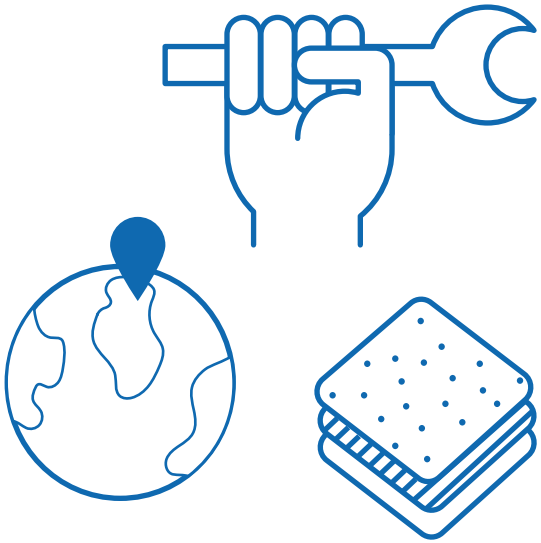
Needs

- Empowering the parents to understand the social aspects of their purchase
- Transparent communication of the business, showing their achievements and future plans
- Honesty showing points of improvements and weaknesses
- Concise and clear communication, avoiding to mislead parents

"Yes. In a sense that at least we check that actually the people that are working are property paid. Because that's something that in Mexico happened and often that even kids are producing the product...so that's also something I do check that the quality is good that the people are getting well paid for the work that they're doing."

"But if it's possible for me then take a look where does the product come from? How was this made? What were the working conditions like?"

"And for me, sustainability means not only the conscious handling of nature and the products that the earth gives us, but also the treatment of people."



PARENTS WANT TO TEACH THEIR CHILDREN A SUSTAINABLE MINDSET AND BE A ROLE MODEL.

6

Context

Parents are raising the awareness of their children by experiences and interactions in nature, such as growing plants together, moments with animals and taking the children grocery shopping to teach about local and seasonal food. Parents in general want to be role models to their children. Being sustainable is perceived as taking up to much time and money - adding up to the mental load. Therefore sustainability is seen as a privilege for families who are wealthy enough to afford spending money and having enough free time to inform about this topic.

Trigger

Increasing concerns about the climate crisis and it's impact on future generations, makes parents seek for more actions from companies and governments. But also sustainable actions in their personal life and educating their children on this topic.

Challenge

Parents aim to educate and have dialogue with their children on the topic of sustainability. To archive this, parents needs to educate themselves first, integrate sustainable solutions and strategies in their life and have developed a sustainable mind on their own.
However, gaining this expertise on their own while being occupied with parenthood is challenging. Not all parents are able to do so on their own.

Research Question

How can active support in sustainable education of the children look like?

Consequences if insight not (properly) resolved

- Overloading parents with information and the complexity of sustainability might lead to feeling overwhelmed and frustrated
- Parents might not teaching their children about sustainability at all due to their perception of them not having enough expertise

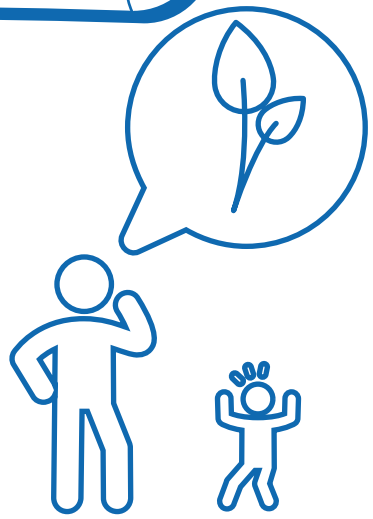
Needs

- A co-shared responsibility among users and companies on education, reducing pressure on the parents doing this task on their own
- Make education on sustainability accessible and understandable for parents
- Provide guidance and tools for communicating the complexity of sustainability to children
- Enhance parents confidence in the topic of sustainability though support of professionals and experts

"By taking my child with me when I go shopping and explaining why we don't do things like that like the others, for example. To introduce them to consciously thinking about what you buy, how you use it, what you can do with it."

"Because we actually set an example and they can join if they want. From time to time we also make games out of it, for example, if there is garbage lying around then pick it up... it's a garbage-picking game."

"I also try that he waters with me the plant. He is loving to kiss the little leaves. And he does it and he loves it... I think that's something that it's, at least for us, we we've been trying to make him know that even if they don't scream they're still living. And they help us with making our oxygen so it's just like. This other approach that we are one with this world and we only have one again planet so it's about how we want to use it."



PARENTS ARE OPEN TO THE CONCEPT OF SECOND HAND FOR THEIR CHILD AND LIKE TO GIVE THEIR USED PRODUCTS TO OTHER PARENTS.

7

Context

Second-hand products for their children are a common practice of parents, as well as giving products to other parents. However, there are limitations when it comes to second-hand. Specifically, when it comes to hygiene such as products which are close in contact with body liquids e.g. pacifier, breast pump etc.

Trigger

With the rise of sharing economies, new business models and awareness of over-consumption; reusing and second-hand products are becoming more common. Further, the financial aspect makes second-hand products more attractive. Renting opportunities for breast pumps are entering the market and raising the question of how far reusing products can go among parents.

Challenge

Parents seem open towards circulation of used products, which can make sustainability easy accessible, safe money and depending on the business model make life easier for parents. However, safety has been identified as a crucial criteria and is seen as more relevant then sustainability for parents. Hygiene products such as pacifiers, breast pumps, baby bottles etc. are not seen as safe enough to circulate between strangers.

Research Question

What could be a approach to enable the circulation of products among parents in consideration of the safety (hygiene) concern?

Consequences if insight not (properly) resolved

- Parents increased frustration of owing products they don't need anymore but they can't give to other parents
- Parent's wanting to safe money on circulating products/ second hand but not doing so

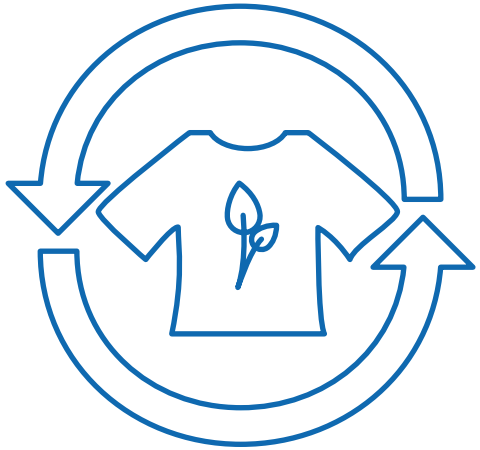
Needs

- Changing the perception of hygiene hazard of circulating products, resulting in making parent feel safe about the product and creating trust in the business
- Making circulation products more attractive and accessible, resulting in easing up the everyday life of parents
- Increased communication on safety and transparency of renting hygiene products
- Provide expert insights and parents feedback on confidence and safety

"Yes, all hygiene product. Actually...breast pumps, for example, I wouldn't probably buy everything used. Or baby bottles, pacifiers...all things that should be hygienically clean."

"And that's something that we usually try to do. And also to pass the stuff on we don't need anymore. So rather put some clothes for free on eBay Kleinanzeigen or Willhaben in Austria."

"Of course I dealt with the topic of breast pumps and of course I could have borrowed one from the pharmacy. Um, but then I heard from a friend that you get the oldest breast pumps there and who knows if they are so hygienically clean..."



PARENTS BUY OFTEN PRODUCTS WITHOUT KNOWING IF THE PRODUCTS MATCH THEIR AND THEIR CHILDREN'S NEEDS.

8

Context

Parents end up not using products they buy. It is hard to know beforehand what is needed, some products were perceived as being useful but then turned out to not be. Also it is overwhelming to know what is actually needed with the huge choice of products on the market.

Trigger

The moment parents are surrounded by products which they thought it would be a great solution, is a frustrating moment. Such as a food processor of which the baby doesn't like the pap, or pacifiers which the child does not want to use.

Challenge

Parents are surrounded by a narrative which makes them buy a lot of products, with the goal to make their life easier. To help parents explore which products match their needs, space for trial and error without ownership and easy accessible solutions supporting urged needs are required.
However, letting go of owning products might cause a big change in behaviour, therefore convenience and benefits need to be made visible.

Research Question

How can parents be enabled and given space to explore products?

Consequences if insight not (properly) resolved

- Frustration due to wasted money, time and space for unused products
- Buying the same product multiple times to see if the brand, material etc. is the reason for not using the product
  Enabling parents for exploration of products might lead to counterproductive results and parents consuming and using more products then they would usually do. Leading to a new from of over-consumption.

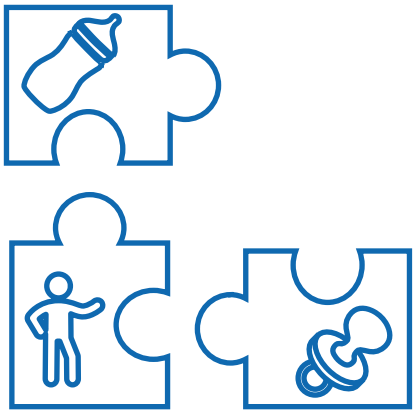
Needs

- A new way of exploring products by moving away from ownership, empowers parents to better understand what their families needs are
- Creating a safe space of understanding what works best for the daily individual life, without losing money and having commitment to ownership
- Providing a trusted sustainable brand for parents
- Education and personalized expert guidance on the individuals needs
- Collaborations with other companies to provide expertise and brought product range

"But at the end of the day, you have to find out for yourself, because your child is unique and different.

"With the first child you think, you have the best concept and then the second child comes. And then you realize that all the concepts which worked with the first, for the second it doesn't work anymore. It's not because of the perfect upbringing, but because the first child was just like that. But the other is very different.

"Yeah, it is very difficult an sometimes you screw up. You realize that you get something... you're super excited, you've investigated, it's Fair Trade, it's good materials, good quality! You get it you give it to your son. And then he looks at it, plays with it 2 seconds. And you are: "Oh no I invested so much time, energy and effort thinking what to do". And then it didn't really work. And then he prefers to use I don't know the box of the product. So it is a trial and error. So maybe for my child it didn't work and we just put it in Vinted and for somebody else it works."



PARENTS BUY PRODUCTS IN A PREVENTIVE MANNER - TO BE WELL PREPARED FOR ANY SITUATION.

9

Context

Being a first-time parent is full of unexpected moments and many parents feel insecure. Leading to the purchase of many baby products in a preventive manner and so the feeling of safety and preparedness. Unfortunately, some of the bought products will end up unused.

Trigger

Realization of parents that they bought products to feel safe but don't end up using them. Such as a breast pump, which got bought in case the mother can't breastfeed and this pump ended up unused. Now parents have to find a solution what to do with these products.

Challenge

Wanting to be prepared and having everything ready for the baby can make first time-parents very insecure; to prevent parents from buying products they need to be educated on what is needed and when, gain confidence in their parenting style and have easy and fast access to products in case of need. However, establishing confidence and understanding is difficult and takes time and reassurance by experts and other parents.

Research Question

How can parent be feel safe and prepared without over-consumption?

Consequences if insight not (properly) resolved

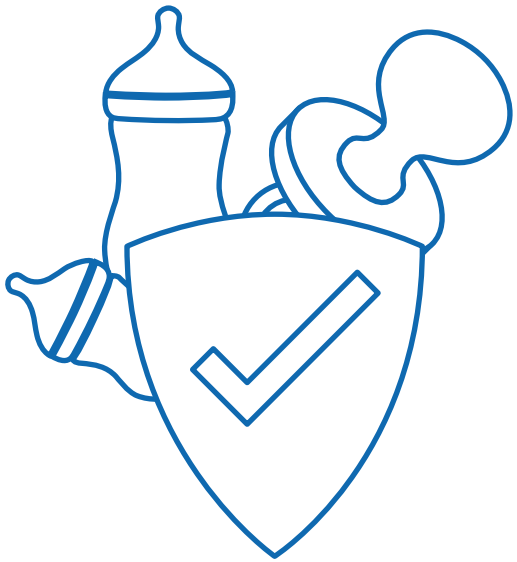
- Growing frustration of wasting money and space on products, which got bought in case but never used
- Relying to much on services giving guidance might lead to parents depending on the business and not able to make the right choice on their own

Needs

- Increased confidence of first-time parents on products they need and their abilities as parents
- Provide parents with strategies that apply what the right solution to a certain situation is
- Education and personalized expert guidance on the individuals needs
- Safety net what when something is needed there will be immediate access to the right product matching the individual families needs

"This pressure...ok I now have everything for my child at home in case of an emergency. For example, many mothers make I've heard that a lot, they have the pressure of breastfeeding. Does breastfeeding work, doesn't it work, can I give a bottle or something else? Just knowing when I'm out of the hospital, and I know it just doesn't work for 2 days with breastfeeding, for example, that's such a very sensitive topic... thank God I was lucky! Knowing in an emergency in this changing table at the bottom there is formula, there is a bottle. It gives you so much security that you can get involved with the subject in a more relaxed manner."

"The sterilizer, I haven't used it for a long time because she doesn't drink from the bottle. And I don't need the pump now either."



"Of course, we bought clothes for her in advance, so more than 9 months in advance we gathered everything possible."

ONE OF THE MOST COMMON SUSTAINABILITY STRATEGIES OF PARENTS IS TO CONSUME LESS AND ASK THEMSELVES: WHAT DO I REALLY NEED?

10

Context

Non consumption is one of the most common strategies of parent to be sustainable, since it is easy applicable and clear. Most parents try to make this actionable by actively questioning if they really need the product they are planning to get. Non consumption also has shown an overlay with the definition of sustainability of some parents.

Trigger

In a situation when parents would like to purchase a sustainable product, difficulties arise in the understanding if the product is sustainable or not. Therefore to avoid a unsustainable decision, parents tent to apply the easy way of not purchase it. Resulting in a limited knowledge of possibilities of sustainability,

Challenge

Understanding if a product is sustainable or not can be difficult and parents seek for easy criteria to be able to do so, this also includes recommendations, expert input and trusted brands. However, parents are not knowledgeable enough about all considerations on what makes a product sustainable or not; companies need to communicate different approaches of product sustainability to them.

Research Question

How can innovation be built on new perceptions of sustainability?

Consequences if insight not (properly) resolved

- Making non consumption the only criteria of sustainability, might reduce other sustainable actions or ambitions to grow as a sustainable parent
- Non-consumption might be a too drastic technique and scare of parents who are new to sustainability
- Parents mind might stay limited towards sustainability if not introduced to other possibilities

Needs

- Showing parents alternatives ways of being sustainable besides of non consumption
- Provide parents with different perceptions of sustainability and different approaches of being sustainable

"It's exactly my approach and that's also the part that doesn't suit me in my life yet, we have to move away from consumption. We have to use as few products as possible. For long-term sustainable thinking, it doesn't matter whether I have 1000 sustainable pieces of clothing that I think spend a lot of money, or 1000 H&M items of clothing."

"For me it mean that it's pointless to buy something that I don't need at first, so let's think about it, do I really need it?"

What do I need?



"My way of thinking has changed a bit in recent years. At the beginning I also thought that I needed all of this and that and that. So that my child is fine. Meanwhile...I think the fewer the better. You just have to consume consciously and see what alternatives are there."

Appendix H:

Dilemma visualization with insight cards

INSIGHT CARD NUMBER

Dilemma Visualisation

(Gen Z) trend: A factual variable
A treasure : a goal
A dragon: a pain
A joker: a pain/a strength
Armor: a Gen Z value/belief
A wand/Fairy: an opportunity to act

1. **Insight Card:** Sustainability is perceived as a privilege for families who have time and money for a sustainable lifestyle.
2. **Insight Card:** Parents are facing a huge choice and information overload.
3. **Insight Card:** Everyday life for a first time parent is overwhelming and stressful. Sustainability is seen as an addition to the workload.
4. **Insight Card:** Sustainability is described as a process. It takes time and exploration on what work best for different families and requests space for trial and error.
5. **Insight Card:** To parents sustainability means more then materials, they also consider the social aspects
6. **Insight Card:** Parents want to teach their children a sustainable mindset and be a role model.
7. **Insight Card:** Parents are open to the concept of second hand products for their child and like to also give their used products to other parents.
8. **Insight Card:** Parents buy often products without knowing if the products match their and their children's needs.
9. **Insight Card:** Parents buy products in a preventive manner - to be well prepared for any situation.
10. **Insight Card:** One of the most common strategies of parents to be more sustainable is to consume less and ask themselves: What do I really need?

