A Service Designer's Guide to Systemic Design

Helping a Juvenile Company transition towards a more sustainable future

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The future can't be predicted, but it can be envisioned and brought lovingly into being.

Donella Meadows

Preface

Over the course of the master's programme, I have come to find my true vocation: designing for sustainability transitions. And nerding out over design methodology. To have had the opportunity to combine both of these topics into a single project has been truly special. I am glad to say I've enjoyed (almost) every minute of this project and this would not have been possible without the amazing team I have had the opportunity to work with over the past few months.

Thank you Anna and Sine, for guiding me all the times I was stuck inside of my head, for challenging me to stick with the trouble and for continously reminding me to be more proud of my work. I can't count the amount of times I felt like I was completely lost just for a thirty minute call with one or both of you to turn that feeling around entirely.

Thank you Imke and Marloes, for your amazing support over the course of the project, for enduring the times where I felt like I didn't have a clue what I was doing, for helping me connect and integrate with the rest of your company and for never being more than a Teams message away if I ever had any questions. I couldn't have asked for more pleasant people to work with.

Thank you Anna and Stein. I can't begin to describe how important the two of you have been to me in the past few months. Working with you has helped me grow incredibly, both as a designer and as a person. Thank you for being open for both the five minute and the two hour sparring sessions. Thank you for both the deep and shallow conversations. Thank you for the insane amount of money I probably still owe you for all of the coffee at Bonza.

Thank you to the Livework team. If I had to write down how glad I am to have had the opportunity to spend a year with all of you I'd probably need another ten pages, so instead I just want to shoutout those of you who have been especially important to me over the past months: Chelsea, Rosa, Rodney, Louka, Charlotte, Wim, Jelte and Wessel.

Here I would thank my friends and family, but unfortunately I've ran out of space so I'll have to tell them in person!

I hope you have as much fun reading this thesis as I had working on it.
Gijs

Executive summary

This project tackled two research questions for separate clients. The first question was posed by Livework, a service design agency, which wanted to learn how systemic design principles can be applied in projects aimed at organisational sustainability transformations. The second client, Juvenile Company, a company that designs and manufactures strollers and other juvenile products, wanted to figure out what their relationship with customers and business partners should look like to reach their sustainability goals by 2035.

Through a series of analyses and co-creative design activities, I discovered two key factors that might serve as an opportunity or barrier in Juvenile Company's transition towards a more sustainable future: the relationship between parent and stroller in the current system and Juvenile Company's culture of product innovation through design.

Using context mapping, insight into the value exchanges between parent and stroller over time were captured. This led to identifying three distinct phases of value creation tied to a child's developmental stages. It was found that the value implicitly delivered by the stroller over these developmental stages is the core value proposition of Juvenile Company.

It was found that Juvenile Company's current strategy of revenue growth through product innovation is at odds with its sustainability goals. To achieve its sustainability goals, Juvenile Company must rely on qualitative innovation, rather than quantitative, to drive revenue growth.

Using the input from all research, a vision statement was formulated that describes the possibility space of Juvenile Company's future innovation. *"Juvenile Company empowers parents and their children to explore the world by providing value beyond products that adapts to parents' changing needs without compromising the future needs of their children."*

A design strategy concept was created to describe what a circular Juvenile Company will need to look like to be fully circular. The concept consists of four elements that build on one another. At the deepest layer sits a new mental model: a culture of innovation through qualitative value creation. To create qualitative value, on the next layer up we find a reframed version of the core value proposition discovered through the context mapping research. Juvenile Company focuses on developing value explicitly for the three developmental stages identified. To guide the development of this value, three core vision principles were developed: Value beyond products, Adapting to changing needs and Dependable guide. To further illustrate these vision principles, thirteen key propositions were designed that help shape what the relationship between parents and Juvenile Company could look like in the future.

This strategy was conceptualised through two deliverables: a parent-Juvenile Company relationship journey map that describes how the key elements to the relationship interlink, and a children's book that describes the story of how one family's relationship with Juvenile Company develops over time.

Through constant reflection over the course of this process, key insight was created into how Livework designers can implement systemic design principles in organisational sustainability transformation projects. A knowledge gap was identified, consisting of three layers that each describe a different type of knowledge Livework designers must acquire. Additionally, it was found that a major difficulty in applying systemic design principles will be adopting an ecosystemic design lens that focuses equally on human and non-human participants of a system. Further implications and opportunities were identified that might shape how Livework approaches design projects.

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1. Introduction

In this section we'll be introduced to the topic of this thesis: organisational transformations for sustainability. I'll tell you a bit more about my personal motivations to dive deeper into this topic, how this project is setup, who the parties involved are and what they are trying to accomplish.

Project context

Introduction

With every Intergovernmental Panel on Climate Change (IPCC) report it becomes increasingly clear what we've known for an odd 50 years: human economic activity has been slowly killing the liveability of our planet. Continuing along on the same path will see catastrophic results and likely millions of lives impacted or worse, ended. Though progress has been made on sustainability in business, it's not been enough (BRS, 2012). Sustainable alternatives to environmentally damaging goods are popping up, helping consumers make better choices. Unfortunately, most of these sustainable choices are often more expensive than their less sustainable counterparts. As long as this is true, most consumers will not (be able) to make this sustainable choice.

With this in mind, I've always grappled with the irony of being a designer. You're taught to design new products that are more sustainable for people to buy, when in reality not buying anything at all is always the most sustainable option. Through this realisation, I've drifted away from product design
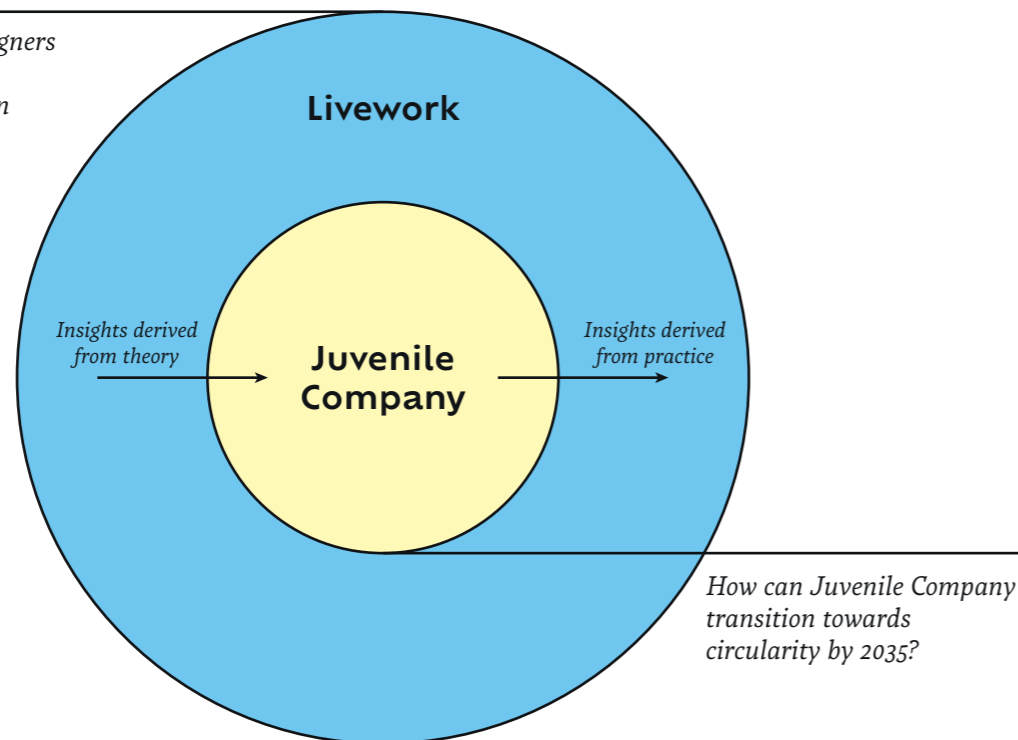
and gravitated towards organisational strategy over the course of my studies. How can we as a society get to a point where there aren't any "sustainable options", because everything is sustainable? How can we move organisations to make sustainability the default? How can we meet the needs of the current generations without compromising the needs of future generations? These are million dollar questions, too big to be answered in a single thesis alone. So instead, I wanted to focus on one in particular: "As one of the many causes of this mess we're in, how can designers take responsibility and help organisations transition to this sustainable future?". Climate change, democratic erosion and political polarisation are so-called complex or wicked (e.g., Norman & Stappers, 2015; Holierhoek & Price, 2019), meaning they don't have a clear solution. As I dove deeper into the preparation of this project, I became interested in the field of systemic design. Systemic design is focused on untangling complexity to try and introduce solutions while reducing harmful, unintended consequences. The main research theme for this thesis then became to figure out how systemic design works and how I can apply it in future sustainability projects. It just so happened that Livework, the service design agency I was doing an internship for in the semester before starting my thesis, was also interested in figuring this out.

Project stakeholders

This project is essentially an amalgamation of two projects, one nested inside of the other, done in collaboration with Livework and Juvenile Company, see Figure 1.1. The goal for the Livework part of the project was to understand how the agency can upskill their designers to work on systemic design projects. The goal for the Juvenile Company part of the project was to apply systemic design methodology to help the company understand how it can transition towards circularity by 2035. The nesting of the projects was designed such that the projects would work in tandem. Insights derived from theory on the application of systemic design fed into the Juvenile Company project, while insights derived from putting this into practice fed into the Livework project.

Livework
Livework focuses on improving the way people live and work through the design of better services. In the past few years, the agency has realised that in order to truly improve the way people live and work now and in the future, the agency must

How can Livework designers use systemic design in sustainability transition projects?

Livework

Insights derived from theory

Juvenile Company

Insights derived from practice

How can Juvenile Company transition towards circularity by 2035?

Figure 1.1: The thesis project consist of two nested projects that feed each other insights.
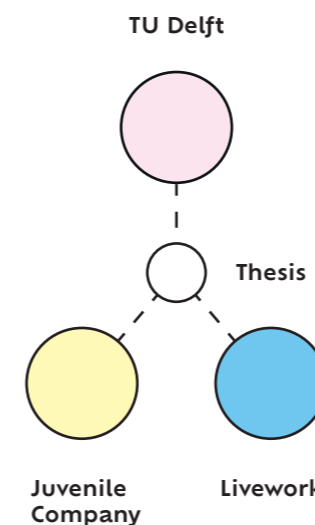
TU Delft

Thesis

Juvenile Company

Livework

Figure 1.2: Project stakeholder relationships.

take responsibility and help society steer away from planetary overshoot. It has therefore been exploring ways to contribute to a more sustainable future. One of the ways Livework is interested in exploring is through systemic design projects focused on pivoting a client's long-term business strategy to be more sustainable, in the ecological, social and financial sense of the word. However, most of Livework's employees have been trained to be and have mostly worked as service designers. There's an overlap in the skill set required to tackle service design and systemic design projects, but there's also a big difference in how projects in these fields are executed. Livework is therefore interested in finding out what gaps exist between current knowledge and skills and the knowledge and skills necessary to run systemic design projects for their clients.

Juvenile Company
Juvenile Company is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. In the last few years, Juvenile Company has launched its Push to Zero, a strategy in which the company aims to emit zero grams of carbon dioxide in 2035 with minimal offsetting. The company has therefore set itself clear and achievable targets on the production side of things, aimed at changing what materials they use, how their products are manufactured etc. Things on the consumer side are more murky. The company's current business model is completely geared towards generating revenue from product sales, through both its own channels and their click & mortar partners. This complicates their aim to be a circular business by 2035.

The key problems identified together with Juvenile Company before the start of the project were the following:

> *What will ownership need to look like if Juvenile Company wants to become carbon neutral in 2035? How will this change Juvenile Company's relationship to its partners and consumers?*
>
> *What internal and external barriers to change exist that must be overcome to reach this desired future state?*
>
> *What steps will Juvenile Company have to take to reach this desired future state?*

Methodology & approach

The research in this thesis is centred around discovering the difference between applying service design and systemic design methodology in practice. As such, the research is split into two parts. The first is focused on finding out how Livework designers approach a service design project. The second is focused on finding out how to approach systemic design projects. These methods are then compared to discover the commonalities and differences between these two approaches, from which we can determine the answer to the main research question. A detailed description of the approach to the Juvenile Company project can be found at the end of chapter 3, on page 34.

Research question

What does it take for a Livework service designer to tackle a systemic design project focused on sustainability?

What tools and methods do Livework service designers use to tackle a design project?

Research method

1 on 1 interviews with Livework designers

Literature research service design

Informal conversations with Livework designers

What tools and methods are used in systemic design projects?

Research method

Literature research systemic design

What can I learn from applying these tools and methods in practice?

Research method

Juvenile Company project

How are these methods different and how can this difference be overcome?

Project & report structure

Chapter 2: Livework
Introduces Livework and their ambitions and literature research on service design to explain the company's design challenge.

Chapter 3: Systemic design
Understanding systemic design through literature research to develop design principles for the Juvenile Company project.

Chapter 4: Juvenile Company
Introduces Juvenile Company and their design challenge.

Chapter 5: Framing
Covers the key activities and findings in the framing phase

Chapter 6: Understanding: parent-stroller relationship
Approach & findings of the parent-stroller relationship research.

Chapter 7: Understanding: Innovation & circularity
Dissects the meaning of innovation in a circular context.

Chapter 8: Envisioning
Covers the key activities in the envisioning phase.

Chapter 9: Concept
Introduces the final design concept for Juvenile Company

Chapter 10: Systemic insight
Key insights from systemic design theory and practice.

Chapter 11: Conclusion
Conclusion, limitations to the research and personal reflections.

Making sense of interwoven literature research

Due to the double client and double research question nature of this project, some creative liberties had to be taken when structuring the writing of this thesis to ensure a readable story. As such, the literature research is interwoven into the storylines of chapters two and three, instead of it having its own dedicated chapter, as is usually the case in theses. The literature research in chapter two, Livework, is used to explain Livework's design challenge and is therefore preceded by an introduction to Livework. The literature research in chapter three, Systemic design, acts as a bridge between the Livework project and the Juvenile Company project, and is therefore bookended by a section on the methodology and approach to the Juvenile Company project.
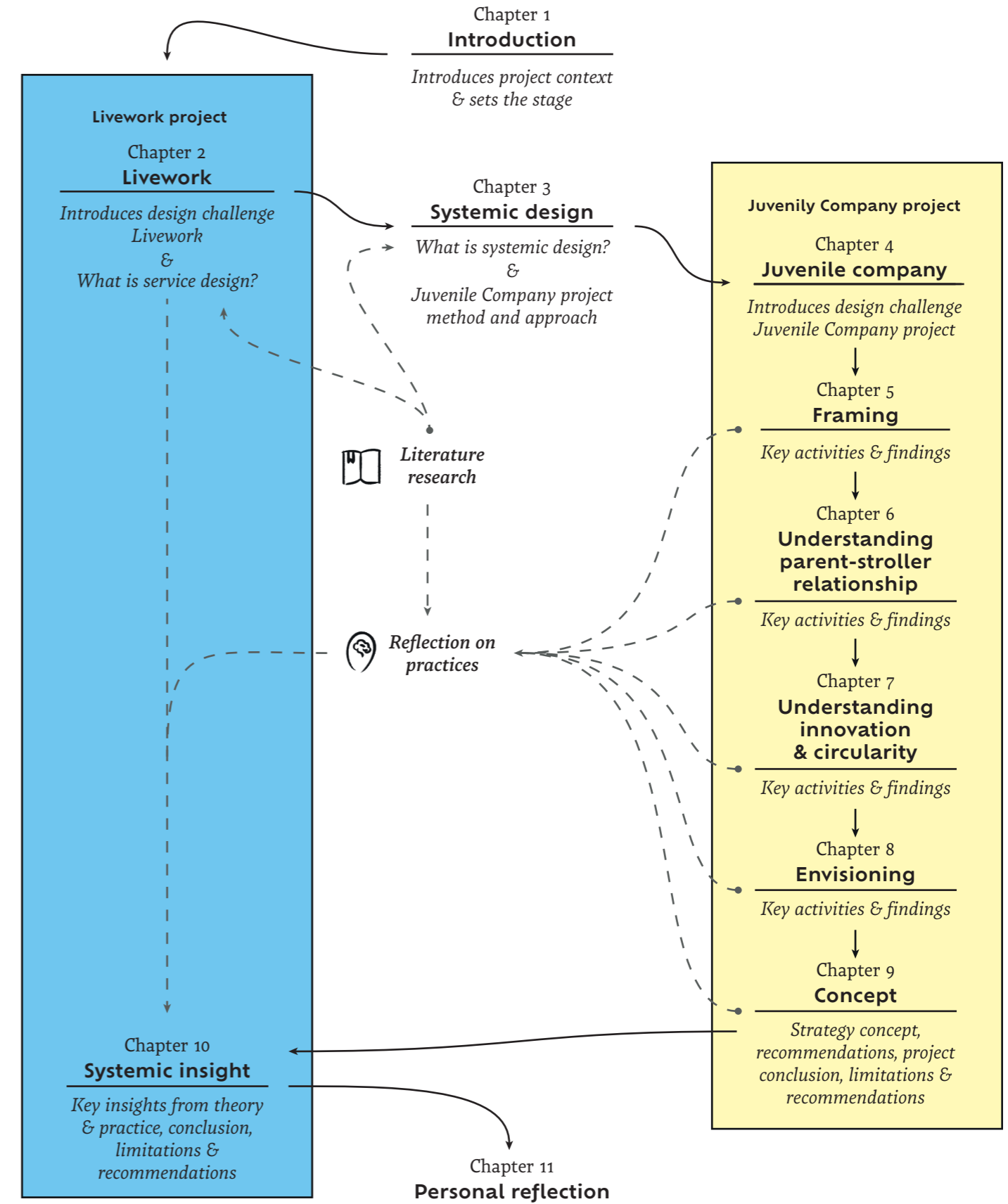
2. Livework & Service Design

Livework Studio was founded in 2001 to improve the way that people live and work through design. 22 years later, the agency has grown to include studios in London, Rotterdam and Sao Paulo, employing about 120 designers. As the agency grew, so did its ambitions. Seeing the dangers posed by climate change, Livework has recognized that they must take responsibility and help society steer away from planetary overshoot. Over the next few years, the agency wants to shift its approach to design projects to better fit the problems posed by sustainability projects. This mission reveals two key knowledge gaps for the agency, which we'll be trying to understand in this chapter:

1. What characterises the sustainability projects Livework aims to work on and what problems do they pose?
2. What approach will they need to adapt to deal with these problems?

The mismatch between service design and complexity

A brief introduction to Livework

When it was founded in 2001, Livework was one of the first design agencies to focus on the design of services, rather than products. As the agency and its practice matured over the years, designers at Livework realised that their research and analysis often touched upon an organisation's core business and strategy as well. In recent years, this has led to Livework becoming increasingly involved in projects that help service organisations build competent structures around the services they provide (Livework, 2023).

Anno 2023, the market for (service) design agencies has become crowded. Looking to leverage their unique selling point, Livework wants to further focus their value proposition on conceptual and structural level service design and organisational transformation work, see figure 2.1 (Livework, 2023). At the same time, as mentioned in the chapter introduction, Livework has recognized its role in helping organisations through sustainability transitions. These types of organisational sustainability transformations are complex which has repercussions for how these projects should be tackled.
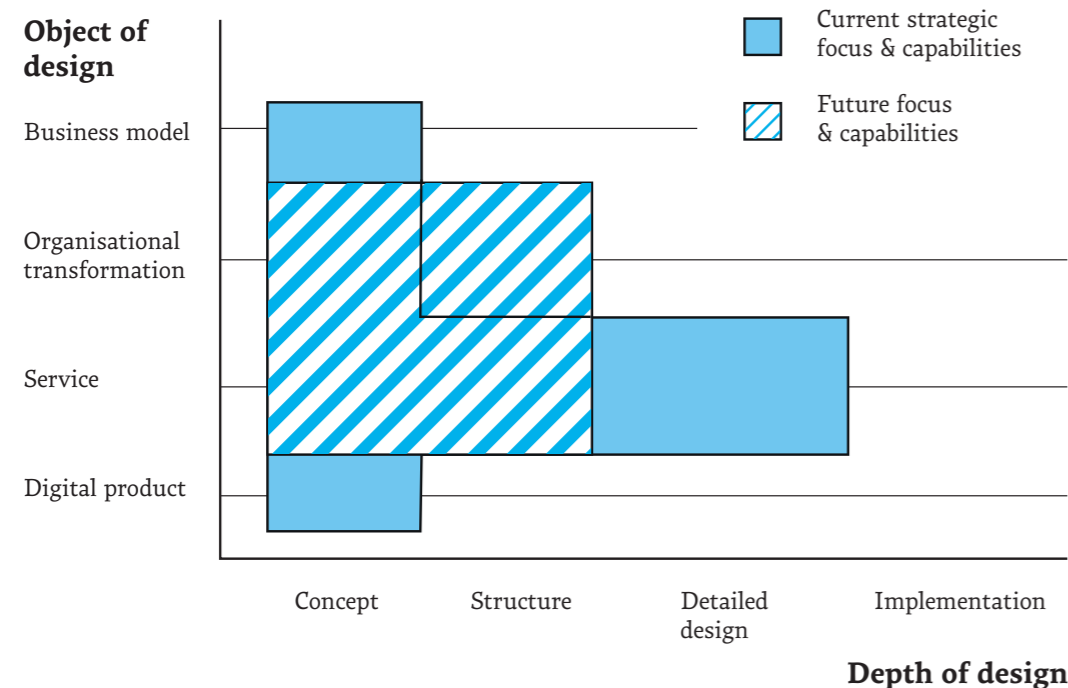
Figure 2.1: Livework's current strategic focus vs their future strategic focus (Adapted from Livework (2023)

Methodology & approach

The research outlined in this chapter aimed to assess the skill gap between Livework designers' current skill set and the skill set necessary to deal with complex design projects. A secondary objective was to assess Livework designers' approach to projects so as to better tailor the final deliverable to their needs.

Literature research on service design was done to better understand what the methodology brings to the table. To better understand Livework designers' particular service design approach, additional research was done in the form of guided conversations with Livework designers. This was done in the form of six semi-guided conversations with Junior-, Medior-, Senior-, and Lead Service Designers from both London and Rotterdam studios, where these designers were given the brief for the Juvenile Company project and then asked how they would approach this project (see appendix 2). Further literature research was done to understand the nature of organisational (sustainability) transformations and what their complexity means for how they should be approached. The insights from this research were combined to assess the gap between Livework's current design methodologies and tools and complex design problems.

Service design

Everyone is vaguely familiar with the concept of a service, because we all use (multiple) services everyday. When you take a bus to work you've used a service. When someone has fixed your sink, you've made use of a service. But frustration arises when services fail. Your bus doesn't arrive on time and you miss a meeting. A bank teller who was supposed to call you back doesn't.

Service design was first conceptualised in the early 80s through work by Lynn Shostack. She argued that service failure often came down to the lack of methods to explicitly design and control for service delivery (Shostack, 1982; 1984). Services were seen as an intangible market offering, in contrast to the tangible market offering of goods. This was later classified as goods-dominant logic, meaning that services are seen as appendages to goods (Snelders & Secomandi, 2011). In the past few decades, the service sector has seen an increasing penetration throughout all of industrial society which saw an evolution of what services actually are. Unhappy with the definition of services through

the lens of goods-dominant logic, service researchers coined the term service-dominant logic. Service-dominant logic posits that service is the application of competences for the benefit of others (Vargo & Lusch, 2004; Ng, et al. 2018). Through this logic, value is co-created between two parties through the experience of something by someone. Ng et al. (2018) argue that following this service-dominant logic, all economic activity is essentially a service. The scope of service has broadened from traditional service sectors like healthcare and hospitality to include the service of physical and digital products and even organisations themselves (Ng et al., 2018). As such, the innovation of service often requires improvements in the way an organisation organises its resources (Yu, 2018).

Following the evolution of the definition of service, service design also evolved over the past decades. Vink et al. (2021) define a transition from an emphasis on design of services to an emphasis on design for service. More aligned with goods-dominant logic, design of services is focused on designing a service offering during a specific point during service development through the manipulation of touchpoints, often done by managers and designers. Design for service is more

aligned with service-dominant logic, where service design is about creating the conditions for value to arise in context by building organisational capabilities through a co-design approach with staff and customers. Not too surprising, this matches the evolution of Livework's value proposition as well, from purely designing services to building competent service structure within organisations.

On paper, Livework utilises a variation of the double diamond model with four distinct phases: Understand, Imagine, Design, Create, see figure 2.2. Throughout interviews with Livework designers, it became apparent that these distinctions are not as clear in practice however. Though there was overlap in some of the design activities performed, these activities were not always in the same order or even in the same phase of the project. Livework designers also noted that the approach changes based on whether the objective of the project is to innovate a service or to transform an organisation. This echoes a sentiment I often heard during my internship at the Rotterdam studio: "There is no single Livework method". Instead, it seems practices are applied based on what designer is tackling what problem situation. To paraphrase Van der Bijl-Brouwer and Malcolm

Understand	Imagine	Design	Create
Goal Understand as-is situation	*Goal* Envision future situation	*Goal* Make future tangible	*Goal* How do we get from here to there?
Some key activities Scoping with internal team "Download" existing information Desk research Consumer interviews	*Some key activities* Defining opportunity areas Shape future vision	*Some key activities* Ideation Co-creation workshops	*Some key activities* Aligning operations Roadmapping

Figure 2.2: Some of the key activities mentioned by Livework designers throughout the design process. Though there was no single method or way of working, this graphic shows some of the overlap in how Livework designers would have approached the project.

(2020): 'in contrast to fixed methods, practices depend on the problem situation. Design principles can be derived from deducing common patterns across practices.' Principles in this context are rules derived from experience which guide a designer towards a successful outcome in a project (Van der Bijl-Brouwer & Malcolm, 2020). Based on patterns found in the interviews and master theses by Singh (2022) and Van der Togt (2017) tackling a similar question, we can derive the following principles Livework designers use to guide their design projects:

Human Centricity
Human Centricity is the red thread that runs through all of Livework designer's activities. Whether they are designing new services, improving existing services or doing research, how people experience the different stages of these processes are the focus. This is not limited to consumer experience. Many activities undertaken by Livework designers also focus on understanding and designing for the experiences of stakeholders within organisations as well.

Co-creation
Many of the design activities undertaken by Livework designers work towards or are part of co-creative activities. The reason for choosing a co-creative way of working depends on the activity, but are usually centred around including different perspectives on an issue to be discussed, creating buy-in amongst critical organisational stakeholders or engaging different stakeholders with findings or the project in general.

Re-framing
Livework designers actively challenge and re-frame a project's brief based on their growing understanding of the problem area. Depending on the project, the principle of re-framing can also refer to re-framing what value is delivered by a client or envisioning new value.

The complexity of sustainability transitions

Snowden and Boone (2007) introduced five different areas in which a problem might fall, based on its causes and effects: simple, complicated, complex, chaotic and disordered. At first glance, complicatedness and complexity might seem like the same thing. There's a critical difference however. Snowden and Boone (2007) describe complicatedness as the realm of known unknowns. In other words, there's a lot of stuff you don't know, but you know what you don't know. Problems that fall into this

Design 4.0 *(Complex, unbounded)*
Social transformation, complex systems, ecology, policy making

Design 3.0 *(Complex, bounded by business strategy)*
Change-oriented, strategies, organisational structures

Design 2.0 *(High artefact complexity)*
Service design, product innovation, user experience, etc
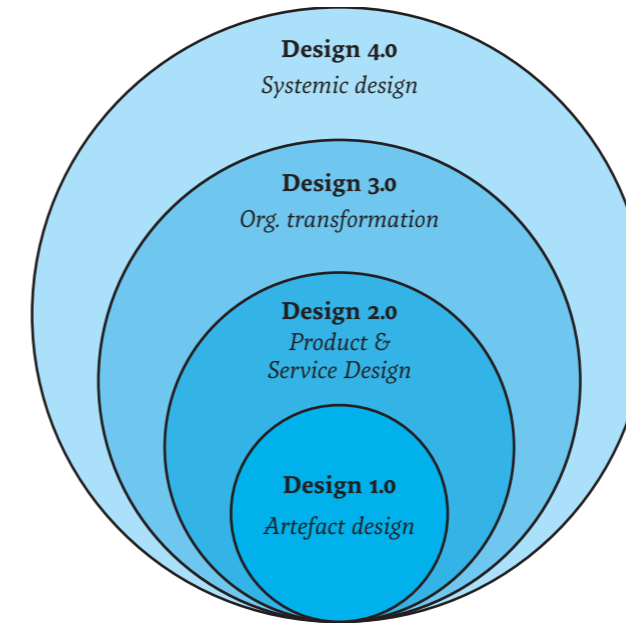
Design 1.0 *(Limited complexity)*
Graphics, ads, websites, etc.

category have a clear cause and a clear direct effect, that can be anticipated and dealt with. Complex problems, however, are the realm of unknown unknowns. There's a lot of stuff you don't know and you don't even know what you don't know. There is no direct relationship to cause and effect and the answers to these problems can only be partially understood in retrospect. This is the result of multiple elements and interdependencies present in the problem which interact in a way that can't be fully predicted. We are used to breaking down complicatedness into separate parts to analyse individually, in an attempt to grasp the whole. We fix a part and put it back where we took it from and it will function as expected. The interconnectedness found in complex problems means that this reductionist approach doesn't work (Jones & Van Ael, 2022; Vink, 2021). The act of observing and changing a single element in a system leads to a change in how this element relates to other elements, which invariably leads to unintended consequences.

Society faces more and more complex challenges each day and designers are increasingly being called up to deal with such organisational and societal problems (Vink, 2021; Norman & Stappers, 2016). The Design Domains model of Design 1.0 - 4.0 (Van Patter & Jones, 2014) reveals how the boundaries of design have broadened, see figure 2.2. Design 1.0 (Artefacts) and Design 2.0 (Products and Services) are traditional domains of design, focused on skilled design practice to enhance usability and aesthetics for economic or social purposes. As we move up to Design 3.0 (Organisational & Social Transformation) and 4.0 (Systemic Design), we find increasingly complex and non-traditional design domains focused not on concrete artefacts,

but on stakeholder relations and uncertainty (Jones & Van Ael, 2022). Though Design 3.0 and 4.0 are similarly complex, a key difference to note is that Design 3.0 problems are by definition bound by the business or strategy of an organisation. Design 4.0 problems, however, are not. It is in this domain that we find challenges without a single owner, such as climate change or racial inequality, where responsibilities are unclear (Jones & Van Ael, 2021). Depending on the client and project, strategic sustainability transition projects such as the ones Livework aims to tackle fall into either the 3.0 or 4.0 category.

Sustainability transition projects often necessitate a view beyond an organisation into the organisation's broader ecosystem. An ecosystem in this context is a metaphor for the broader environment in which an organisation operates, consisting of multiple organisations and actors engaging in relationships and interactions with a wide range of intentions. Though the individual organisations have defined goals and ways to pursue those goals, the broader organisational ecosystem does not. The goals of individual organisations do not necessarily have to align, but they often do (Mars, Bronstein & Lusch, 2012). As organisations become more entangled in their broader organisational ecosystem, through interconnections and relationships with other actors and organisations, the complexity of the problematique rises.

Livework does have extensive experience with organisational transformation towards customer centricity, but this is mostly focused on the organisation itself and not its broader ecosystem (Arico & Tamburello, 2023). As work from Singh (2022) shows, the lens through which this work is operationalised does not fit the ecosystemic lens needed for sustainable transition work. The service architecture approach employed by Livework in such projects is characterised by a, as the name implies, customer centric lens. As pointed out by Singh (2022), the customer centric service architecture approach focuses on meeting the needs of an organisation's customers, helping them move from product centric to customer centric. Organisational transformations on an ecosystemic level necessitate a lens that looks beyond just the needs of a customer and to the needs of the ecosystemic collective. To take into account the needs of the broader ecosystem, an organisation needs to optimise for the broader ecosystem and for its relationship to all other actors within the ecosystem (Singh, 2022).

Traditional linear design methods, such as those employed by Livework service designers, fail to reveal the entanglement in the broader ecosystem and are inadequate to deal with it (Jones & Van Ael, 2021). If we use a user-centred lens to improve a service that sits in a broader system, there's a risk that an intervention in this service counteracts other processes in the system that might have helped us reach our goal (Jones & Van Ael, 2021). Problems of corporate sustainability sit a level of abstraction above a service, so taking a service-dominant lens risks not challenging the root of the issue. If we don't pull out weeds by the root, they grow back.

Conclusion

In this chapter we found that Livework aims to shift its value proposition from "hardcore" service design more towards strategic projects focused on (sustainable) organisational transformations. These transformation problems are complex and interconnected in nature, meaning that there is often no real cause and effect relationship between interconnected problems. This is why a reductionist approach to problem solving, often found in traditional design methodology, of taking a piece of the problem, analysing it, fixing it and putting it back in the greater system will invariably lead to unintended consequences. Analysing Livework designer's way of working, we found that there is no single method that designers employ. Rather, designers seem to adhere to three design principles that inform and guide design activities and decisions. These principles are: human centricity, co-creation and re-framing. Interestingly, sustainable transitions necessitate an ecosystemic lens, which would be in direct opposition to the principle of human centricity.

We can therefore conclude that the main gap in an approach typically used by Livework designers and an approach fit for sustainability transformations lies in two factors: a non-holistic reductionist problem solving and a human centred lens through which problems are assessed. Due to their principled way of working, to help Livework designers design for sustainability transformations we need to propose alternative design principles that better fit systemic problematique, supplemented by alternative tools and methods, rather than alternative tools and methods on their own.

3. Systemic Design

A system is a collection of things or parts – people, animals, cells, machines, etc. – that through their interconnection produce a pattern of behaviour over time (Meadows & Wright, 2008). The defining characteristic of a system is that the whole is more than the sum of its parts. It is through the relationship of the different parts that value or behaviour is created that could never arise from a single part alone. So how do we design for systems? This chapter seeks to answer that question.

What are systems?

All systems by definition consist of elements, relationships between these elements and a purpose. Take for example the system of a school. It has elements such as students, teachers, classrooms and books. Its interconnections are for example the rules and schedule. The purpose of this system is, hopefully, to provide education to children. Hopefully, because a system's purpose is not always that which it set out to do. If a company says its purpose is to better the world, but exploits labourers overseas you'd be hard pressed to call that creating a better world. A system's purpose is defined by the system's behaviour, not by stated goals (Meadows & Wright, 2008).

Individual elements are easily perceived. If I look out my window I can see cyclists, cars, pedestrians and a tram all making use of the same roads, connected in an intricate system we call the Rotterdam morning commute. Based on these individual elements alone, it is impossible to predict how this situation will play out. I might be able to say this one cyclist has the right of way so this pedestrian will stop to let them pass, but the moment you frame the situation in a broader way this becomes more difficult. You'll notice that the pedestrian stopping for a cyclist affects the behaviour of a different pedestrian, which might affect the behaviour of a motorist, which might affect the behaviour of a different motorist and so on. It is the (mostly) invisible connections between all of these elements that inform the behaviour of the broader system. As our example points out, it is the inherent interconnectedness of the relations between the parts in a system where complexity originates (Sevaldson, 2013; Meadows & Wright, 2008; Van der Bijl-Brouwer, 2022). As we saw in chapter 2, this complexity makes service design methodology unfit to deal with systemic problems.

What is systemic design?

Systems thinking is a school of thought that was developed in response to the complexity of systemic problems. A complex situation is analysed from a theoretical position, focused on understanding how the interconnectedness of different parts produce a certain behaviour (Jones & Van Ael, 2022). This approach has been subject of critique in the past, as it's more focused on understanding than on creating solutions (Ackoff, 2015; Jones, 2014). Systemic design is a field of design that formed through a marriage of systems thinking and design thinking, in an effort to combine the former's suitability for the analysis of complexity with the latter's action-oriented methodology. (Jones, 2014). The power of systemic design lies in this duality.

Designers are intimately familiar with the concept of value. All products have value and a product designer's job is to design that value. This value can be quantified in many different ways. A table can be valuable because you use it to eat, because of its aesthetic beauty or because of how well you can use it to dance on it. A product's value arises from its embedded physical properties and features. The manipulation of these physical properties can then be used to design the product itself.

But not everything that is valuable is a product. A visit to the doctor to mend a broken arm is valuable, but is not a product in itself. This is because the doctor has provided a service. Services are only valuable to us when we use them (Polaine, Løvlie & Reason, 2013). Public transport is only valuable to me when I use it to go from A to B. If a train leaves the station without anybody on it, it provides no value and so unlike a product it has no embedded value. We can therefore say that the value of a service emerges from an interaction between a user and the service itself. Unlike products, the value of a service can not be designed directly as it is an emergent property of an interaction or multiple interactions (Polaine, Løvlie & Reason, 2013; Secomandi & Snelders, 2011). We can, however, design and control the artefacts and interactions from which this value emerges and

	Product value	Service value	Systemic value
Property of value	*Embedded*	*Emergent*	*Emergent*
Materials of design	*Physical properties*	*Touchpoints*	*Relationships*
Manipulability	*Controllable*	*Indirectly controllable*	*Not directly controllable*

Figure 3.1: types of value

thus indirectly design the value of the service itself.

In a way, taking a systemic lens to look at a problematique simply zooms out to a level where we see a multitude of relationships and interdependencies happen at the same time. Services and products might exist within the broader system, providing users, customers and other actors value in mutual relationships. But at a systems level we don't just look at the one service interaction in isolation, but also at the way it relates to other services, actors and relationships in its broader context. The value of a broader organisational ecosystem emerges from these interactions and relationships (Vargo & Lusch, 2017; Jones & Van Ael, 2021). This property makes it nigh impossible for any one actor to control the value of a system (Vink, et al. 2021), similar to how no single bird in a flock controls the direction of the entire flock. It is possible however, for a single actor to partially influence how a system evolves, by influencing how systemic behaviour emerges (Vink, 2019; Vink et al., 2021; van der Bijl-Brouwer, 2022).

Service innovation in complex contexts often fails because the innovation hits barriers that prevent the system from changing (Vink, 2019; Conway, Masters & Thorold, 2017). The goal of the innovation might conflict with the strategy of a certain subdepartment in the same organisation or perhaps the innovation requires changes in other parts of the ecosystem to change direction as well. The complexity of institutions can lead to an innovation that works on a small scale not working in a broader context (Conway, Masters & Thorold, 2017). This systemic immune response was described by Donella Meadows (Meadows & Wright, 2008), who called the phenomenon policy resistance:

"Policy resistance comes from the bounded rationalities of the actors in a system, each with his or her (or "its" in the case of an institution) own goals. Each actor monitors the state of the system with regard to some important variable—income or prices or housing or drugs or investment— and compares that state with his, her, or its goal. If there is a discrepancy, each actor does something to correct the situation. Usually the greater the discrepancy between the goal and the actual situation, the more emphatic the action will be. Such resistance to change arises when goals of subsystems are different from and inconsistent with each other." [p. 113]

To overcome the systemic resistance to change, we need to figure out where these barriers originate and design interventions that can overcome them. So how do we do this?

Designing for ecosystemic change

Leverage points

In 1997, Donella Meadows introduced the concept of Leverage Points, places in a system where a small intervention can leverage great change. She defines twelve different types of leverage points that get increasingly more impactful, with the most impactful being the shaping of Paradigms and the ability to Transcend Paradigms. Paradigms, or mental models (the terms are used interchangeably throughout this thesis), are the shared ideas held by individuals throughout organisations or society as a whole from which all system activity is birthed (Meadows & Wright, 2008; Senge, 1990). Paradigms are usually hard to change, as they are the fundamental foundation of many of our cultural ideas. An example of this would be the paradigm that nature is a stock of resources that is there to be taken for human consumption.

Building on the idea of changing paradigms, Vink (2019) and Vink et al. (2021) talk of institutional arrangements as social structures that inform the way actors behave in a complex social system. These institutional arrangements are "the rules of the game", or the shared norms, beliefs and implicit rules in a complex social system. Mental models are defined as the assumptions about how something works and how to act based on that understanding (Vink, et al., 2019). Institutional arrangements and mental models continuously shape one another, to form social paradigms. As organisational ecosystems can be considered to be complex social systems (Van der Bijl-Brouwer, 2022; Mars, Bronstein & Lusch, 2012), we can then say that to influence the paradigm underlying a organisational ecosystem would require influencing the institutional arrangements and mental models present within this context. This is done through the process of Reflexivity and Reformation (Vink, et al. 2021). The authors of this paper state that to influence the institutional arrangements and mental models present in a social system (Reformation), actors first need to be aware of the institutional structures and mental models that exist in the first place
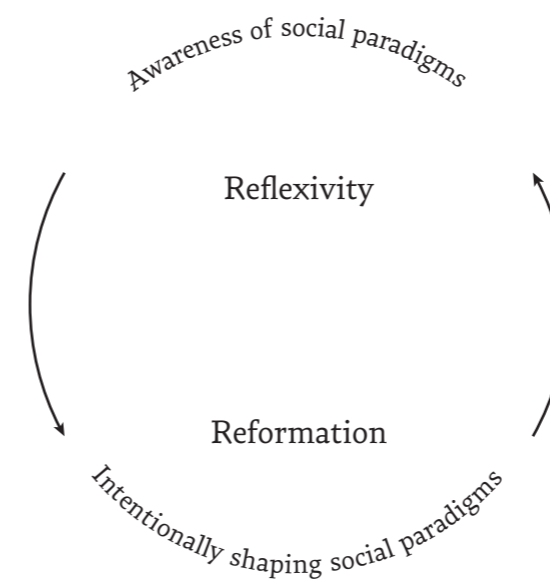

Figure 3.2: cycle of reflexivity and reformation used throughout project (adapted from Vink, et al. 2021).

(Reflexivity). Vink & Koskela-Huotari (2021) as well as Vink, et al. (2021) go on to argue that the point of service design in a systemic context is then to facilitate this process through the design of artefacts. It is this process that forms the basis of the approach to the Juvenile Company project.

Juvenile Company project approach

Systemic design is a relatively new field and so experts have suggested to use an approach based on principles, rather than stick to a certain method (Van der Bijl-Brouwer & Malcolm, 2020). The project partially adopted this advice. As the most well defined approaches to designing for systems, the outline of the project and its activities was mostly based on work by the Design Council's (2021) Systemic Design Framework and Jones and Van Ael's (2022) Design Journeys through Complex Systems. This outline was used as a crude map of sorts to navigate the dark and unknown forest of systemic design, as a way to have more of a structural basis to fall back on. Throughout the project, the approach to different phases was decided on the basis of a problem-solution fit approach. As the project unfolded and more of the problem became clear, the initial project approach was iterated on multiple times. Several design principles derived from theory were used to underpin the iterations and decisions on how to approach certain phases within the project.

Systemic design principles derived from theory

Design for facilitation of value emergence
As we saw earlier in this chapter, value in a system is an emergent property that can not be directly controlled or designed. This quite a foreign concept to designers that primarily deal in the design of value through artefacts, both tangible and intangible. Value in a system emerges through relationships between actors. So to understand how value emerges in the system to be analysed, it is imperative to understand what relationships in the system lead to this value (Vink, 2019). Interventions should therefore focus on fostering and strengthening relationships between critical actors, not by directly influencing these relationships, but by designing the conditions or infrastructures that lead to the emergence of stronger relationships (Van der Bijl-Brouwer & Malcolm, 2020; Vink, 2019). Rather than solve problems, designers in a systemic context should therefore focus on cultivating the environment for actors and organisations to thrive (Hannant, et al. 2022).

Plurality of perspectives
Taking a systemic lens to a design project means forfeiting a focus on end-users in lieu of a systemic perspective (Van der Bijl-Brouwer & Malcolm, 2020). Actors in a system might understand the parts of the system they interact with, but will have no insight to offer into parts of the system they don't interact with (Jones & Van Ael, 2022). It is therefore important to take into account the perspectives of the many actors in a system. To make sure that system actors with the most to gain from a design project are not overly influential, it is important to actively seek out and include the perspectives of actors that might otherwise be marginalised or unheard, including non-human actors such as nature itself (Jones & Van Ael, 2022; Design Council, 2021; Van der Bijl-Brouwer & Malcolm, 2020; Jones, 2014). The design process should therefore lean heavily on multi-stakeholder practices such as co-design (Jones & Van Ael, 2022; Van der Bijl-Brouwer & Malcolm, 2020).

Focus on underlying patterns
Patterns in a systemic context are the collection of behaviours, structures and relationships that define what we think of as normal in certain situations. While these social structures are mostly invisible, their visible components are manifested through interactions between actors (Vink, 2019; Griffith University, n.d.). Designers should therefore analyse the patterns in these relationships to uncover the institutional structures hidden under the surface by studying how they manifest at the surface.

Value in process rather than output
Due to the complexity of systemic design challenges, there will be no one single magical fix that will solve all problems through its implementation. Rather, the solution is introduced by 'muddling through', through small modular steps (Norman & Stappers, 2014). Unfortunately, introducing a small step changes the context of the system, which makes it more difficult to plan ahead. Scholars agree that an evolutionary approach is needed to systemic challenges, beyond the scope of singular projects (Van der Bijl-Brouwer & Malcolm, 2020; Norman & Stappers, 2014; Jones, 2014). Additionally, we are looking to influence social paradigms. These are not things that change overnight (Jones & Van Ael, 2022), not through the output of a single project. We can facilitate the introduction of new thinking to the systemic stakeholders involved that might lead to the emergence of new paradigms (Vink, 2019). The value of a project in a systemic design context then lies not in the output

at the end of the project, but rather the process we undertake with systemic stakeholders through co-design methods. This is doubly important in a commercial consultancy context, as client relationships are usually contained to single projects. To leverage systemic change, organisational stakeholders should be taken along in the systemic thinking to aid the process of muddling through after the project has ended. The outputs of the project then become artefacts to further aid the future change process.

Project outline and key activities

The project can be divided into five distinct stages, based on Jones and Van Ael (2022) and Design Council (2021). Following Jones and Van Ael (2022), these can be further divided into three phases: analysing the mess, vision, changing the mess. The description of these stages here are deliberately kept short, as the chapters that dive deeper into the specific stages each open with a detailed description of how and why certain activities are undertaken.

Analysing the mess
Scoping and framing
This stage focuses on defining the problem area and boundaries of the system, as well as developing an understanding of what to further research in the next phase.

Understanding
A stage categorised by human research that aims to understand the behaviours of the system's stakeholders and uncover the systemic patterns underlying these behaviours.

Vision
Envisioning
This stage moves from understanding the current system to envisioning what the system could look like in the future.
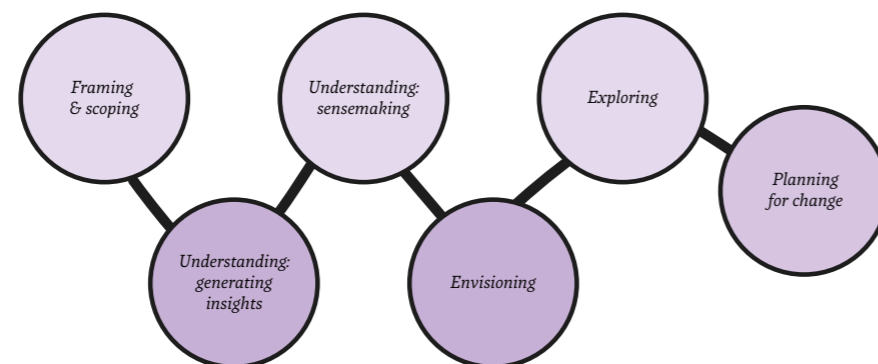
Changing the mess
Exploring
This stage takes the input from the analysis and combines it with the future vision to explore how to leverage change towards the desired future system state.

Planning the change process
A stage that focuses on defining how the organisation can move towards the desired future system state explored in the previous state.

Prior to the project, a stakeholder analysis was done with the client to determine important internal parties to involve in the project. Following this analysis, three different groups of stakeholders were defined to participate in co-creation sessions throughout the project, see figure 3.4. Depending on the content of workshops, internal stakeholders were drawn from these stakeholder groups. For the full overview of key activities in this project, see figure 3.5 on the next page.

Conclusion

Due to the complex nature of systems, we can't directly design the value that originates from them. Instead, we need to design artefacts that positively impact the value exchanged in relationships between different actors, both human and non-human. We need to uncover what relationships currently exist and what value is created between them. We also need to understand what institutional structures currently shape the way these relationships are experienced. We then need to envision what these relationships should look like in the future and design an intervention that could help attain this goal. To create long lasting change, we need to find a way to impact the way people in the system think about how value should be delivered.

The approach to this project is guided by principles, rather than a set method, to account for unexpected twists and turns. The activities are done in co-creation with system stakeholders to help them engage in a process of reflexivity and reformation of the greater paradigms that govern their behaviour.

Systems thinking
infused with design thinking

Design thinking
infused with systems thinking

Framing & scoping
Understanding: sensemaking
Exploring
Planning for change
Understanding: generating insights
Envisioning

Figure 3.3: The different stages are either more designerly or more systemic (adapted from Van Ael, K (2020).

Wide stakeholder group
Co-creation team
Core team

Figure 3.4: Stakeholder group divisions

Key project activities

Framing & scoping	Understanding	Envisioning	Exploring	Planning for change

Set system boundaries

Stakeholder mapping

Actor mapping

Generative interviews

Rich Context workshop

Trend analysis

Additional stakeholder interviews

As-is system state
Barriers & opportunities

Futuring workshop

Ipsos future workshop

Desired future system state

Ideation

Additional stakeholder interviews

Conceptualisation

Type of activity

Solo design activity	Co-creation team workshop	1 on 1 interview
Core team session	Wide stakeholder group workshop	

Figure 3.5: key activities during Juvenile Company project

4. Juvenile Company

The first Juvenile Company stroller was the result of Max Barenbrug's graduation project at the Design Academy in Eindhoven. Based on this 1994 design Barenbrug, along with a small design team, started a 5 year process of iteration to create a stroller worthy of mass production. Barenbrug and brother-in-law Eduard Zanen founded the company Juvenile Company International, which saw its first product go to market in 1999. A cameo in a 2002 episode of Sex and the City had the stroller explode in popularity among US consumers, which paved the way to the company's status of a high-end stroller brand today (Juvenile Company, 2021). In recent years, the company has launched its Push to Zero strategy, a bold push to try and reduce their carbon emissions to zero with minimal carbon offsetting. In this chapter we'll dive into Juvenile Company's history and context to find out where they're starting from and where they're hoping to end up.

Company background

Introduction

When you enter Juvenile Company's HQ offices, you're greeted by a long row of strollers, starting from the very first Juvenile Company prototype and ending with their latest model, with almost everything in between. A clearer indication of what Juvenile Company stands for could not be possible: this is a company that prides itself on being innovative through design. It is through their design that Juvenile Company aims to set itself apart from their competition. They try to do this by designing for superior product quality. The products are designed for and tested well beyond industry safety standards, with the aim to give parents peace of mind while using a product (Juvenile Company, 2021). Their expertise on product innovation through design can be considered Juvenile Company's major strength.

In their pursuit of product quality, Juvenile Company acquired a factory in Xiamen in the early 10's. This move helped Juvenile Company to better control the aspects of their production, and thus product quality, while ensuring humane working conditions. Another major benefit is the traceability in their supply chain. The company has great control of what materials are sourced from where and can trace the social and environmental impact of its supply chain quite well.
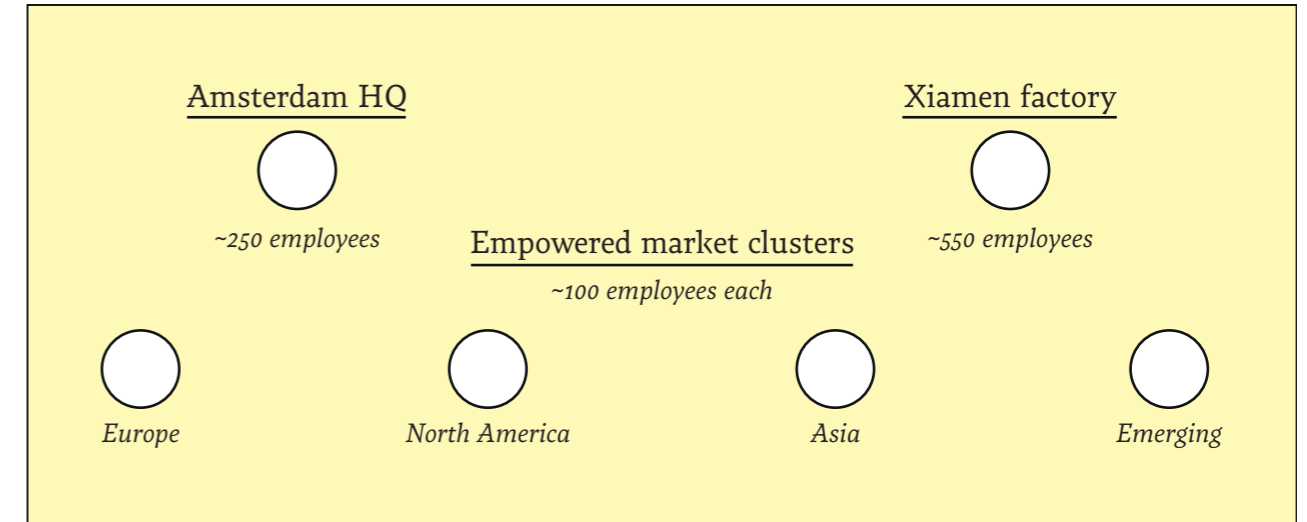
Figure 4.1: Juvenile Company company structure

Throughout the 00s and early 10s, Juvenile Company's dominant position in the market allowed them to experiment. Under Barenbrugs creative direction, the company released multiple collaborations with artists such as Viktor&Rolf and the Andy Warhol foundation. The company broadened their strategic direction to mobility in general and released the Juvenile Company Boxer, a suitcase. Not all of these experiments were quite as successful and after years of disagreement about the direction of the company founders Barenbrug and Zanen sold the company (De Ondernemer, 2017). In 2017, Juvenile Company was acquired by Bain Capital, a private equity investment firm. While initially met with some friction among employees due to layoffs, employees noted that the acquisition brought more professionalism and efficiency into the company. Another strategic switch to the juvenile product category saw Juvenile Company expand its product portfolio with a car seat and travel cot in 2020 and a high chair in 2022.

Juvenile Company's headquarters are situated in Amsterdam. Here's where most of the company's daily operations take place, as well as new product concept development. When a new product concept is birthed, it is passed on to the Xiamen department for further engineering, tooling, manufacturing and testing. After launch, sales is handled across four market clusters: Europe, Asia, North-America and Emerging. As these markets have distinct characteristics, all clusters operate with their own independent sales strategies. To narrow down the scope of this project, it was decided to focus on a single market cluster. To make it easier to talk to relevant people and parties, Europe was chosen as it would create the least difficulties along the lines of cultural differences and time zone variations.

Product portfolio

Since making the strategic shift towards juvenile products, Juvenile Company's product portfolio can be put into three categories: Strollers, New Categories and Accessories. The Strollers category consists of four subcategories: Travel, Urban, All terrain and For more than one. Six different stroller models are currently in-market, spread across those four subcategories, see figure 4.5. New Categories consists of three products, the Turtle car seat, Giraffe high chair and Stardust travel cot. Accessories consist of all sorts of products to enhance the other product categories, such as rain covers, cup holders, backpacks and so on. Given Juvenile Company's history and reputation as a stroller brand, the Stroller category is unsurprisingly the greatest source of revenue, making up about 70% to 80% of the company's revenue. It was therefore decided to narrow down the scope of the project to focus on the Stroller category, working under the assumption that any strategy centred around use and post-use of strollers could be extrapolated to the other product categories.
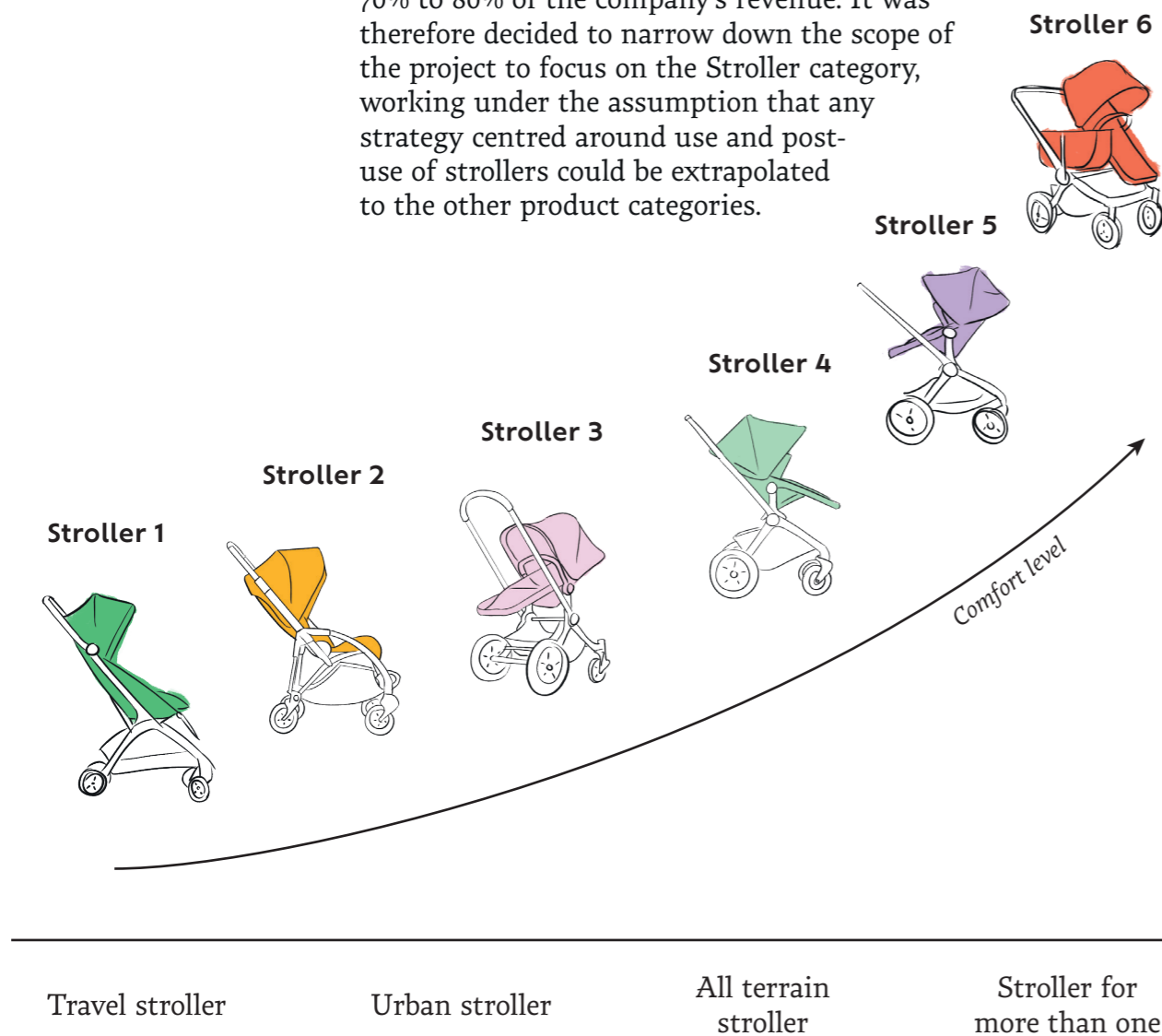
Figure 4.2: Juvenile Company's stroller portfolio (adapted from 2022-b) [Note: model names have been anonymised].

Brand strategy

In 2020, Juvenile Company launched a new brand strategy (Juvenile Company, 2020-b). This rebranding saw the company go from focusing on mobility based, feature-rich solutions targeted at parents to a parental brand aimed at facilitating a connection between parent and child. Parenthood can be quite a challenging phase in the life of a person and so Juvenile Company tries to empower people to be confident without shying away from the beauty of everyday imperfections. The company aims to create products that help parents, children and the greater world around them to connect. To help parents create a comfortable environment for their children, while also allowing children to develop into curious beings of their own.

To set itself apart from its competition, Juvenile Company developed a brand strategy framework, see figure 4.3. The main differentiating factor that sets Juvenile Company apart from its peers is their focus on embracing the imperfections of parenthood while instilling confidence in young parents. The company's products should instill feelings centered around social values rather than individualistic accomplishments. They want to be perceived not as a company that creates responsible products, but as inherently responsible. This is where their Push to Zero initiative comes in.
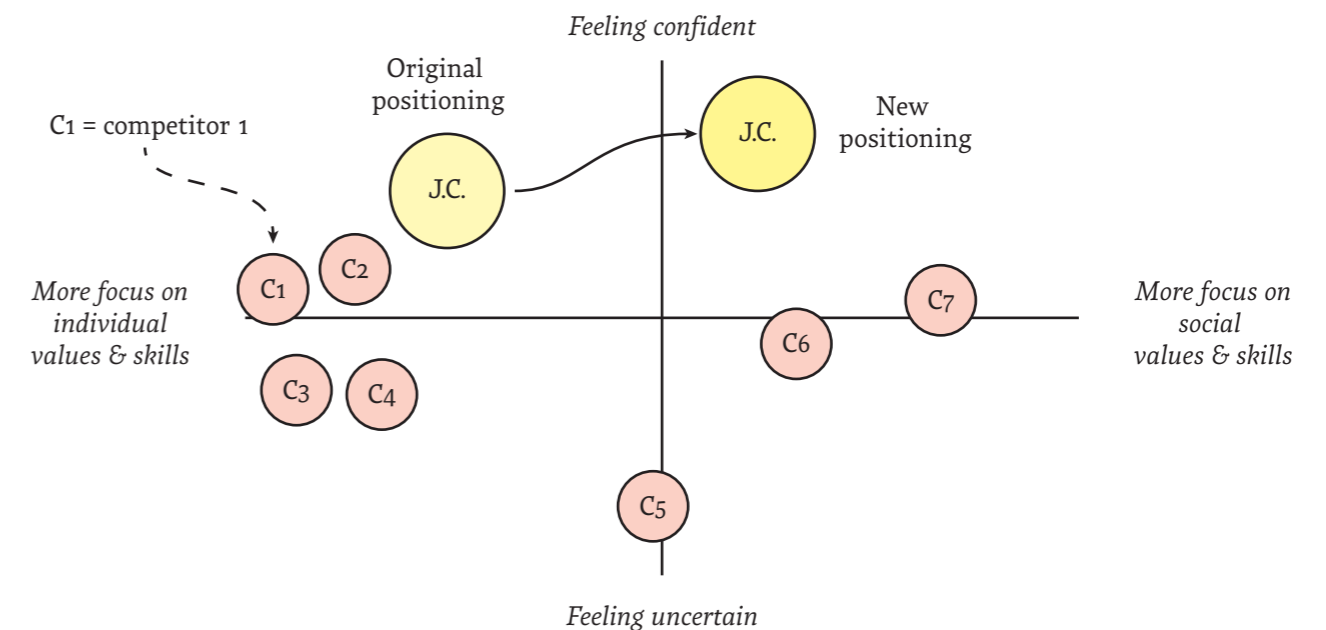
Figure 4.3: Plotting Juvenile Company and its competitors onto a brand strategy framework reveals their unique brand positioning (adapted from Juvenile Company (2020-b) [note: all competitors have been anonymised to prevent identification of Juvenile Company].

Push to Zero

What is Push to Zero?

One of Juvenile Company's core design philosophies since day one has been to design products that last, about ten years in practice. In line with this philosophy centred around product lifetime sustainability, Juvenile Company has in recent times upped their ecological sustainability game as well. In March 2022, Juvenile Company launched its Push to Zero strategy, a strategy focused on reducing their carbon impact to zero in 2035, with minimal carbon offsetting. Carbon offsetting is the practice of reducing carbon emissions in one place, to compensate for carbon emissions elsewhere (Carbon Offset Guide, 2020). Aside from moral arguments centred around protecting our planet, the Push to Zero strategy also makes sense businesswise. The earlier a company moves towards a sustainable business model, the farther ahead from its competition it will be when future legislation inevitably forces laggards to transition towards a sustainable model as well. Sustainability then is a way to create a competitive advantage (Fankhauser, et al. 2021; Wunderman Thompson 2021; Bocken & Konietzko, 2022; Abdelkafi, et al. 2022). Communication from competition seems to suggest Juvenile Company is ahead of its competition when it comes to making moves towards a sustainable future (Juvenile Company, 2022-e).
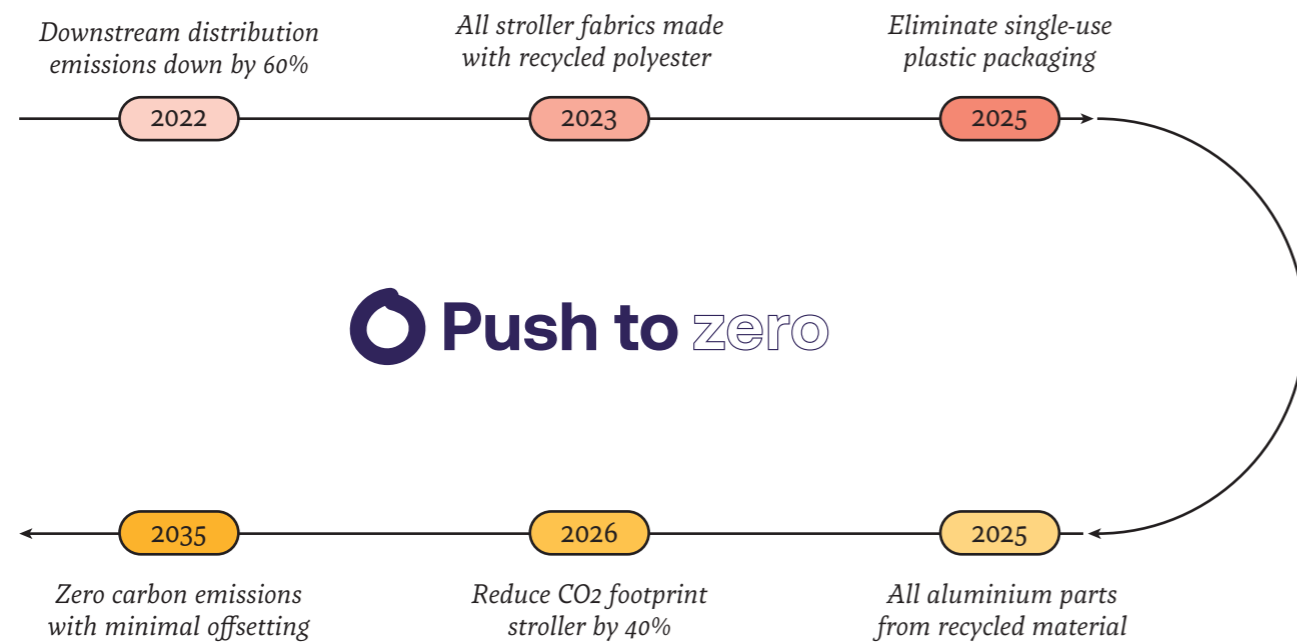
The early stages of Push to Zero have been relatively straightforward for Juvenile Company. In line with Fankhauser et al. (2021), the company has first started working on front-loaded emission reductions, meaning they're driving down carbon emissions during production of their products. Recently, the company has achieved its first major milestone: transitioning to materials sourced from biowaste. This has resulted in a net carbon reduction of 9% to 24%, depending on the product (Juvenile Company, 2022-a). Other sub goals on the horizon are to produce all fabrics from recycled in polyester in 2023, eliminate single use plastic packaging in 2025, and reduce each stroller's carbon footprint by 50% by 2026. The fact that these goals are all centred around product engineering and materialisation makes sense, considering the company's core design engineering strength and great control over their production processes and material sourcing.

Push to Zero as a circularity objective

Experts agree that circularity is a necessity to reach net-zero goals, to move away from a take-make-waste economy to one that circulates waste and materials (MacArthur, 2022; Chairnley & Hopkinson, n.d.). In practice, circularity means retaining the value of materials and products for as long as possible to reduce the amount of material, energy and carbon intensive processes necessary to deliver the same value. Over the years, multiple frameworks have been proposed to develop a hierarchy of strategies that ensure value retention in a circular business model. The 10R framework conceptualisation provides ten different strategies for value retention ranging from more to less circular (Potter, et al., 2017; Reike et al., 2018). As a general rule of thumb, a higher level of circularity leads to the use of fewer natural resources and less environmental pressure (Potter, et al., 2017). Plotting Juvenile Company's current and future Push to Zero strategies on this framework, see figure 4.4, we see that most of their strategies are aimed at the lower echelons of circularity, centred around more efficient production and material use. More problematic is that no initiatives target strategies R0 and R1. These strategies are essential to reduce the carbon emissions and broader environmental impact of a business (Potter, et al., 2017). The fact that R0 and R1 are not targeted is not surprising, as they aim to decrease the amount of products being consumed, which is directly opposite to Juvenile Company's main revenue driver. An unfortunate truth for a company like Juvenile Company is that the most sustainable product is a product that was never produced. More on this topic can be found in chapter 7.

Downstream distribution emissions down by 60% — 2022

All stroller fabrics made with recycled polyester — 2023

Eliminate single-use plastic packaging — 2025

Push to zero

Zero carbon emissions with minimal offsetting — 2035

Reduce CO2 footprint stroller by 40% — 2026

All aluminium parts from recycled material — 2025

Figure 4.4: Push to Zero targets in the near future
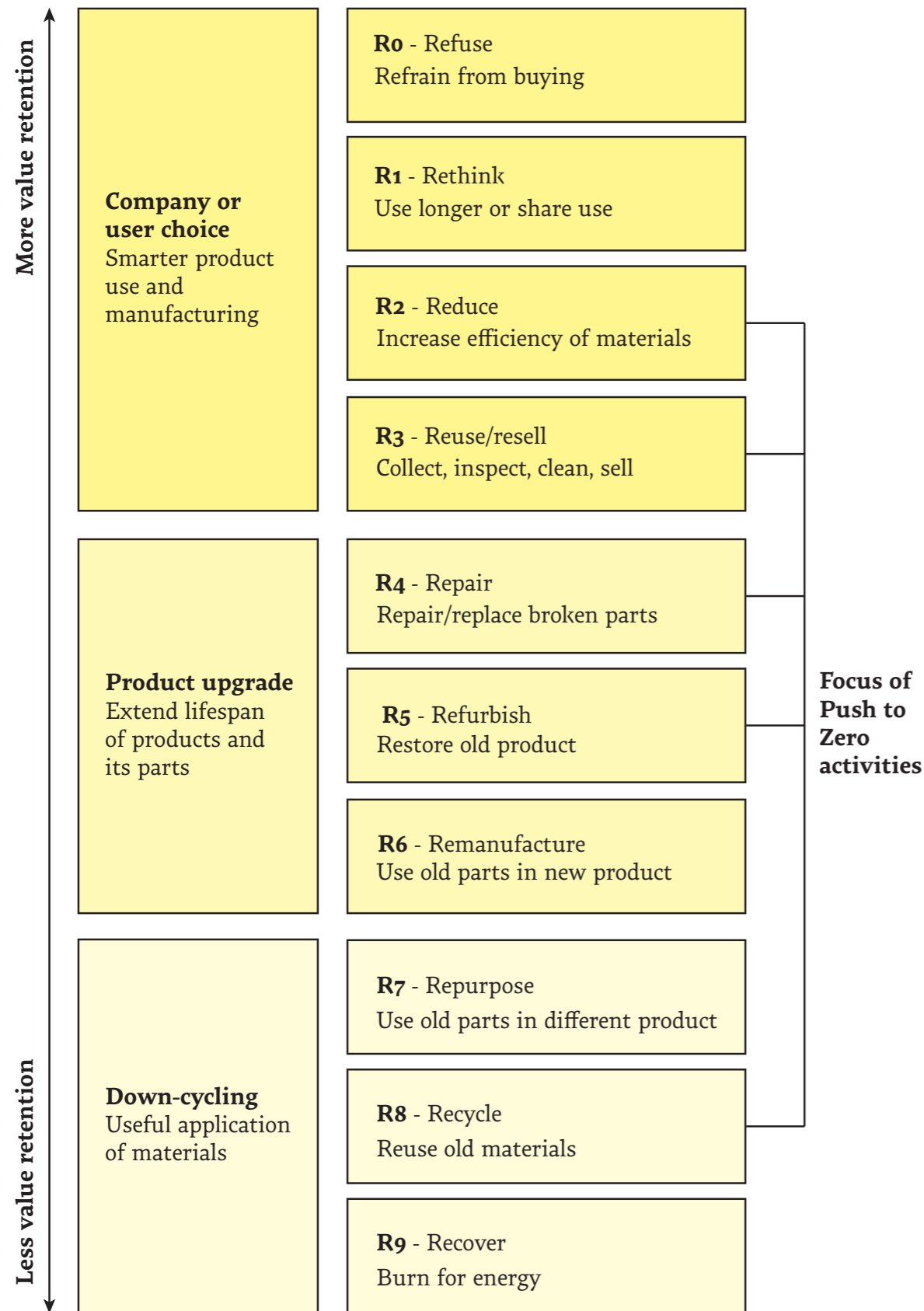
Figure 4.5: Juvenile Company's Push to Zero activities (Juvenile Company, 2022-d) plotted on the 10R framework (adapted from Potter, et al. 2017; Reike, et al, 2018).

Push to Zero and new sources of revenue

Juvenile Company's current business model and KPI's are completely centred around a linear model. The main source of revenue originates from the sale of products and as of right now, not much is being done to promote the return of used products to reduce the amount to be produced. This makes sense of course. If you're focused on maximising the amount of money you make and you make money from the sale of new products, there's little incentive to reduce the amount of sales. Not to say they haven't done anything. The company introduced three initiatives to try and reduce the production of new products through new revenue streams. *Pretty Perfect* and *Certified Refurbished* aim to reduce the amount of newly produced products by reconditioning and then selling products that were initially turned down for sale through normal Juvenile Company channels due to imperfections or surface level damages. These programmes could reduce the climate impact of production slightly by selling products that otherwise might have ended up in a landfill, but at the end of the day this is just a slightly more resource efficient linear take-make-waste model. Effective as a temporary carbon reducer, but nothing in the way of structural circularity. More interesting from a circularity perspective was the introduction of a subscription model as a possible alternative economic paradigm. The company has done this in two ways. Juvenile Company Flex is the first, a D2C model where consumers can lease a stroller directly from the Juvenile Company.com store, launched solely in the Netherlands for now. The second way is through partnerships with companies such as Tiny Library. This model operates on a shared revenue model where Juvenile Company keeps ownership over the products (Juvenile Company, 2022-c). Both of these models show promise, but are far from mature. The amount of active subscribers is a

The carbon tunnel vision trap

Some would argue that Juvenile Company's Push to Zero goals are a classic case of Carbon Tunnel Vision, where companies fully focus their sustainability targets on carbon reductions in lieu of other sustainability targets such as resource scarcity, the water crisis and biodiversity loss (Stockholm Environment Institute, 2021). This often leads to a reduced effectiveness in sustainability programmes. The Sustainability Manager at Juvenile Company assured me that these other targets were also considered, but the company ultimately decided against taking these into account as their main environmental impact lies in carbon emissions. I decided that challenging Juvenile Company on this notion would be outside of the scope of this project and to accept their reasoning.

factor of a thousand to a hundred thousand smaller than the annual sales.

In that sense, Push to Zero is a strategy that's hard to actually materialise. To truly become carbon neutral with minimal offsetting, Juvenile Company will need to completely change its business model and way of operating. But the Push to Zero initiative itself does not actually tell us anything about what this change should be. As a strategy, it's more an indication of what state a certain measure should be, than it is a concrete goal. It shows us the undesired state, but says nothing about the desired state. It's difficult to imagine what the organisation must turn into, making it hard to align teams across the organisation and to make actual lasting organisational change. This conundrum also reveals the main design problem for this thesis project: what is this desired state? What should Juvenile Company transform into to reach its Push to Zero goals?

Conclusion

In this chapter we have gotten know Juvenile Company and their design problem. The company prides itself in its innovative and pioneering spirit, coming from a rich history of dutch design. While its origins lie in the realm of strollers, the company is starting to branch out more into other juvenile product categories as well. Its aim here is to provide a link between parents and children and the greater outside world, providing both comfort as well as opportunities for children to develop into balanced and confident people. In its aim to be an inherently responsible company, Juvenile Company has launched its Push to Zero initiative. This strategy aims for the company to become carbon zero by 2035. For a product oriented B2C company this means, in practice, to become fully circular. While it has made some steps in the right direction, the company is still far removed from their intended goals. The Push to Zero strategy itself does not actually tell us anything about the type of company Juvenile Company should become. The main design problem for this project thus becomes to develop a strategy that sees Juvenile Company become fully circular. We are interested to discover what the relationship between Juvenile Company, its customers and its partners should look like in this future, as well as what type of new value they should look to create.

5. Framing

An introduction to framing in a systemic context

Why do we frame?

In traditional service design practice, the framing phase of a project is intended to understand the problem underlying the problem (Lloyd & Van der Bijl-Brouwer, 2019-a). Every design brief is based on hidden assumptions and preconceptions that might become problematic later in the design process if not consciously brought to light (Jones & Van Ael, 2022). By challenging these assumptions and preconceptions about the problem, we can make sure that, before we start solving the problem, we know for sure that we're solving the right problem (Hermanto, 2021). Practitioners often refer to this process as "challenging the brief". In practice, this is not done in a single instance, but rather through an iterative process where problem and solution co-evolve over the span of a project phase (Lloyd & Van der Bijl-Brouwer, 2019b; Dorst & Cross, 2001).

In systems design, the framing phase also entails framing the system itself. By definition, systems are boundless entities (Meadows & Wright, 2008). So in order to consider a system as a space for a design intervention, we will need to draw a boundary around it by framing it. Framing constrains the possibility space of a project. If we do not actively explore the boundaries and assumptions present in our interpretation of a system, the system is defined as it is presented to us by those who have internalised these assumptions (Jones & Van Ael, 2022; UK Design Council). This in turn will make it harder to propose solutions that can challenge the paradigm upon which the system is built.

If we draw the system boundary too broad, we could end up with a possibility space too big to intervene in. If we define the boundary too narrow, we could end up with an intervention too insignificant for the system's broader complexity or with unintended consequences (Jones & Van Ael, 2022). Drawing this boundary is not done in a single instance by the designer alone, but rather through a series of activities with system stakeholders to incorporate different perspectives of the problem area.

The framing phase in this project follows these two objectives. We want to understand what the system looks like so we know where to draw a boundary and then we want to understand if we're out to solve the right problem.

Actor mapping

Introduction

Systems are complex structures of interconnected relationships between different entities. This makes it hard to get a grip on what entities have an influence on the system and what entities are influenced by the system. To get a better understanding of what a system looks like, we can use a process called system mapping. As the name implies, we are out to make a map of the important components of a system. Actor maps are a form of system maps that specifically focus on the participants or actors in a system. The goal of these maps is to explore the relationships between actors, uncover where the power in the system lies and identify opportunities for system change through strengthening weak relations (Gopal & Clarke, 2015; Jones & Van Ael, 2022). We can then use these actor maps to identify potentially interesting relationships to further explore and deepen.

On actors

Actors in an actor map are merely a representation of the role an entity plays in the bigger ecosystem, they are not an instance (Commu, Reason & Wetzer, 2022). The actor *Parent* within the ecosystem as represented in the actor maps is therefore not a single parent, but a representation of all people that play the role of parent within this ecosystem. This also means that one entity can be portrayed by multiple actors in the ecosystem map, depending on the point in time. For example, a single person can be a *Parent to be* at one point in time, a *Parent* in another and then finally a *Parent without need* at another point in time. This might be counterintuitive at first, but the distinction between different parents over time is important to make. The role an entity portrays in the system changes the relationship between them and other actors.

A Parent to be and a Parent might both have an interaction with Juvenile Company, but the quality of these relationships and the power dynamics present are different.

Actors can be human or non-human, living or non-living. At first glance this might seem strange. How can a participant in a system be non-human? Or non-living? Let's take a game of football as an example of a system. Players (living human) run around on a field of grass (living non-human) and kick a ball (non-living non-human) to score goals and make sure their club (non-living human) wins the game. Not all of the actors in this example have as big of an influence on the system as a whole, but all of them are critical to consider when changing the rules of a game of football. The same goes for any other system.

Important to note is that these maps are just a snapshot representation of a complex ever changing system in a single moment in time. There's multiple ways of looking at a system and all of them are essentially an inaccurate representation of what the system looks like and merely an interpretation of the system at a point in time. As such, the system map does not have to be 100% accurate. It just has to be accurate enough to fulfil its function.

Methodology & setup

The knowledge held by system stakeholders is critical to mapping an actor map. However, system stakeholders are also biased towards their own position in a system (Jones & Van Ael, 2022), see chapter eleven for more on this topic. It is therefore important to generate the actor map through multiple iterations with system stakeholders from different parts in the system to get an unbiased view of the system as a whole. In this project this was done over three separate sessions, two with the Juvenile Company company clients and one with Livework designers who could represent the actor of parents. The actor map was then further implicitly validated through the interviews outlined in chapter 6, as well as through unstructured conversations with Juvenile Company stakeholders.

The three separate actor mapping sessions all followed the same general structure, in line with Jones and Van Ael (2022) and Gopal and Clarke (2015).

1. Generating actors and placing them in the appropriate sub-systems
2. Drawing relationships between actors and defining their quality
3. Defining the value exchanged between the most critical actors

These sessions produced two distinct actor maps. One is more biased towards the position of Juvenile Company within the system, but is therefore useful to identify the power relationships within this organisational sub-ecosystem. The second actor map is more neutral, which sees the entirety of the Juvenile Company organisation reduced to a single actor. This second actor map is especially useful to downplay the importance of Juvenile Company in the perspective of the broader ecosystem around the use and post-use of strollers.

Juvenile Company centric actor map
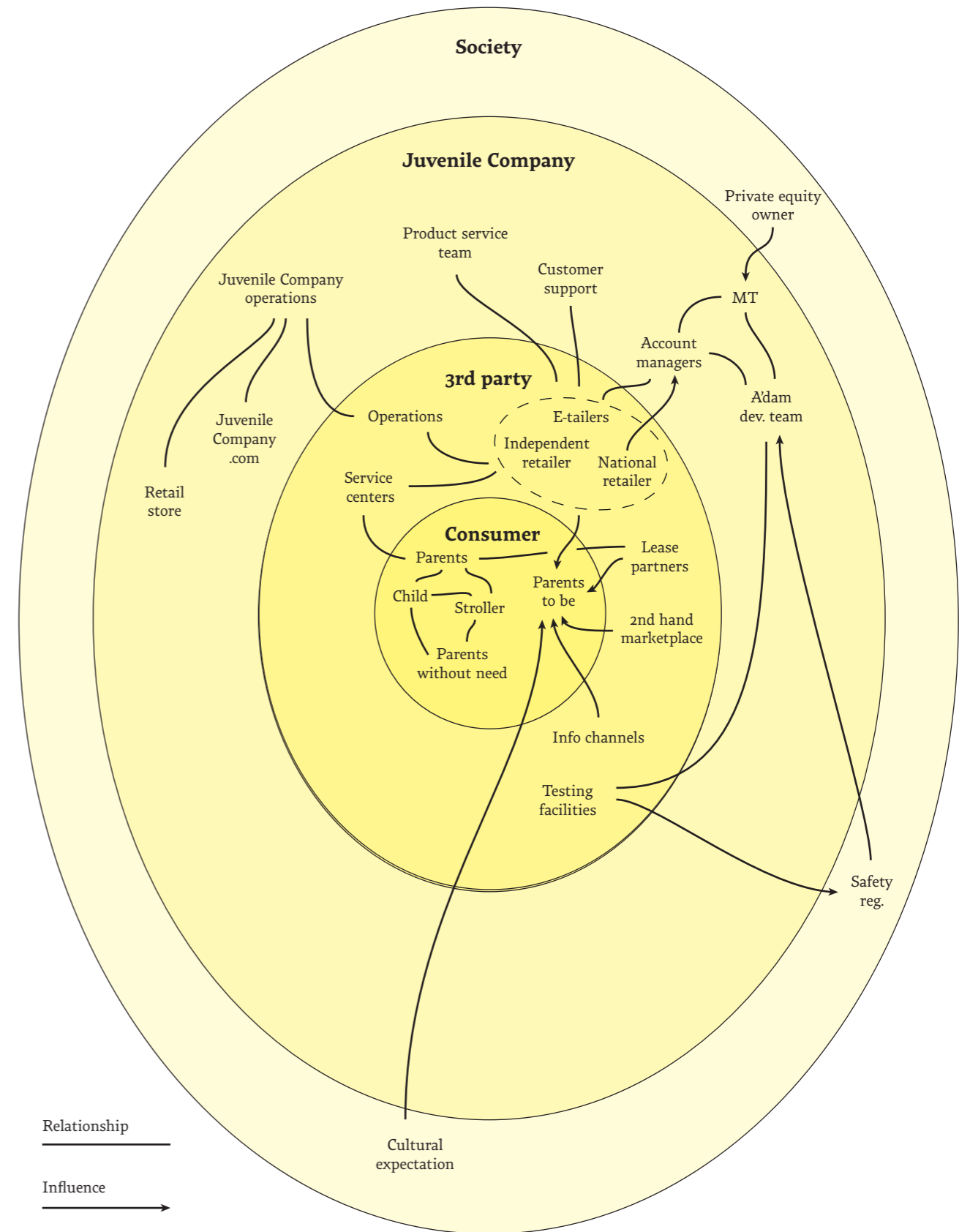
Juvenile Company agnostic actor map
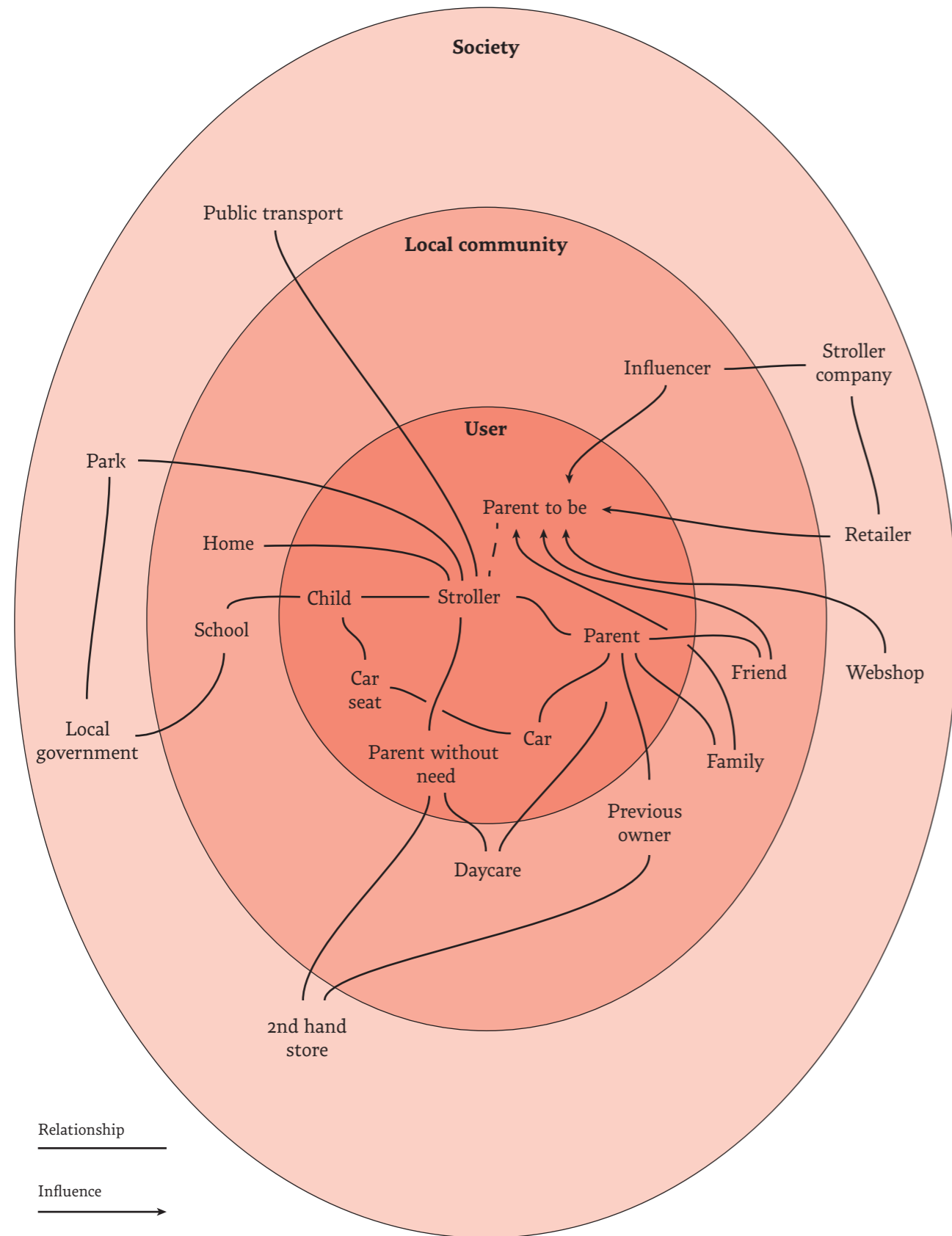
According to Jones and Van Ael (2022), the next step in utilising the actor map is to define critical actors to explore in further research. One way to define which actors are critical is by looking at which have the most relational connections, meaning they are more systemically connected to other actors. Not completely unexpected, the most connected actors are Parents-to-be and Parents. This is not unexpected as the commercial entities within the ecosystem are all geared towards providing value to these actors to generate revenue. When we zoom into Parents without need anymore, we see that they are much less connected to other actors within the actor map when compared to the other parental actors. This is again not surprising. In the linear sales world most of the commercial actors in this ecosystem occupy, the Parents without need anymore have little to no commercial value. In the current economic paradigm these commercial actors act in, this necessitates no relationship to this Parents without need anymore actor. As we saw in previous chapters, to transition towards circularity Juvenile Company would need to somehow form a relationship with these actors, in order to return products in some shape or form. There's an interesting tension to explore here.

Interestingly, these parental actors are all the same people or entities at different points in time. What actor role is played by the parental entity in the system depends largely on their relationship to the stroller. Where Parent to be want but don't have a relationship with the stroller, Parents want and have a relationship with the stroller and Parent without a need anymore have but don't want a relationship with the stroller anymore. This would mean that when we know when and why people transition between these different actor roles, we would have a better idea of how to intervene in the system. We therefore hypothesise that the relationship between parent and stroller is crucial to explore in a further research phase.

Actor mapping reflection

The actor mapping process reveals the biggest struggle designers might find in a systemic design project: the lack of a focus on an end-user. Designers are so ingrained to create value for a user that working with a method that does not focus on end-users is quite strange. It's therefore difficult for designers to not think from a single point of view, be that the end-user or the project's client. Another struggle designers might have with the process

of actor mapping is that it's a reflection of the current state of the system, not of the to-be state. Multiple designers that attended the Ecosystem Innovation masterclass facilitated by Livework noted that "it's hard to acknowledge the hard truths". Plotting the as-is state without taking into account where the system needs to go is considered difficult.

The process of actor mapping has relatively low value to a client as it is not information that's new to them. Involving stakeholders not directly involved with the party who commissioned the design project or activities might be a good way to directly introduce new value to a client through the actor mapping process instead of having to sell it as an investment into the rest of the project.

Lastly, the process of actor mapping is quite abstract to designers, let alone to non-design trained participants. Especially the concept of non-human actors as participants of a system is considered counterintuitive. Considering the non-human actors is critical to help build ecosystemic awareness however, so careful probing and nudging is needed to help participants get acquainted with the concept of non-human actors.

Framing
Rich context workshop

Setup & approach

To understand the assumptions and unspoken structures underlying the surface of the system, we first need to uncover what these are. One way I've tried to do this was through a rich context workshop. This workshop aimed to uncover the hidden institutional structures within the organisation and its broader ecosystem. In line with literature from Vink (2019) and Vink et al. (2021) on reflexivity and reformation, see chapter 3, we also aim to build awareness of the fact that these institutional structures exist in the first place and that these taken for granted structures and paradigms can in fact be challenged and changed. Additionally, this workshop aims to make participants aware of the existence of Juvenile Company within a broader ecosystem. Participants were invited from the core team, co-creation team and wide stakeholder group as described in chapter 3, to make sure that the perspectives would be well balanced across different functions in the organisation.

Experiential elements of challenges

Institutional structures underlying challenges (structures, rules, norms, roles. mindsets. etc.)

Figure 5.1: modified iceberg framework (adapted from Vink, 2019).

The main content of this workshop was based on the Rich Context canvas, see figure 5.2, as defined by Jones and Van Ael (2022), which in turn is based on Geels' (2005) multi-level perspective. The goal of this canvas is to plot long-term trends (Geels' landscape) and describe how the current system (Geels' regime) is structured to deal with these trends. The current system is represented through four different quadrants: Institutional, Economic, Culture and Practices. After plotting the current regime, participants are asked to identify emerging innovations (Geels' niches) that might deal with the problem in a new way. The filled out canvas helps to get an overview of the systemic structures within the system.

Some modifications were made to better tailor the Rich Context canvas to the workshop's objectives and participants. The long-term trends were expanded to include the more nuanced description of a landscape from Geels (2011). In this paper Geels describes *"three types of landscape dynamics: (1) factors that do not change (or that change very slowly), such as physical climate, (2) rapid external shocks, such as wars or oil price fluctuations, and (3) long-term changes in a certain direction (trend-like patterns), such as demographical changes."* [p. 36]. As rapid external shocks are hard to impossible to predict, these were deemed not as relevant for this workshop exercise. An Ipsos trend research (Ipsos, 2022) commissioned by Juvenile Company in early 2022 was used as input for the landscape trends.

Additionally, it was deemed too difficult for participants to immediately jump into the activity of characterising the regime through the description of institutional structures as described by Jones and Van Ael (2022). Instead, it was chosen to frame the workshop around challenges the organisation and ecosystem faces. To link these ecosystemic challenges to institutional structures, a modification of Vink's (2019) iceberg framework was used as an exercise in the workshop, see figure 5.1. This framework was used to describe the experiential elements and underlying institutional structures influencing certain challenges. Vink (2019) goes on to describe how the framework can be used to discuss how certain social structures need to be created, disrupted or maintained to realise a preferred future. This part was left out as this was not relevant for the goal of the workshop. In the modification, participants were asked to describe the challenges the ecosystem might face and were then probed to link these to underlying structures, rules, roles, norms and mindsets. See appendix 3 for a more detailed description of the probes used. These underlying structures were then used in the modified Rich Context canvas.
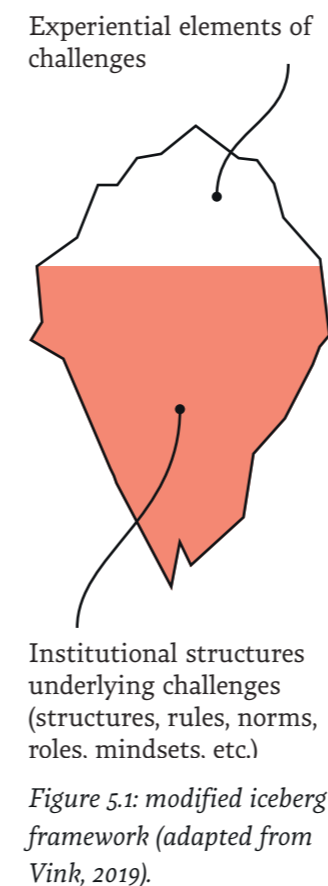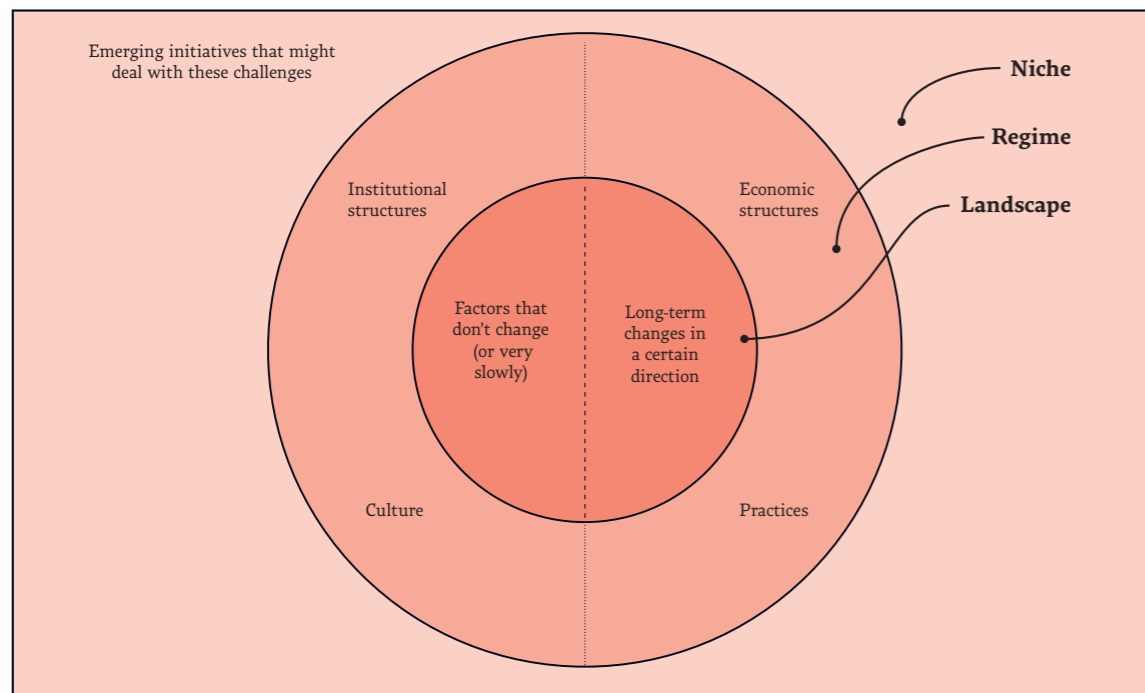
Figure 5.2: Modified Rich Context canvas used in workshop (adapted from Jones & Van Ael, 2022; Geels, 2011).

Rich context workshop analysis

Jones and Van Ael (2022) posit that the last step in analysing the rich context canvas is identifying the most systemic regime elements, which are those that are most connected. Over the course of the workshop an interesting pattern emerged focused around the production of new products, centred around seven underlying factors linked together, spread across three of the four regime structures.

> *Producing new products is biggest source of value creation (Economic)*
>
> *Sales model creates newness which hinders access model (Economic)*
>
> *Focus on profitability (Economic)*
>
> *Development of new products is focused on sale (Economic & Practices)*
>
> *"We've always done it like this" (Practices)*
>
> *Consumer prefers newness (Cultural & Practices)*
>
> *You want what's best for your child (Cultural)*

These factors also linked to both the Landscape and the Niche layer of the canvas, making them particularly systemic. These factors point towards a systemic tension between linear product innovation and their circularity ambitions. This is interesting, because one of Juvenile Company's greatest strengths currently lies in their culture of product innovation. How can this tension be resolved if Juvenile Company is to move towards a circular future? And what does this mean for Juvenile Company's company culture?

Rich context workshop reflections

One of the main limitations of this workshop was that two of the five participants cancelled at the last possible second. These were Juvenile Company's Transformation Director and Juvenile Company's Environmental, Social and Corporate Governance Director. The remaining three participants all have a background in design. The input from the workshop is therefore skewed towards factors having to do with design.

The modifications made to the frameworks developed by Vink (2019) and Jones and Van Ael (2022) worked quite well however. The participants were helped along quite nicely from their own organisation towards a more systemic perspective. Participants did note however that the end of the workshop felt unresolved and that the next step towards insights was still not totally clear. Integrating Jones & Lundebye's (2012) idea of *me to we to world and back again* might be an idea to get back to actionable insights for the participants. Following this framework, participants would be invited along a journey where they might go from personal observations, to organisational-wide problems, to ecosystemic problems and then back to their own personal capabilities to how these problems might be tackled. This would help to both imbue a sense of ecosystemic responsibility as well as a feeling of actionability. Of course this is all speculation and should therefore be tested in further applications of such a workshop format.

One of the main concerns before the start of the workshop was that it might be difficult to pull participants away from their organisational bubble, which proved to be the case. Future applications of this workshop would do well to include more diverse perspectives in line with the systemic principle of *Plurality of Perspectives*.

Conclusion

Throughout this chapter, we have tried to map the ecosystem Juvenile Company is positioned in as well as the institutional structures that form it. Through a series of actor mapping sessions with system stakeholders, we generated two actor maps. Using these maps we get a better understanding of which actors in the system are of relevance and would be interesting to look deeper into. In these actor maps, we found an interesting relationship between three different instances of *parents* and the other actors around them. Due to the linear sales driven nature of the commercial actors in the ecosystem, the actors *parent to be* and *parent* are significantly more systemic than *parent without need.* These actors are instances of the same people over different points in time, depending on their relationship to their stroller. We therefore conclude that it might be interesting to further explore the extent of this relationship, which is covered in chapter six.

Additionally, through the rich context workshop we discovered several institutional factors relating to innovation. These intertwined factors spread across multiple categories, including economic, cultural and practices. They point to a systemic tension between product innovation and circularity. Seeing as these represent both Juvenile Company's past and future, it's deemed interesting to further explore what it means to be innovative in a circular context and what this means for how Juvenile Company should be innovative in the future. This topic is covered in chapter seven.

6. Understanding: parent-stroller relationship

The purpose of the understanding phase in a systemic design context is to understand the goals, perspectives, needs, and drives of system actors (Jones & Van Ael, 2022). Due to time constraints it is impossible to consider every actor in the system. It is therefore necessary to focus on certain aspects of the system. In the actor mapping process, we found that the various instances of parent and stroller actors are particularly systemic, meaning that they have a lot of relationships with other actors. This could indicate that an intervention in this relationship could have a lot of impact on the system as a whole (Jones & Van Ael, 2022; Meadows & Wright, 2008). From this we can pose the following hypothesis, which this chapter aims to explore:

The way the value of the parent - stroller relationship changes over time can tell us something about the opportunities and barriers towards a circular use and post-use of strollers

Methodology & approach

Introduction

In this part of the research we are looking to dive further into the systemic context to better understand what factors might be opportunities or barriers to a transition towards a circular use and post-use of strollers. We know from literature research that value in systems is (partly) created through relationships between actors, particularly the value exchanges in these relationships. To understand how we might deliver this value in a future scenario, we first need to understand what value is exchanged between critical actors right now. As established in the intro, this section mainly focuses on value exchanges between relationships between parents and stroller. It is hypothesised that this relationship and its value to both actors changes over time and that this change might indicate certain opportunities or barriers for Juvenile Company to become circular. We can therefore pose the following main research question:

> *What does the relationship between parents and strollers look like right now?*

Unpacking this research question leads to four subquestions:

> *Who is involved in these relationships?*
> *What happens in these relationships?*
> *What value is exchanged in the relationship between parents and stroller?*
> *How does the relationship and its value change over time?*

Sampling

In consultation with the client, it was decided to focus on participants who would represent their consumer base in 2035. As such, it was decided to limit the age of participants to 35, with the wish to have a spread in age to counteract possible bias through age. To counteract gender bias, recruitment was preferred to be a 50/50 split between men and women. Non-binary people were not available for recruitment. Additionally, as the research area is focused on the European market, participants were required to live in a European country. It was decided to focus on participants who already are or have in the past been Juvenile Company consumers, rather than conduct a brand agnostic research, to hopefully capture insights more

tailored to the needs of future Juvenile Company consumers. A possible risk is that this approach leads to the study missing insights that would've become apparent from relationships between parents and non-Juvenile Company strollers.
Participants were recruited in conjunction with the Juvenile Company internal research department, through regular Juvenile Company participant sampling methods. This meant that possible participants were incentivized in the form of a voucher for any Juvenile Company product, which unfortunately had the unintended consequence of biassing the recruitment towards people who would benefit from such a voucher. In practice this meant no participants could be recruited who used to be but no longer are Juvenile Company consumers.
The final sampling criteria was the amount and the ages of participants' children. These were spread as much as possible to get a more holistic overview of the whole parent-stroller relationship. Fifteen possible participants were found using these requirements, eight of which were chosen to participate in the study. Out of these eight participants, two did not show for the interview. Unfortunately these could not be replaced due to time constraints. An overview of the six participants can be found in figure 6.1.

Participant number	Age	Country of residence	Amount of children	Age of youngest child	Gender	JC stroller use
1	34	Netherlands	2	4 months	Man	Every day
2	25	Netherlands	1	1,5 years	Woman	Every day
3	31	Belgium	2	7 months	Woman	A few times a week
4	32	Denmark	1	10 months	Man	Every day
5	33	Netherlands	1	1 year	Man	A few times a week
6	34	Germany	1	10 months	Woman	Every day

Figure 6.1: table of participants included in research

Method of research

The value derived from a relationship is quite abstract and can therefore be considered to be latent knowledge (Sanders & Stappers, 2012). In order to extract these deep insights from participants, a generative technique was used in the form of context mapping. These context mapping interviews consisted of a single interview between one and one and a half hours per participant. The interviews were semi-structured, meaning that while the interviews did follow an interview guide (see appendix 4), the conversation was allowed to stray from that if certain remarks from participants warranted further investigation. Participants were asked to fill out a set of exercises beforehand to prepare them for the interview. These exercises were referred back to in the interviews. In line with Sanders & Stappers' (2012) four stages path of expression, the interview was divided into three parts: *Personal Introduction*, *Ecosystem exploration* and *Parent-stroller relationship deepdive*. These three parts each covered one of the path of expression stages: Observe the present, Recall the past and Reflect on the past respectively. The fourth stage was disregarded as the research question did not call for insight into the future.

The first part of the interview, *Personal Introduction* was designed to put the participant at ease as well as get to know them and their context. The probes in this part were designed to
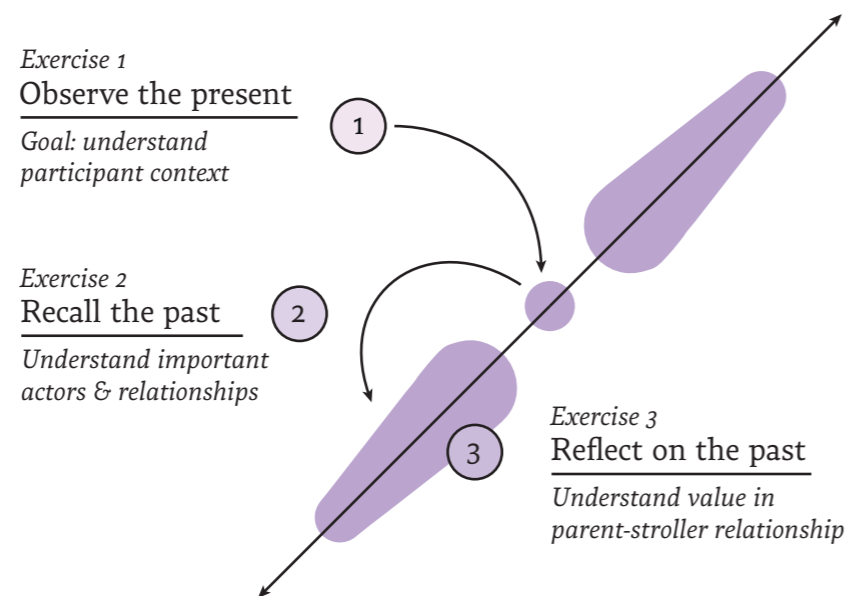
Figure 6.2: Interview exercises as stages of the path of expression (adapted from Sanders & Stappers, 2012).

Figure 6.3: Personal Introduction interview exercise filled out by Participant #1

first get the participant talking about themselves, their hobbies and family, see figure 6.3. They were then guided into talking about activities undertaken with their children, both with and without a stroller. This would then segue into the second part of the interview: *Ecosystem exploration.*

For the second part of the interview, *Ecosystem exploration*,

Figure 6.4: Ecosystem exploration interview exercise filled out by participant #6

participants were asked to refer back to the exercise they filled in beforehand, see figure 6.4. This exercise asked them to describe a meaningful trip they had with their stroller in the past month. The pre-exercise was designed to get participants to think about a meaningful experience they recently had with their stroller and the interactions that happened throughout this trip. During the interview, participants were probed to provide step by step descriptions of this trip. In doing so, participants opened up to talk about things such as significant moments during the trip, how these made them feel and what other actors were involved.

In the third part of the interview, participants were again asked to refer back to an exercise, see figure 6.5. In this exercise, participants had to fill out a friendship booklet page for their stroller asking them to describe their stroller in three words, what they value in their friendship, etc. This exercise was designed to get participants to think beforehand about their relationship with their stroller, as the relationship between ourselves and products is not one that we often think about in daily life. During the interview, this allowed to probe participants for what made the stroller valuable to them, beyond just the functional aspects of the product. See appendix 4 for the full interview guide and appendix 5 for the exercise templates.

3. You and your stroller: friendship booklet entry

This is what you look like:

This is you in three words
Energetic, funny, non-patient

This is how we met
Just before my daughter was born

We should definitely do this sometime
Very long walk to the other side of the city

These are your best features
solid structure and safe

This is the best thing we ever did together
Long morning walks while she sleeps

What I value in our friendship
Reliability

Figure 6.5: Parent-stroller deepdive interview exercise filled out by Participant #5

Coding interviews

Making sense

Creating insight

Opportunities for intervention

Raw data

Data clusters

Relationship map

Value in context
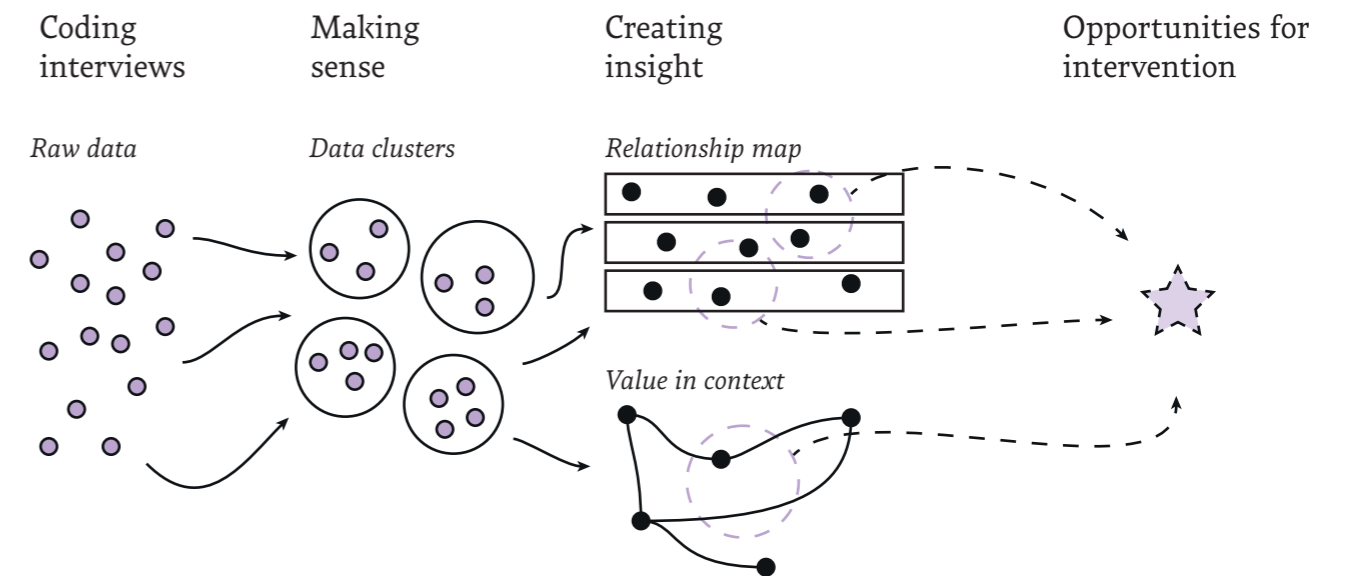
Figure 6.6: Creating insights from raw data through analysis

Method of analysis

In line with Jones & Van Ael's (2022) Contextual Interview analysis technique, transcripts of the six interviews were coded to indicate factors driving the behaviour of actors in the system, causal relationships, factors contributing to growth or decline and factors that maintain patterns that might obstruct system change. This raw data was then analysed through three lenses to document insights related to actor relationships, insights related to the development of the parent-stroller relationship and insights that can be classified as general findings. This data was then used in two separate sensemaking sessions

A first sensemaking session was done with the Livework company mentors. This sensemaking session served a dual purpose. Firstly, it was used to find early patterns and insights in the raw data to be able to better guide the second sensemaking session. Secondly, it was used to be able to reflect with the Livework company mentors on the difference between sensemaking in a systemic design project and in a service design project. This session found the early pattern that the parent-stroller relationship fulfilled both functional and emotional values at the same time. This pattern was used in the second sensemaking session with the Juvenile Company company mentors to use their extensive familiarity with the product to unpack these functional and emotional values further, with the idea to derive potential opportunity areas. The insight from these sensemaking sessions were then further massaged into the final research findings through a tertiary clustering of insights.

Research findings

Based on the research findings, we can derive the following map of how the parent-stroller relationship develops over time. Through this relationship parents derive both functional and emotional value, as well as value that sits somewhere in the middle providing both functional and emotional benefits. Interestingly, the functional benefits are much more apparent at the start of the relationship while the emotional benefits seems to emerge somewhere in the middle of the relationship. When directly asked why participants chose their stroller they mostly mentioned functional benefits, such as reliability, ease of use or the amount of storage. As the interviews progressed it became apparent that for most participants the facilitation of being together with their child is where the true value in the

relationship arises. This can be roughly divided into three developmental stages, which are covered in more detail on the next pages. Over the course of the relationship, the stroller becomes extremely important to parents, illustrated by one participant saying "the stroller is not family, but it's also not less than that" (participant #1) or another participant who mentioned she refused a car her employer got her because the stroller wouldn't fit in it (participant #3). The importance of the stroller leads to friction in the relationship: growing apart. There is no single moment in which the stroller stops being useful, it's rather a slow transition as a child becomes more independent. As such, parents are not quite sure if they will still need it and end up keeping it around for much longer than actually necessary "just in case". Due to the long life span of the stroller, parents recognise it's value when it's time to separate. Though all parents were inclined to give the stroller a second life, how depends on the person. Some would rather give it to a friend while others would rather sell it on.

	Before we first met	The first time we meet	Getting to know each other	A place of comfort	A source of wonder	A home away from home	Growing apart	Separation
	I want a version of you that I can trust to keep my child safe	*Meeting you makes it real: I am actually having a child. I'm excited but scared.*	*First weeks are an adjustment. Your functions are cool, but I don't know how they work. What if you break?*	*My child has come to accept you and your comfort*	*My child is more interested in exploring the world. You help share my wonder.*	*My child walks more and likes to explore when we're outside. You're there when they get tired*	*My child(ren) mostly walk well, I keep you just in case, but unsure for how long*	*Here we part ways. I will try to pass on your love to a new family.*

Value map with three horizontal bands — Functional value, Gray area, and Emotional value — plotting relationship stages.

Functional value
- Trust through reliability
- Stroller as a mule
- Space for child to return to when exploring
- Sleep management — *Though still present, not main value anymore*

Gray area
- Insecure in use
- Helping my child develop autonomy
- Sense of freedom — *More valuable when kids can't walk yet, but still present*
- Unsure if I might still need it in future
- Still valuable, but not to me

Emotional value
- It gets real — *"You can't believe in a couple of months, you know, you're gonna be pushing someone around in it."*
- Affording me time to be myself
- Help share experiences with child
- Help share my parental message
- Sharing my child's wonder about the world

Developmental stages: the core value proposition

Within their homes, parents have control over the immediate environment their child interacts with. Outside of their home, this is not the case. The outside world is non-controlled, anything can happen. The stroller then is an artefact to afford parents a sense of control in a non-controlled environment. During the use of the stroller over time, we can identify three distinct stages of use in which the value derived from the stroller is distinctly different. Over the course of these three stages, parents slowly introduce more of the world to their child, loosening their control over the interaction their children have with the outside world. These stages are not tied to the amount of time the stroller has been used, but to the development of the child. This means that these phases can repeat for the birth of new children and that multiple stages can exist at the same time for each child. These three stages represent the different types of core value parents derive from their relationship with the stroller over the course of their relationship, beyond surface level functional values. It is the values identified in these stages that make the relationship with the stroller truly valuable to parents. Creating and facilitating these three value stages is the core value proposition of Juvenile Company strollers.

A source of wonder
6 months - 1,5 years

In this stage, the parent-stroller relationship starts to really open up from like one with a tool to a "partnership". As the child grows to an age where they can sit independently, the stroller allows them to have more interaction with the outside world, while still confined to a safe space. The stroller becomes a means for parents to share experiences with their child. It also allows them to share their own wonder of the world with their child. Both of these things provide immense emotional value to parents and form the basis of the importance of the relationship.

"I think that I'm doing my job creating experiences for her and not just buying something like a toy. It's more like creating a memory."
Participant #5

"I definitely enjoy spending time in nature. I like camping and foraging and just being outside in general and I'm trying to hopefully transmit that to my kid."
Participant #4

A place of comfort
0 - 6 months

In this stage, the child has come to accept the stroller as a place of comfort and safety. Participants noted that their children often sleep better in their stroller than they do anywhere else. This sleep management is the main value provided by the stroller during this phase. When out and about, the stroller shields the child from the outside world, allowing them to sleep better. These moments of sleep are immensely valuable to parents, as they grant them some rare peace and quiet during the early months of parenthood.

"The stroller gives me the freedom to have a social life next to my life as a mom."
Participant #3

"Today it was more like a survival mode kind of day. It's funny because we do the same thing, we'll still use the stroller and go to the forest, but it becomes much more practical. I just need him to fall asleep so that I can get some rest."
Participant #4

A home away from home
1,5 years and on

As the child becomes able to walk independently, parents loosen their control of the exploration interaction almost entirely. They allow their children to explore their immediate environment during walks. The stroller acts like a safe haven a child can return to during their explorations, helping to develop their autonomy. Seeing their child act on their curiosity, creates in parents a renewed sense of appreciation for the little things in life.

"And sometimes he'll run to see animals and show them. And when he got tired, he once again came for his seat."
Participant #1

"Yes, I think you also enjoy the small things more, also because your kids see so many little things in nature that you yourself wouldn't notice."
Participant #3

Value in context

Plotting the findings from the research onto the broader ecosystem, we find that the parent-stroller relationship also influences a lot of other relationships in its periphery. This can tell us something about what value provided by which relationships need to be taken into account when developing an intervention in the system.

Friend

Will your child affect our relationship?

Retailer

Provides expertise & guarantee the stroller will be safe

Parents to be

You're still valuable, but not to me...

Need for reassurance their choices are right

Do my friend a favour

I need to be kept clean and proper

I need to help parent & child bond

I need to provide a safe environment

What if used is not as safe as new?

Parent without need

I need to be clean & taken care of

You take up space

Shelter when I'm not in use

Home

Stroller

"You take over when I need rest"

Baby carrier

Recuperate some value

2nd hand marketplace

Comfort, security, identity

Place of comfort

Place of comfort

Need to be sure my children are independent enough to get rid of the stroller

"I'll care for you (because you care for me)"

First hand experience

Parent

Child

"You're competing for my spot"

Sibling

Parental forum

I want my child to grow up to be a balanced and kind person

I need care & attention

Mom- or dadfluencer

Legend

Provided value	Relationship
Expression of feelings	Predominant influence
Needs	Indicates what needs belong to which actor
Tensions in relationship	

The importance of trust

The theme of the importance of trust permeated the entire parent-stroller relationship. Parents' top priority is the safety and comfort of their child. They are therefore wary to give away control over the safety of their child, as they are not sure if they will be safe. This is especially apparent over the first phases, before routine has set in. When participants were probed for what was important to them when they first met their stroller, they mentioned functional product aspects like "sturdiness", "stability" and "reliability". Some participants mentioned that while they'd prefer to buy second hand products in other contexts, the fact that their child would be carried by the stroller meant they preferred buying new. When asked why this was important to them, they again mentioned factors such as reliability. These specific aspects reveal that parents look for indicators that tell them they can trust the stroller to keep their child safe.

Interestingly, this trust develops over the course of the relationship. The Getting to know each other phase is characterised by an awkward development of mutual trust. Participants mentioned that interactions with a stroller are new to them. This makes use in the first few weeks a bit awkward as parents don't know yet how to interact with the stroller. Combine this with the fact their child is laying in the stroller, they question its safety:

"You look at the stroller in a bit of a, like, am I using it correctly? Is it safe enough?" - Participant #5.

In the first major use phase, *A Place of Comfort*, we see the first indicators of real trust between parent and stroller emerging. Multiple participants mentioned how their children never sleep better anywhere else than in the stroller. As their children come to accept and even thrive in the safe confines of the stroller, parents increasingly partake in behaviour indicating they trust the stroller more. Participants mentioned behaviour along the lines of leaving their children alone to sleep in the stroller in another room or and some even outside. This is a clear indicator they feel comfortable to let go of some control and trust their stroller to keep their child safe. Over the course of the last two major use phases, *A Source of Wonder* and *A Home Away From Home*, this trust becomes more important. It is through this trust that parents feel comfortable enough to further let go of control and introduce the outside world to their children more. The foundation of trust laid in the first phase allows parents to fully embrace the emotional value in the latter phases.

Reflections on qualitative research in systemic design project

Interestingly, qualitative research in a systemic context is quite similar to one in a more service oriented context. The methods and techniques are all pretty much the same, it's just the way you use these techniques that's a tad different. Research in a service design context is inherently bounded by the scope of the design challenge. One often looks for the relationship between a person and a service, or an interaction or another person. Point being that you already know the relationship between the person you're interviewing and the thing you're investigating exists. You're mainly looking to deepen your understanding of this relationship. In a systemic context, you know you're looking to deepen your understanding of what relationships an actor derives value from, but you don't know yet which these are. So you're both looking to understand what relationships exist in the actor's experience of the system as well as deepen your understanding of these relationships.

Additionally, because an actor's experience of a system is not explicit, interview data will not directly reflect systemic insights. It is therefore necessary to use systemic frameworks such as the actor map developed during framing to get from data on a personal level back to insights on a systemic level. By structuring these insights on a systemic framework, it becomes easier to generate insights on a systemic level.

Conclusion

In this chapter we've learned that the relationship between a parent and stroller is far more complex than one would think at face value. Due to a stroller's interactions with a parent's children, a need for trust is involved to get the most out of the product relationship. The relationship follows a blueprint that's quite similar for most parents. Over the course of a child's early life, the stroller relationship can be divided into three developmental stages that each provide a different distinct value to parents. Because these stages are tied to a child's development, all parents experience these stages, providing an opportunity for an intervention. Tensions in the relationship arise in the transitions between these stages, which could also be an opportunity for an intervention.

7. Understanding: Innovation & circularity

While working on this thesis, I had a desk at the Juvenile Company HQ offices in Amsterdam surrounded by all kinds of designers from different departments within Juvenile Company. Whenever I walked from the elevator to my desk all the way at the back I'd pass probably hundreds of prototypes for different products. Updates to current stroller models, models to test ergonomics and even experimental wooden models for new models. Better evidence of the company's innovation culture probably doesn't exist. However, as we saw in chapter four and five, this could prove a major barrier in Juvenile Company's transition towards a circular company. In this chapter we aim to explore the extent of this innovation culture and its origins, why it needs to change if Juvenile Company wants to become circular and what it will have to change into.

The meaning of innovation in a circular context

The product innovation paradigm

The first Juvenile Company model developed in the late nineties went on to disrupt an industry and build an internationally known company. In those early days, the sky was the limit. Juvenile Company had relatively little competition in the niche they operated in and could experiment to their heart's content. All Barenbrug wanted to do was make beautiful things that made people happy. Realising the importance of the baby stroller as a fashion statement, Juvenile Company became known as the choice for stylish parents (Juvenile Company, 2021). Their revenue drove their innovation, which drove the release of new and stylish stroller models which further drove up their revenue in a reinforcing feedloop of company growth. As the competition caught up to them, innovation became less of a passion and more of a necessity to survive. Caught in a Darwinian competitive struggle, the company had to constantly innovate to meet and create new consumer demand in order to outsmart the competition.

This is still true two decades later. As we saw in chapter four, the sale of new products is still the company's main driver of revenue. To beat the competition they need to innovate more to create newer, better products to create more revenue to beat the competition. And innovate they do. In the past three years, the company has brought four completely new products to market and updated four of their previously existing models in a functional overhaul (Juvenile Company, 2022-b). Depending on the product model, Juvenile Company releases such a functional overhaul once every two to three years. They also do separate incidental cost lowering model updates, yearly colour updates for every model, bi-yearly limited edition models and refined collections. For each of their six main stroller models. And they also design newer models to stay ahead of the curve. This thinking is deeply rooted in what Godelnik (2022) calls "business-as-usual", an economic paradigm based on a highly influential article from Milton Friedman originally published in The New York Times in 1970. In this article, Friedman argues that a business' only responsibility is to maximise its profit for its shareholders. Godelnik (2022) paraphrases Friedman in saying that "any talk about companies' 'social conscience' was nothing but socialism, which he considered as the wrong path for business and society overall." This idea of shareholder capitalism

has since then permeated most of the world. Riding the wave of major landscape disrupting macro trends such as climate change, alternative economic mental models have popped up to challenge this focus on shareholder value maximisation.

Corporate responsibility programmes such as the Science Based Targets initiative (SBTi), which Juvenile Company tests its sustainability programme to, are trying to steer companies away from shareholder value maximisation towards stakeholder value maximisation. Instead of maximising value for just a companies' shareholders, we aim to maximise the value creation for all of its broader stakeholders, including society and the planet. This paradigm is based on Elkington's (1998) triple bottom line framework, see figure 7.1. This sustainability framework aims to assess a business' social, environmental and economic impact. Only when these impacts are taken into account, can we properly assess the cost of doing business (The Economist, 2009). In a 2018 article, the original author of the framework officially "recalled" the triple bottom line framework on account of it having failed in his eyes (Elkington, 2018). Too often, the social and environmental impact of doing business have fallen to the periphery in lieu of economic impact (Elkington, 2018; Future Fit Foundation, 2020). Godelnik (2022) echoes this sentiment, calling this way of doing business "sustainability-as-usual", see figure 7.2. He argues that the lack of compulsion in companies' social responsibilities mirrors the paradigm we're trying to move away from, effectively meaning that profit is still a company's main driver. This sentiment has been echoed by higher ups at Juvenile Company as well, calling sustainability a hygiene factor on multiple occasions. In other words: environmental responsibilities are nice, but they're the first to be dropped once our economic bottom line is in danger. At first it might seem that Push to Zero is an excellent disruptor of this paradigm, if we accept the premise that Juvenile Company aims to religiously stick to their
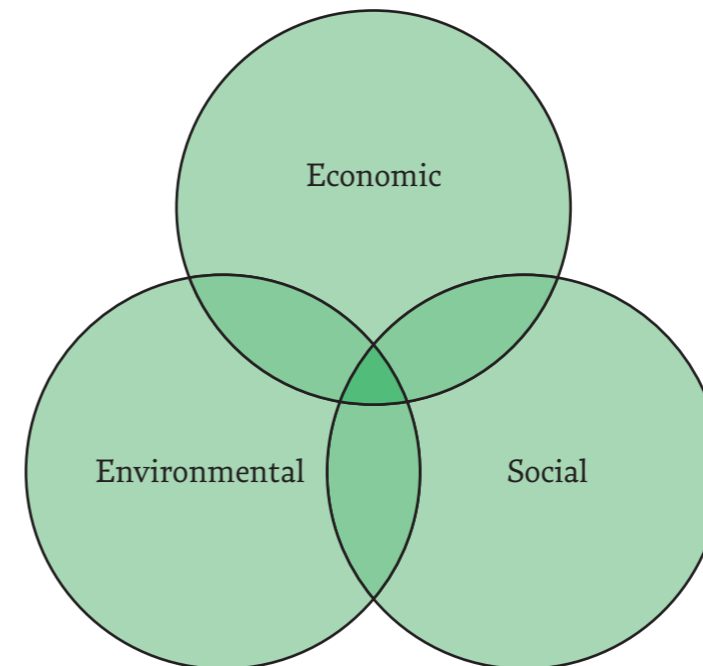

Figure 7.1: Elkington's 1998 Triple Bottom Line framework aimed to equate a business' societal and environmental impact with its economic impact.
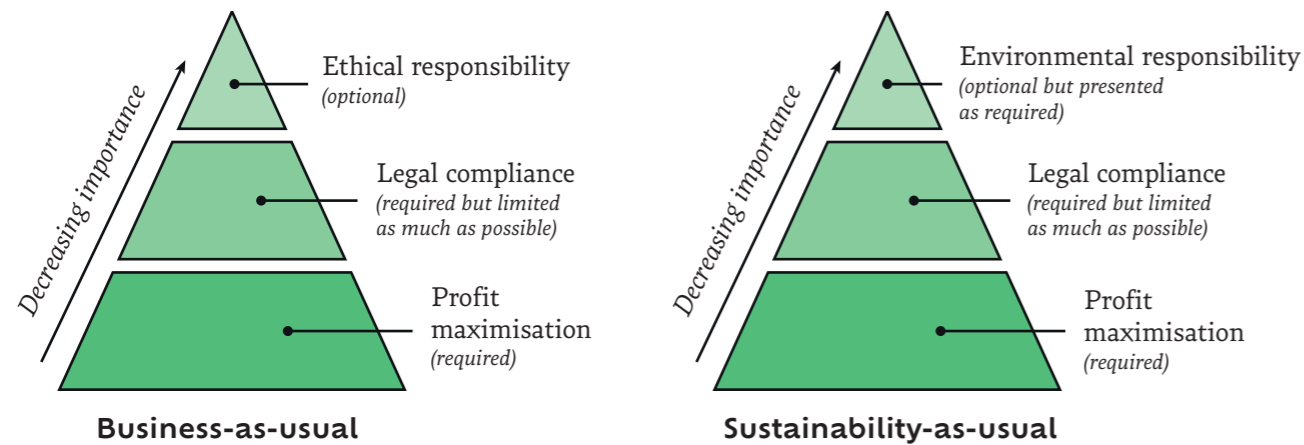
Figure 7.3: Comparing the new economic paradigm with the old, we unfortunately see more similarities than differences (adapted from Godelnik, 2022).

targets. After all, this programme is a self-imposed compulsory environmental responsibility target. As long as we drive down our carbon emissions, we can have all the economic growth we want, right?

The end of the product innovation paradigm

In the mid nineteenth century, Scottish economist William Jevons noted a peculiar effect in the nation's coal mining exploits. As mining efforts became more efficient, demand for more coal increased instead of decreased. This has become known as Jevons Paradox, which states that in the long-term an increase of resource use efficiency will lead not to a decrease of resource use but an increase (Giampietro & Mayumi, 2018; González, 2022). Jevons Paradox is key to understanding why Push to Zero is doomed to fail if Juvenile Company continues to strive for revenue growth through product innovation (Witteman, 2022). Let's say Juvenile Company significantly drives down the relative carbon intensity, or carbon emission per product, of its products but still aims for revenue growth through product innovation. In order to drive down its absolute carbon emission, which Push to Zero aims to do, Juvenile Company's relative carbon intensity would need to significantly outrun the scale of its production indefinitely into the future (Jackson, 2021). And it isn't looking very likely they'll be able to do this. Looking at the company's current intentions we see that Juvenile Company aims to reduce its relative carbon intensity per stroller by 40% in 2025 when compared to 2020. Over that same time period, the company also aims to grow its total revenue by 48%. As we saw in chapter four, the sale of strollers makes up about 70 to 80% of Juvenile Company's total revenue. To grow their revenue by 48%, Juvenile Company would need to

Original stock of materials available for production

Material stock needed for growth

Material extraction needed to close gap

Figure 7.4: The tension between circularity and growth

sell about 40% more strollers than they did in 2020, effectively negating the impact any work on their strollers' relative carbon intensity would have on their overall carbon footprint. It seems then that Juvenile Company's current economic paradigm of revenue growth through the sale of new products is fundamentally incompatible with their Push to Zero aims.

Juvenile Company has already realised that themselves as well. Programmes such as Flex are first forays into the deep waters of new circular revenue models. Though not scaled to a significant size yet, they signify an intention that Juvenile Company aims to move towards a circular value proposition. This transition towards circularity would however still necessitate letting go of their current revenue growth through product innovation paradigm, for two main reasons. The first has to do with a fundamental principle inherent to circularity. To paraphrase De Decker (2018), circularity and growth are fundamentally incompatible even if recycling of old products was 100% efficient. He explains that the amount of materials that can be recycled is always smaller than the amount of materials needed for growth. So to compensate for that growth, Juvenile Company would need to extract more resources which would be in conflict with their circularity and Push to Zero goals.

The second reason why Juvenile Company will need to let go of its current growth paradigm has to do with novelty. Juvenile Company's Business Development Director, responsible for developing the new revenue programmes, noted that one of the key challenges to realising a successful lease model lies in whether consumers would want to lease a two year old model if they knew newer ones were also available (Juvenile Company, 2022-c). This is a big problem for the business viability of this revenue model. The economic value in a lease model lies in spreading the initial cost of a product's production out over the product's entire lifetime. A consumer might not pay the bulk of the production cost up front, but over the course of its lifetime the product's cost, and then some, would be covered through lease fees paid by a variety of different consumers. In the case of Juvenile Company's strollers, the lifetime of a product is about ten years. So in the best case scenario, Juvenile Company would be able to generate revenue from a product whose production cost was paid for ten years ago. In its current form, Flex is 1.5 times as profitable as directly selling a stroller as long as the stroller is leased three times for twelve months each (Juvenile Company, 2022-c). If we could lease a stroller for ten years, this would make Juvenile Company a whole lot of money off of a single stroller. But the question remains if we *can* lease a stroller
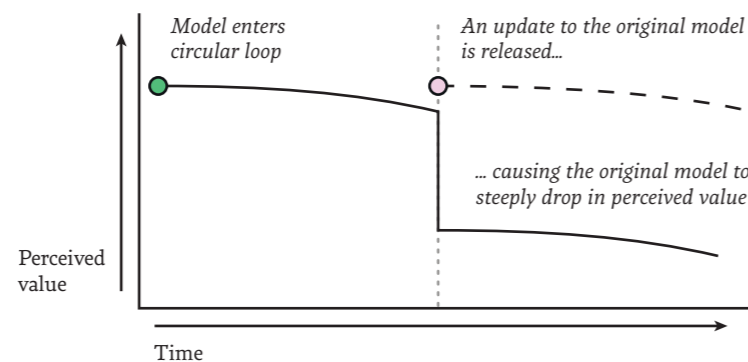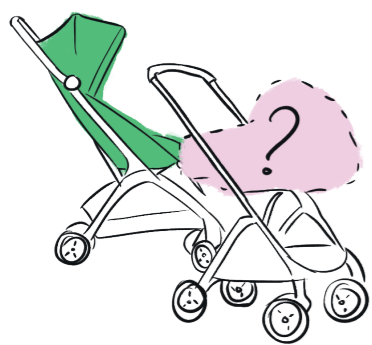
Figure 7.5: the tension between circularity and novelty

for ten years. As the old adage goes, novelty creates desire (Dean, 2019). If Juvenile Company keeps its current innovation time horizon and updates a model every two to three years, it would not just add production costs that would need to be recouped, but it would also devalue the strollers already in its fleet. After all, why should I lease an older model if a newer model is also available? This is doubly true for the lease of strollers, where the safety of your child is a factor of concern. Why would I lease an older model, if the newer model will probably keep my child even safer and more comfortable? Consumers are driven by the promise of more value for money. An ever driving need for the creation of novelty lies at the very core of Juvenile Company's economic paradigm. Juvenile Company's greatest strength, its product innovation capabilities might prove to be its greatest weakness when it comes to their sustainability goals. If the company wants to Push to Zero, it will need to forego product innovation as a means of creating value as much as possible.

A way forward

Novelty creates desire, yes, but people also desire novelty. Novelty holds out a promise of a better future for ourselves and for generations to come (Dean, 2019; Jackson, 2021). Though a complete disregard of novelty would be in theory best for the planet, it is not realistic to propose something so opposed to human nature itself. So Juvenile Company shouldn't stop creating new value, it should reconsider what it means to create new value. Capra and Henderson (2009) define two different types of value: quantitative and qualitative. Quantities are things that can be measured and are embedded in the properties of a thing. Qualities are things which can not be measured and emerge from patterns or relationships between things and can therefore not be measured. Quantitative value then is value that

can be measured, like money or time or amount of strollers sold, while qualitative value is value which can not be measured like happiness or love or the feeling of being a good parent. Experts agree that the focus on quantitative growth on a planet with finite limits is the reason we got into this mess in the first place (Capra & Henderson, 2009; Jackson, 2021; Godelnik, 2022; etc.). We ourselves discovered earlier in this chapter that the concept of quantitative growth is in direct odds with Juvenile Company's sustainability goals. The alternative to this then is a paradigm based on revenue growth through qualitative value creation.

Goldenik (2022) proposes a new paradigm to unseat both business-as-usual and sustainability-as-usual, one we'll call true sustainability. He argues that organisations should put sustainability considerations above all else. While the pursuit of profit is still important and required, it is in service of the organisation's sustainability goals, see figure 7.6. To paraphrase Godelnik (2022), rather than making the business case for sustainability, Juvenile Company will have to start making the sustainability case for business. Juvenile Company's innovation should be focused on finding ways to deliver qualitative value in novel ways, without compromising the needs of future generations. Doing so succesfully requires a solid alternative way to deliver value (Bocken & Konietzko, 2022), but will ultimately result in a clear competitive advantage. As Juvenile Company pushes for a business case ahead of incoming legislation, they will create an advantage over competitors and will ultimately in the long run perform better (Eccles et al., 2014).
So now we know why the company must change the way it delivers value, but how should it actually do this? That's what we will cover in chapters eight and nine.
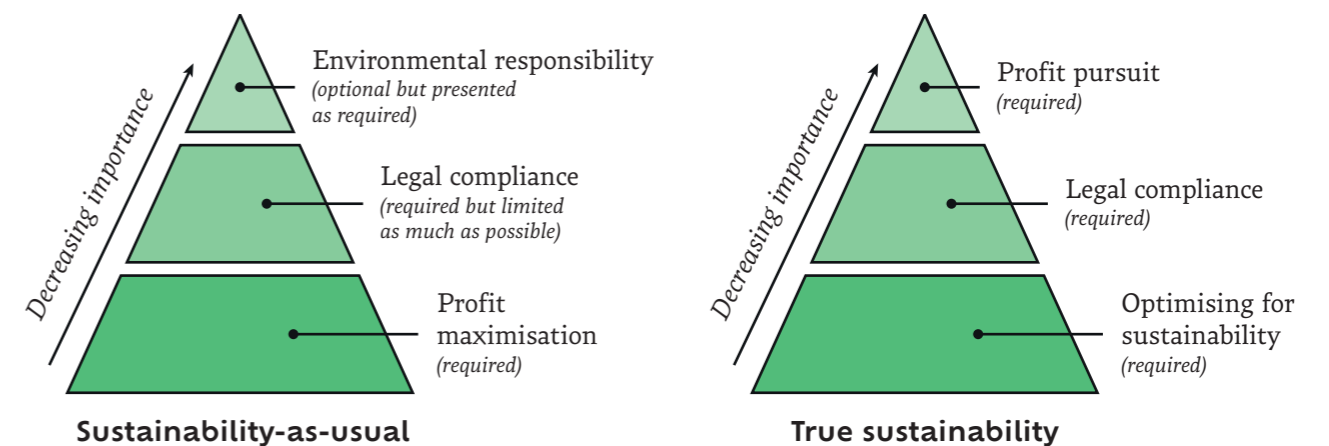

Figure 7.6: True sustainability seeks profit pursuit in service of sustainability (adapted from Goldenik, 2022).

8. Envisioning

Futuring workshop

"If you can't change the system, change the frame - it comes to the same thing."
John Gall (1975)

Why do we envision?

The fundamental basis of all of design is creating something new and hopefully better than what was before. Creating a preferred future if you will. In the envisioning stage, designers define what this preferred future looks like (Senge, 1990). The future vision then is an expression of a desired future that serves as a strategic reference point (Simonse, 2017). Unfortunately, due to the complex and emergent nature of systems, a single future vision is unattainable (Jones & Van Ael, 2022), see figure 8.1. The many different factors that shape the system, both from pressures within and from outside of the system are in constant change. How these interchanging factors evolve to form the future is impossible to tell. As we can't define a single future, we should therefore not design for a single future. The desired future we envision should be multi interpretable, according to a set strategy (Jones & Van Ael, 2022). Flexbility should be baked into our desired future, so the company can alter its course as the future unfolds. To do this, we need to create an open-ended vision guided by principles (Broman & Robèrt, 2017). This chapter covers the creation of this open-ended vision, while chapter nine covers, among other things, the principles the company must adhere to as the future unfolds.

According to Jones and Van Ael (2022), the purpose of envisioning in a systemic context is to co-create a mental model of system change. A wide group of stakeholders from within the company were engaged in the form of a workshop. The primary objective of this workshop was to co-create a system value proposition. Similar to the rich context workshop described in chapter 5, a secondary objective of this workshop was to create ecosystemic awareness in a wider stakeholder group through Vink's (2019) concept of reflexivity and reformation. Where the rich context workshop mainly focused on ecosystemic awareness around reflexivity, this futuring workshop focused mainly around reformation. Through this workshop, stakeholders should become more familiar with the systemic consequences of introducing interventions in the ecosystem.

In a stroke of luck, it just so happened that the timing of this futuring workshop in the project's planning coincided quite nicely with a string of future oriented activities undertaken within Juvenile Company's Next programme as well as the company's management team. To leverage this internal momentum, the workshop was designed such that it would fit snugly into the string of activities already planned, serving as input for the next workshop while still carving out a space for its own. The next workshop was one facilitated by Ipsos, based on earlier trend research carried out by the firm, focused on developing Juvenile Company's company future vision. This goal was not dissimilar from the primary objective of my futuring workshop. In an earlier concept version of this workshop, I intended to introduce multiple future contexts to work with, based on the Ipsos trend research. This was left out in the final version as it would be too similar in content with the internal futuring workshop facilitated by Ipsos. To further differentiate both workshops and to prevent overlap in content, I therefore decided to design the workshop around the unique value which my project provides Juvenile Company, which is the ecosystemic lens used to assess their ecosystemic problematique. The workshop was thus designed in a way that participants would interact with the ecosystem defined during the framing phase of the project.

The workshop was designed to be split up into three exercises. The first focused on engaging participants with the ecosystem, where participants were asked to evaluate the actor map and add on to it from their own expertise. The second exercise focused on introducing interventions and evaluating the consequences of

Today
Linear predicted future
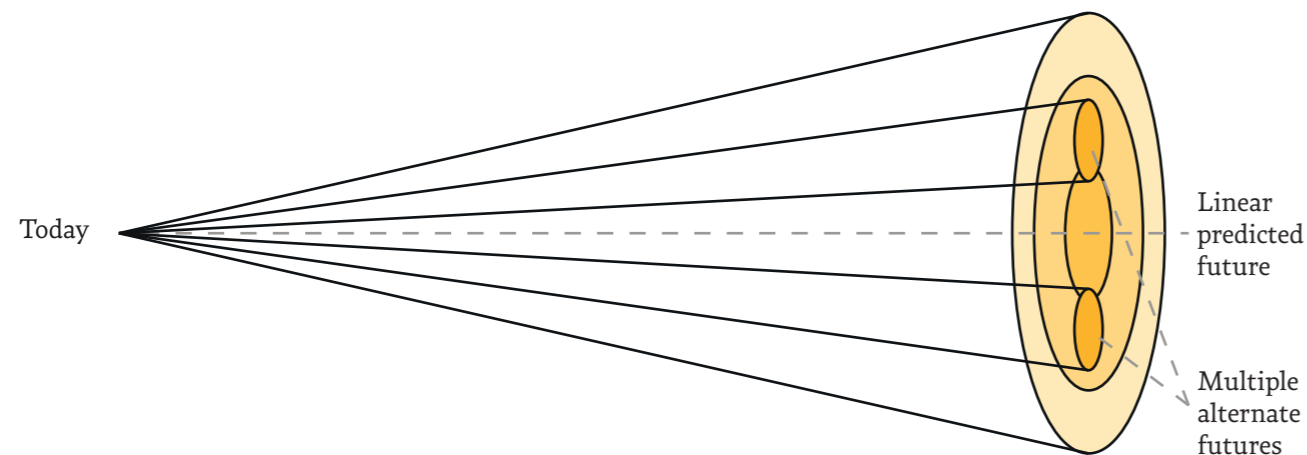Multiple alternate futures

Figure 8.1: The farther from the present our lens reaches, the more uncertain the future becomes. We should therefore design for multiple futures (adapted from Livework, 2023).

Actor map of current system state
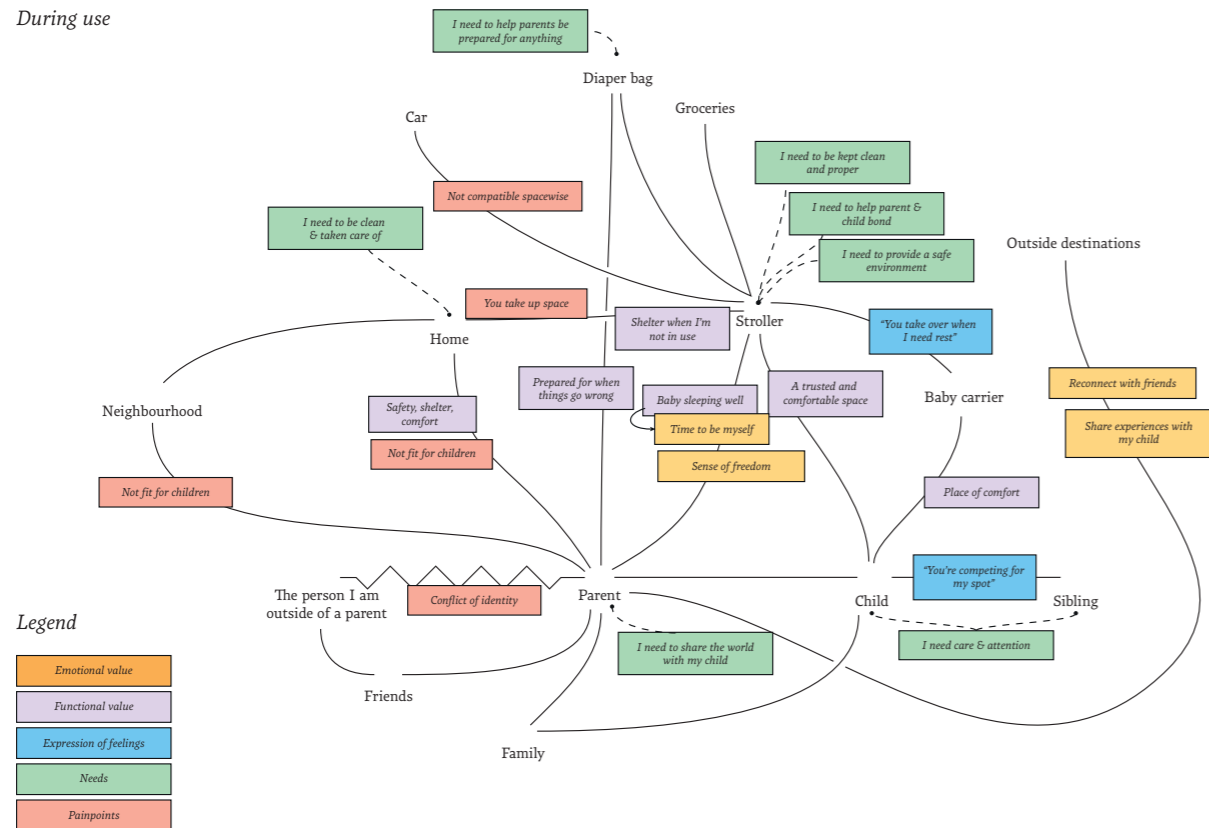*During use*
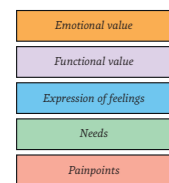
Figure 8.2: One of the three actors maps used during the first workshop exercise.

these interventions on relationships in the ecosystem. The third exercise focused on evaluating the intervention in the second exercise to assess what functional value it would introduce, what latent value this intervention could introduce and what the manifestation of this intervention should be to provide this value.

The first exercise focused on engaging participants with the current ecosystem. For the purposes of the workshop, the actor map was split into three phases: Before Buy, During Use and Separation. These phases coincided with the three different parent actors defined in the framing stage. Participants were divided into three groups and each group was assigned one of the three actor maps. Participants were tasked with analysing the actor map and probed to fill any gaps in the actor map from their own knowledge. The goal of this exercise was to familiarise participants with the concept of actor maps and prepare them for the second exercise.

The second exercise focused on ideating service interventions that would help Juvenile Company become circular. Working

in the same groups, participants built upon their actor map by introducing one or more interventions to the system and then redrawing the actor map. Participants were probed to evaluate what value was created in which relationships through these interventions, what tensions would arise and how these tensions could be alleviated through other interventions. The goal of this exercise was to have participants understand the complexity of introducing interventions into their ecosystem, as well as have participants ideate different interventions.

The third exercise was designed to have participants shape the manifestation of their intervention based on the value it should have. To facilitate this, I designed the value iceberg framework based on Jones & Van Ael (2022) and Vink (2019). Participants would use the framework to move from the level of functional values to the latent value provided by the intervention to then figure out what the manifestation of this intervention should be. This would then lead to the formulation of a future vision

Figure 8.3: The second exercise provides a canvas for the participants to draw on, as well as probes to guide them.

statement based on this manifestation. The goal of this exercise would have been to help participants understand the concept of latent value shaped by functional value and how a single value can have multiple manifestations. This would have been in line with Jones & Van Ael's (2022) idea of creating the possibility for multiple interpretations that adhere to a single strategy, depending on how the future unfolds. Unfortunately, due to time constraints I was forced to forego this exercise to allow for more time to work on the first and second exercise.

Future vision workshop reflection

Overall, the workshop was quite successful. This was the largest group of stakeholders that was involved in a workshop up until this point and it seems like it was a good idea to wait for this workshop to include the wider stakeholder group. The exercises themselves worked quite well to take stakeholders along in a process of ecosystemic thinking. The setup where participants first had to draw from their own knowledge and experience while analysing the ecosystem helped well to get them acquainted with the concept of ecosystem maps, while the second exercise helped to engage with the ecosystem in a way that still spurs feelings of opportunity. Participants noted that engaging with the ecosystem map helped to make latent knowledge tangible and that the tool helped them to realise the impact of changing relationships in the ecosystem. Unfortunately, skipping the third exercise meant that participants felt like the workshop missed a way to bring it from the broader ecosystem back to Juvenile Company. So again, we see a pattern emerge where it is important to structure ecosystemic workshops in a way that the me to we to world and back again concept from Jones & Lundebye's (2012) is facilitated.

Another point of critique is that my own idea of a way to tie my research findings to a future vision was still a bit underdeveloped. As such, participants noted that while the research findings shared were interesting and new on their own, these were not as well integrated into the workshop as they maybe should have been. So we can conclude that while it is possible to facilitate this workshop as a standalone exercise to promote ecosystemic thinking in a group of participants, if it is tied to a broader research project and a goal is introduced to develop a future vision then a better integration of the research insights is needed.

Vision statement

Combining the insights gathered over the previous chapters, we come to the vision statement below. The vision statement clearly demarcates the future possibility state of Juvenile Company's innovation space, while keeping room for interpretation based on how the future unfolds, in line with Jones and Van Ael (2022). New avenues for future value creation are implied through the phrases *"value beyond products"* and *"adapting to changing needs"*, both not present in Juvenile Company's current value proposition. Value creation is also restricted to possibilities that are in line with the company's sustainability goals through the phrases *"providing value beyond products"* and *"without compromising the future needs of their children"*. Lastly, the vision statement is uniquely Juvenile Company through the phrase *"empowers parents and children to explore the world"*, in line with the brand framework explored in chapter four. How this vision statement is translated to a future value proposition is discussed in chapter nine.

Main brand promise
Chapter 4

Juvenile Company empowers parents and their children to explore the world by providing value beyond products that adapts to parents' changing needs without compromising the future needs of their children.

Qualitative value creation
Chapter 7

Developmental stages
Chapter 6

Definition of sustainability
United Nations (1987)
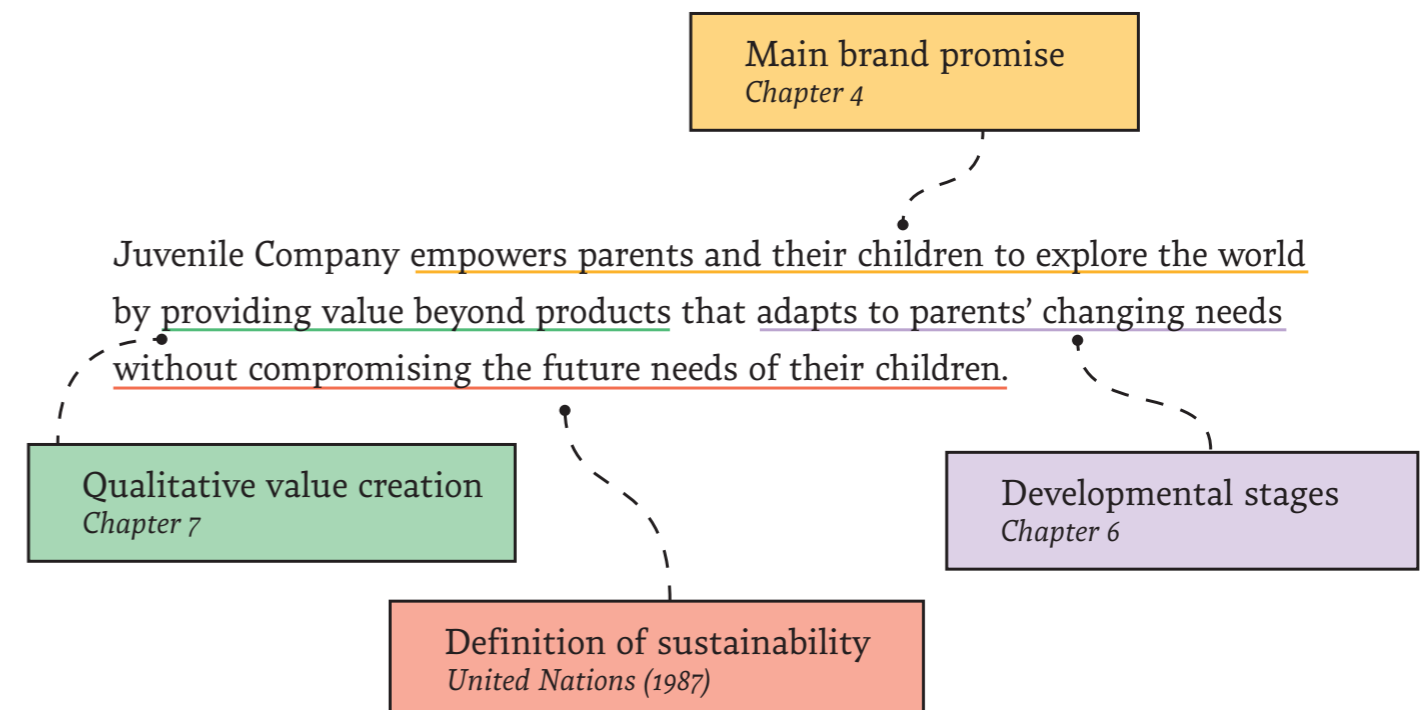
9. Concept

As we saw in chapter seven, one of the biggest barriers to Juvenile Company's sustainable future is their own past. Their current economic paradigm of revenue growth through product innovation is fundamentally incompatible with their goals to be a circular company. The design concept developed for Juvenile Company therefore presents the company an alternative paradigm, a glimpse into what the company's future relationships to its consumers and partners could and should look like. A future the company can aspire to and strive for.

Flex 2.0: Juvenile Company in 2035

Introduction

In 2035, Juvenile Company has taken responsibility and have become fully circular. This has made Juvenile Company a true industry pioneer: the first juvenile company to be climate positive. The company no longer just sells products to its customers, but it enters into long term relationships with parents. Juvenile Company actively aids parents in developing their children into curious little people by explicitly targeting their changing needs over the course of the early developmental stages. Individual stroller models have largely been phased out in favour of a new, fully modular product system. Strollers consist of different types of "modules" assembled into "configurations". Parents access personalised configurations based on their needs, enabling them to enjoy parenthood in their own way. If these needs change, they can easily swap one, two or even all of the modules in their configuration. To provide value beyond products, and to help parents and children further connect with the world, Juvenile Company has set up a community platform where parents are brought into contact with one another, facilitating shared learning.
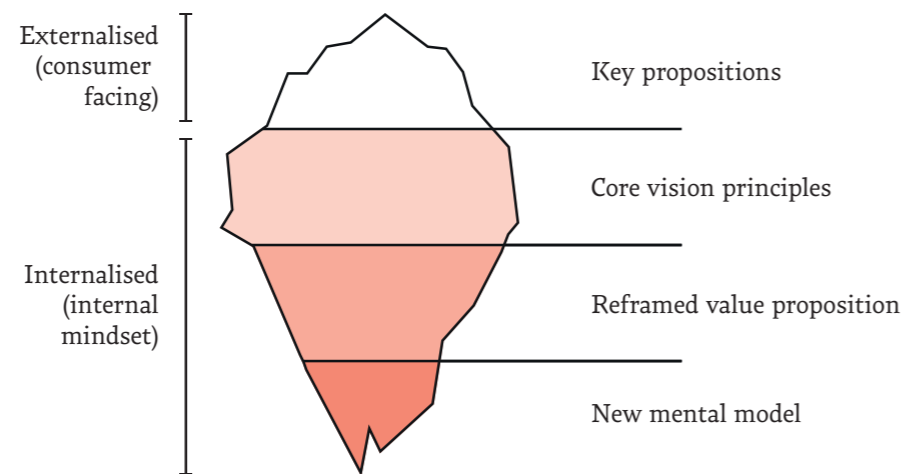
Figure 9.1: the Juvenile Company in 2035 strategy iceberg shows how the different concept elements build on each other.

> **"If a factory is torn down but the rationality which produced it is left standing, then that rationality will simply produce another factory."**
> *Robert Pirsig (1978)*

The strategy concept designed for Juvenile Company is built out of four layered elements (*new mental model, reframed value proposition, core vision principles* and *key interactions*), which are presented through two artefacts: a parent-Juvenile Company relationship journey map and a children's book. Where the children's book presents an alternative future through a tangible story of a young family, the relationship journey map presents a clear overview of interlinking and actionable value propositions. The point of this concept is not that these specific key interactions are the ones that Juvenile Company will need to implement. Instead the true value of this concept lies in helping create a new rationality, in helping Juvenile Company realise that creating new value beyond products is not only possible but necessary to reach their Push to Zero objectives.

New mental model & reframed value proposition
At the deepest level of the Juvenile Company in 2035 strategy iceberg, we find the new mental model "competitive advantage through qualitative innovation". As we saw in chapter seven, this new mental model is absolutely essential if Juvenile Company wants to become a circular company. So what type of qualitative innovation should Juvenile Company strive for? The key to realising this lies in the value proposition uncovered in chapter six. The changing value that's implicitly delivered by the stroller through its relationship with parents over the course of the three developmental stages serves as Juvenile Company's core value proposition. It's through these developmental stages that a stroller's value to parents and their children truly shines. Realising these phases exist and that parents need and value different things within these phases opens up the possibility to explicitly design for these different needs and for the transition between them. While the realisation that Juvenile Company can and should explicitly design for these three developmental

> *On business models*
>
> *Critically, Flex 2.0 was designed to be business model agnostic, meaning that the strategy could be implemented using a lease model, a buyback model, deposit model, a combination of the three or something else entirely. As long as a business model allows for access to ownership, it will fit the concept. This decision was made because calculating and reasoning which business model would perfectly fit such a strategy would take a thesis project on its own. Introducing an imperfect business model with this concept would only weaken the intention, as it would serve as an easy target to refute the entire idea.*

stages is valuable in itself, it does not give us any direction as to how they should actually do this. This is where the core vision principles come into play.

Core vision principles
The core vision principles describe how Juvenile Company can maximise the value it delivers to parents over the course of their relationship. The three vision principles are distinct and complementary. Each of them describes a different way through which Juvenile Company services should provide value to parents. The first focuses on explicitly delivering new qualitative value to cater to the different needs in each of the stages of the relationship. The second is about facilitating the transitions between the different stages of the relationship. The third is about providing a basis of support parents can rely on whenever they encounter any friction throughout the relationship. Together they form the basis of what Juvenile Company's relationship to its consumers should look like.

Key propositions
Spread over the three core vision principles and over the course of the relationship we find thirteen key propositions. These serve as key service propositions that illustrate different types of ways Juvenile Company could deliver value in spirit of the three core vision principles. The most important of these key propositions have been further illustrated to highlight their significance. Whether a service proposition was deemed more important was mostly down to how prominent the need for such a proposition was found to be through the research outlined in chapter six.

Principles and propositions on the relationship journey map

The following pages describe how the different core principles and key propositions interconnect over the course of the Flex 2.0 relationship. We do this by individually discussing each of the core vision principles and their corresponding key propositions. The visual below schematically explains how these principles interconnect in the greater relationship journey map.

Figure 9.2: Reframing the Juvenile Company value proposition from implicit to explicit delivery.
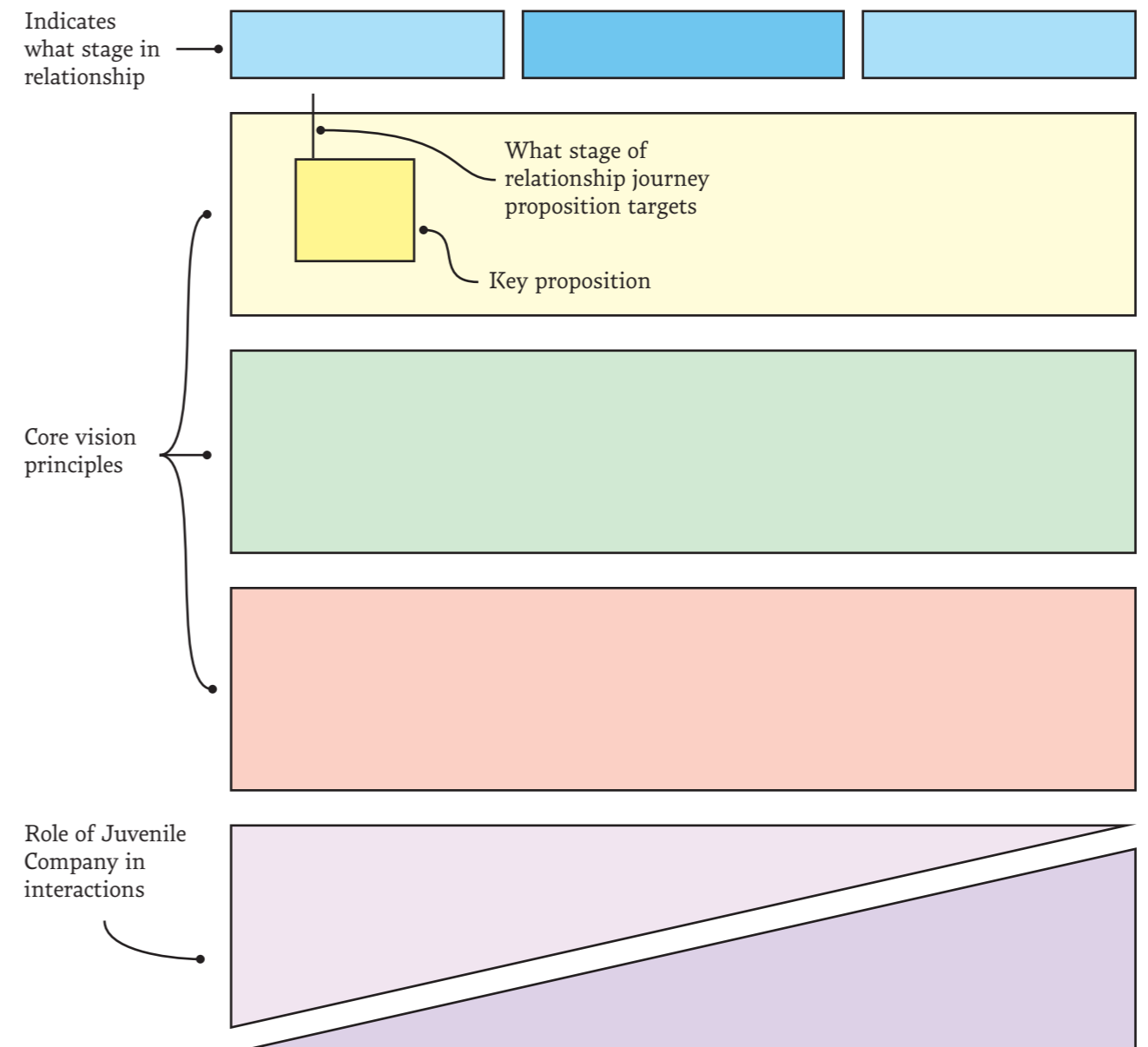
Figure 9.3: schematic overview of different elements in the relationship journey map

Parent-Juvenile Company relationship in 2035

An introduction to the relationship journey map

The Parent-Juvenile Company relationship covers nine distinct stages which can be classified into three phases: familiarisation, regular use and estrangement. These phases mirror the parent-stroller relationship as it is today. We'll use the relationship journey map framework to describe each of the core vision principles and key propositions in detail over the next pages.

Familiarisation describes the four stages in which a parent and Juvenile Company get to know one another. It starts when parents become aware of the existence of Juvenile Company, is followed by a commitment to the relationship, welcoming Juvenile Company into their lives and finally both parties getting to know each other. The Familiarisation phase is characterised by parents having conflicting feelings of excitement and at the same time being worried about what a new phase of parenthood will bring them.

The Regular Use phase is split into the three developmental stages described earlier: place of comfort, source of wonder and home away from home. These stages repeat when a new child is born or adopted and parents can even be in multiple stages at the same time depending on the time between each successive child.

The Estrangement phase describes the two stages in which parents and Juvenile Company drift apart and eventually break up. The growing apart stage here is especially significant, as the emergence of this phase is gradual and depends largely on the independence of a child. This stage is characterised by parents feeling on the one hand ready to move on but on the other hand not being sure if they are ready to break up just yet.

Source of wonder

Main need
"I need the ease of mind to know I don't have to watch my child constantly"

Main value
Peace of mind

Created for
Parent

Aware — Committing — Welcoming into life — Getting to know each other

Repeats for every new child

Place of comfort

Source of wonder — Home away from home

Growing apart — Separation

Familiarisation

Regular use split into distinct developmental stages

Estrangement

Juvenile Company leverages its expertise to provide the best possible match between parent and stroller	Juvenile Company facilitates the best possible sleep for children, allowing parents time to be themselves	Juvenile Company helps parents share their own wonder about the world with their children	J.C. helps parents foster their children's autonomy to explore and learn about the world by themselves	Juvenile company eases the break-up transition

Place of comfort

Main need
"I need the ease of mind to know I don't have to watch my child constantly"

Main value
Peace of mind

Created for
Parent

Home away from home

Main need
"I need the ease of mind to know I don't have to watch my child constantly"

Main value
Peace of mind

Created for
Parent

Core vision principles & key propositions

Value beyond products

To be able to keep a competitive edge, Juvenile Company will need to innovate, but to reach its Push to Zero goals Juvenile Company must do so without hardware innovation. This is where the core principle *Value beyond products* comes in: providing value to parents in novel ways that don't involve producing new products. To do this, Juvenile Company will need to identify the needs of parents unique to each stage in the relationship and capture value that satisfy these needs. The propositions below are the key propositions that provide parents new value beyond products, based on the needs identified in the research outlined in this thesis.

Aware | Committing | Welcoming into life | Getting to know each other

Repeats for every new child

Place of comfort | Source of wonder | Home away from home

Growing apart | Separation

Familiarisation

Regular use split into distinct developmental stages

Estrangement

| Juvenile Company leverages its expertise to provide the best possible match between parent and stroller | Juvenile Company facilitates the best possible sleep for children, allowing parents time to be themselves | Juvenile Company helps parents share their own wonder about the world with their children | J.C. helps parents foster their children's autonomy to explore and learn about the world by themselves | Juvenile company eases the break-up transition |

Connecting parents

Parents-to-be can get into contact with other parents to be in similar areas through the Juvenile Company community

Stroller history

Previous owners of a stroller module share meaningful memories and useful tips with the new owners, creating a sense of belonging to something bigger.

Shared learning

Through a Juvenile Company community platform parents share practical tips and recommendations for child-friendly activities.

Developing autonomy

J.C. membership bonuses and suggestions help children to explore and learn about different places, aiding in their development and their sense of autonomy (e.g. forest walks, trips to the zoo).

Value beyond products: key propositions

Adapting to changing needs

Parent's needs change over the course of the relationship, both over the course of the three developmental stages and through changes in a parent's context. The core principle *Adapting to changing needs* aims to facilitate these changes of needs as best as possible. The key propositions described below target several changes of needs found through the research. As these changes can occur at any time during the relationship, special care must be taken in the implementation of these service propositions to make sure parents have access to these services when needed.

Aware   Committing   Welcoming into life   Getting to know each other

Repeats for every new child

Place of comfort   **Source of wonder**   **Home away from home**

Growing apart   Separation

Familiarisation

Regular use split into distinct developmental stages

Estrangement

Juvenile Company leverages its expertise to provide the best possible match between parent and stroller

Juvenile Company facilitates the best possible sleep for children, allowing parents time to be themselves

Juvenile Company helps parents share their own wonder about the world with their children

J.C. helps parents foster their children's autonomy to explore and learn about the world by themselves

Juvenile company eases the break-up transition

Applicable through whole journey

Flexible modules

Parents can swap their stroller modules at any time, whether they're moving to a new city, bought a new car or simply when they made the wrong choice.

Module upgrades

Juvenile Company notifies parents when upgrades to their modules are available.

Prefab configurations

Parents can gain temporary access to prefab configurations when their needs change temporarily, i.e. when they go on vacation.

Temporary access

Juvenile Company facilitates temporary access to strollers for parents who need a stroller for a special occasion but not for daily use anymore, making the decision to return their stroller easier.

Adapting to changing needs: key propositions

Dependable guide

Throughout the relationship, parents might run into tensions or frustrations caused by factors such as lack of product knowledge or broken parts. This core principle describes the ways in which Juvenile Company must be of service to parents to alleviate these tensions and frustrations as much as possible. The two most critical propositions covered through this principle are the start and endpoints of the relationship between Juvenile Company and parents. At the start of the relationship, Juvenile Company and parents must co-create the

optimal configuration for their context. Doing this right will mean less friction between parent and stroller in use, meaning there's less service interactions between Juvenile Company and parents, meaning lower costs for the service itself. The separation is also important, as this can be very different for each parent, depending on their context. Some parents might want to get rid of the stroller configuration all together, some might want to keep the seating part for future children. It is critical that further research is done to understand the different needs in this stage.

Repeats for every new child

Aware · Committing · Welcoming into life · Getting to know each other

Place of comfort · Source of wonder · Home away from home

Growing apart · Separation

Familiarisation

Regular use split into distinct developmental stages

Estrangement

Juvenile Company leverages its expertise to provide the best possible match between parent and stroller

Juvenile Company facilitates the best possible sleep for children, allowing parents time to be themselves

Juvenile Company helps parents share their own wonder about the world with their children

J.C. helps parents foster their children's autonomy to explore and learn about the world by themselves

Juvenile company eases the break-up transition

Co-create optimal configuration

Using data, J.C. and parents co-create an optimal stroller configuration based on factors such as living environment, planned family size, etc.

Guided assembly

Juvenile Company guides parents through the assembly of their stroller configuration.

Proactive advice

Using data, Juvenile Company notifies parents ahead of time what changes in their child's development might mean for how they use their stroller modules.

Applicable through whole journey

Swift assistance

Juvenile Company helps parents whenever they run into trouble, be it broken parts, missing parts or something else.

Smooth returns

Where some parents might want to keep their stroller's seat for longer and return the chassis, others might want to return everything at the same time. Juvenile Company facilitates returns in the way parents want.
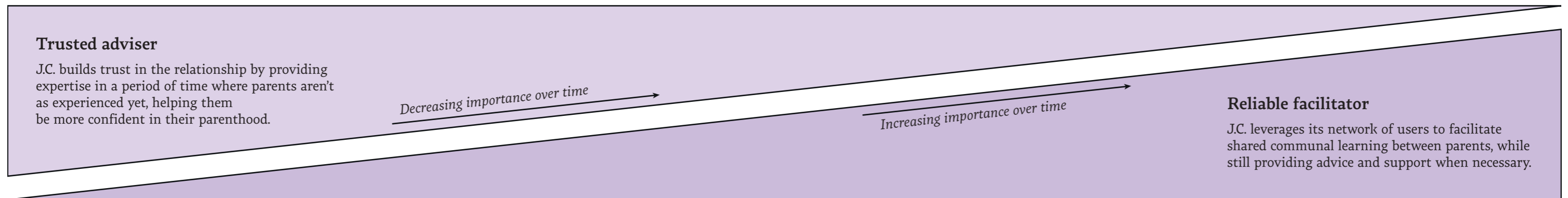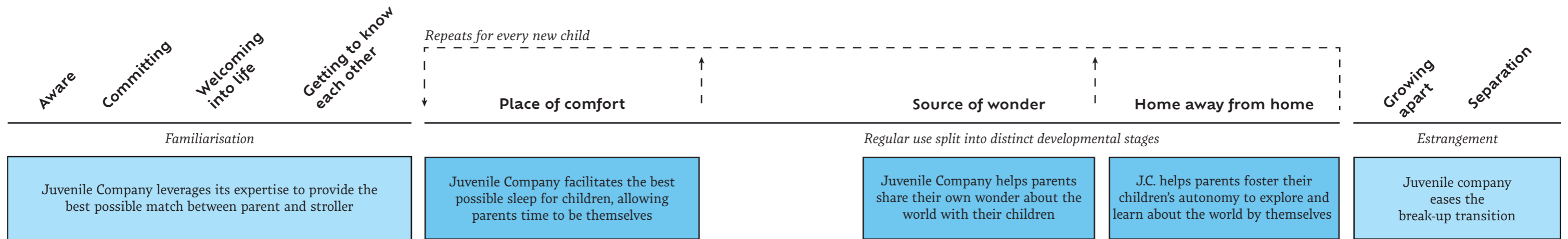
Role Juvenile Company in interactions

The importance of trust

Parent's top priority is the safety of their child. This means they are wary to give away control over the safety of their child. They look for signs that tell them they can trust something to give away control to. In the stroller relationship, these are physical characteristics such as reliability, stability and sturdiness. As the trust builds, parents feel more comfortable giving away control which is what we see happening with for example parents leaving their kids to sleep outside in the stroller. It is

hypothesised that this trust relationship between parent and stroller might not be as strong when modules are interchanged. The trust needed to unlock the value in later developmental stages must then be built in the relationship between Juvenile Company and parents. In the early phases of the relationship, parents might not have parenthood figured out yet. In these phases Juvenile Company should provide insight through their expertise. This builds trust and gives parents the confidence to grow in their role as parental figure. As this develops, parents don't need as much guidance anymore and so the role gradually shifts to one that is more supportive and facilitating. Further research is needed to confirm this hypothesis and deduce what this means for interactions between Juvenile Company and parents.

Repeats for every new child

| Aware | Committing | Welcoming into life | Getting to know each other | Place of comfort | Source of wonder | Home away from home | Growing apart | Separation |

Familiarisation   *Regular use split into distinct developmental stages*   *Estrangement*

Juvenile Company leverages its expertise to provide the best possible match between parent and stroller

Juvenile Company facilitates the best possible sleep for children, allowing parents time to be themselves

Juvenile Company helps parents share their own wonder about the world with their children

J.C. helps parents foster their children's autonomy to explore and learn about the world by themselves

Juvenile company eases the break-up transition

Trusted adviser

J.C. builds trust in the relationship by providing expertise in a period of time where parents aren't as experienced yet, helping them be more confident in their parenthood.

Decreasing importance over time

Increasing importance over time

Reliable facilitator

J.C. leverages its network of users to facilitate shared communal learning between parents, while still providing advice and support when necessary.
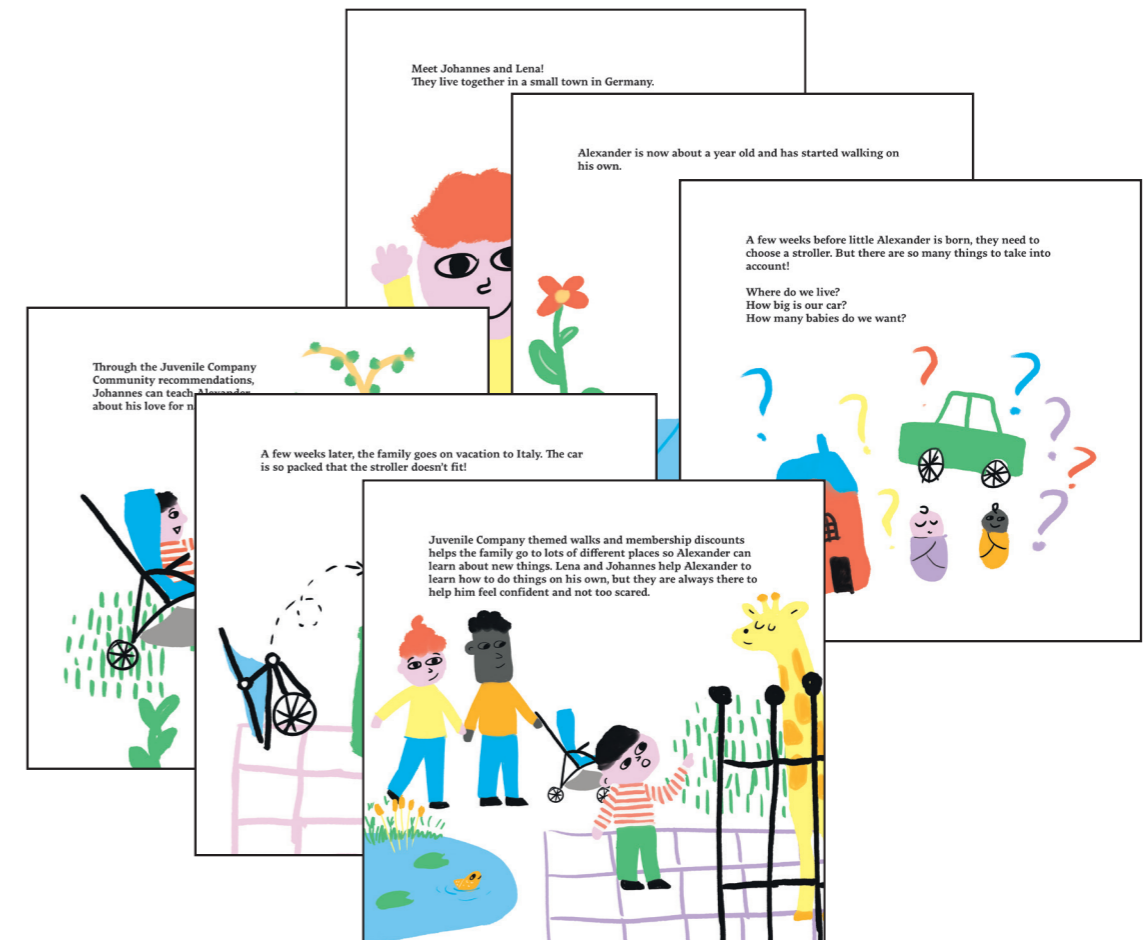
Concept
Artefacts

Parent-Juvenile Company relationship journey map

The Parent-Juvenile Company relationship journey map is an artefact designed to guide Juvenile Company's strategy and future innovation within Flex 2.0. It provides an overview of what stages should exist within the relationship as well as what value should be delivered over the course of the relationship.
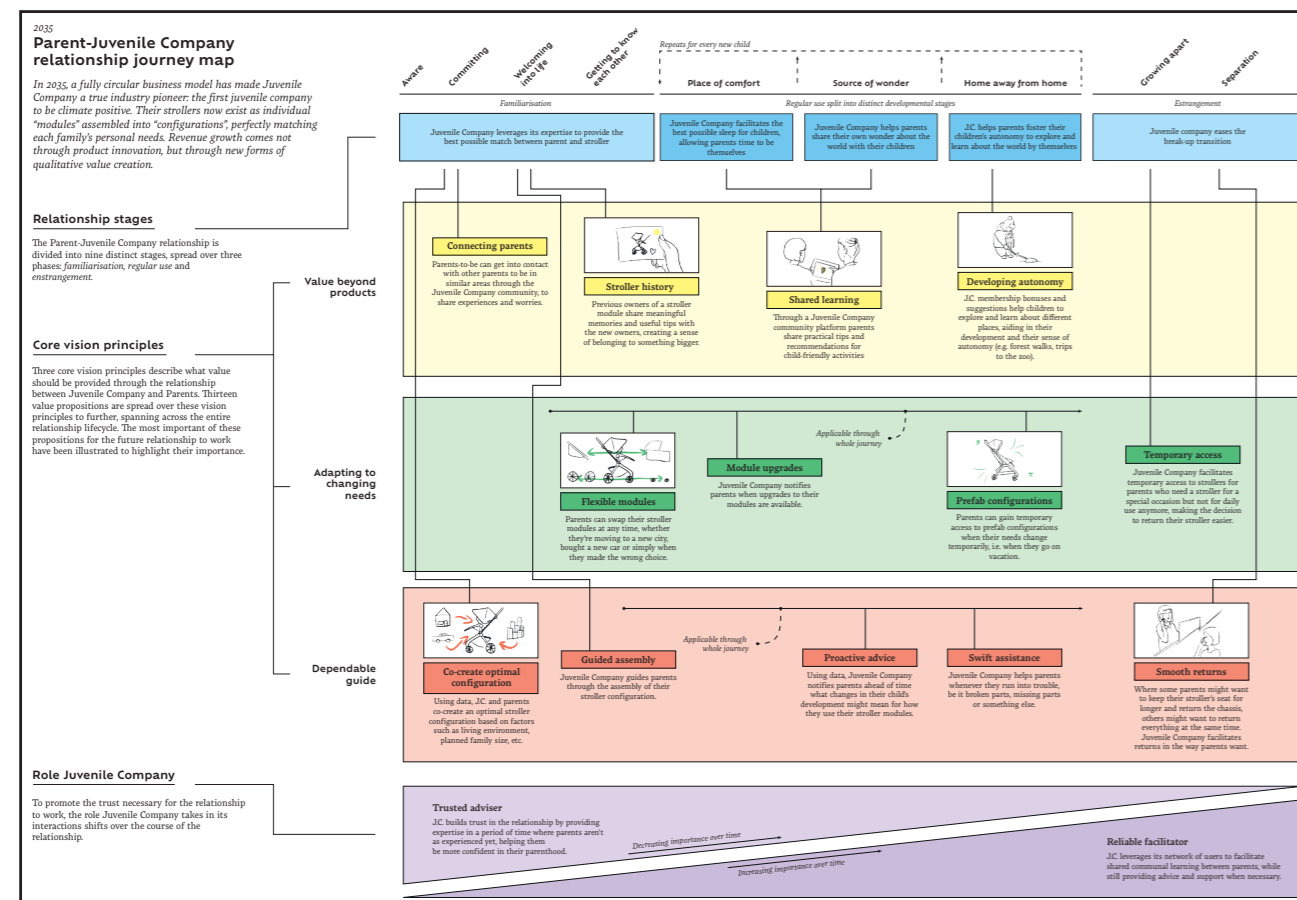
Children's book

The children's book is designed to disrupt the current mental model of product innovation within Juvenile Company. It invites the reader to imagine an alternative future in which Juvenile Company has become fully circular and delivers the services outlined in this chapter. By telling the story of a young family and their relationship to Juvenile Company in 2035, one is taken along the journey future parents might go through. I chose to tell this story in the form of a children's book not only because it fits the company's domain, but also because it would pique more interest than a research report with insights might. After all, who in their right mind concludes six months of research with a children's book? The children's book then functions as an accessible way for Juvenile Company stakeholders to interact with a possible future.

The role of retailers

Retailers are a crucial part of Juvenile Company's business, with most of the company's sales coming from retail channels. Juvenile Company makes the distinction between national retailers and independent retailers, national retailers being larger chains of stores while independent retailers aren't. In the current situation, Juvenile Company has two moments of sale, in March and September, in which retailers purchase stock to sell for the rest of the year. The design concept completely foregoes the traditional means of sales in favour of an access model. This means that Juvenile Company's current relationship to its retail partners is put under pressure. Completely letting go of their retail partners is not an option however, as a great chunk of the company's revenue is generated through its retail partners. Cutting them out would require a strategy shift that is unfeasible to pull off by 2035. The other option then, is to change the relationship between retailers and Juvenile Company.

In the current situation, retailers are of great value to prospective customers. They help parents make the right choice and provide an opportunity for them to try models from different brands. To facilitate this, Juvenile Company account managers spend time with retail partners to train them, to make sure their information is all up to date and their stores are equipped properly. In the future outlined by the concept direction, this becomes even more important. Retailers will act as an important channel to reach and support parents, essentially acting as the face of Juvenile Company. Relationship management from an account managers perspective then becomes less about selling things and more about actually managing the relationship: what do our retailers need? Where can we support them? What changes would they like to see to be able to work more effectively? This leverages the trust relationship that already exists between retailers and Juvenile Company account managers. In conversations with Juvenile Company account managers, it became apparent that retailers trust that account managers aren't just there to sell them whatever but actually look at what they need.

One way to bring Flex 2.0 alive is by treating retailers not as points of sale, but as points of service. Parents could and would use any retail store partnered with Juvenile Company to access

the possibility to swap modules, get advice from experts and loan prefab configurations. National retailers, with their bigger clientele and budgets, could then also act as repair points. National retailers would be more intensively and directly serviced by Juvenile Company distribution points spread across countries and continents, while independent retailers would work more closely together with national retailers, see figure 9.4.

One the benefits of this system would be that consumer activities necessary to close loops, such as rethink, reuse and repair, would be kept more localised and close to the consumer. This would drive down transport costs significantly, as not all consumers would have to be serviced from the same central point. As it stands, transport costs are one of the biggest cost drivers of Juvenile Company's early forays into lease models so the company could stand to benefit a lot from this system.

It's impossible to judge the feasibility of such a relationship-based system on the research outlined in this thesis, but it is a thought provoking idea nonetheless. Could it really be possible to move beyond a system based on cut throat competition to one based on mutual value creation through working together?
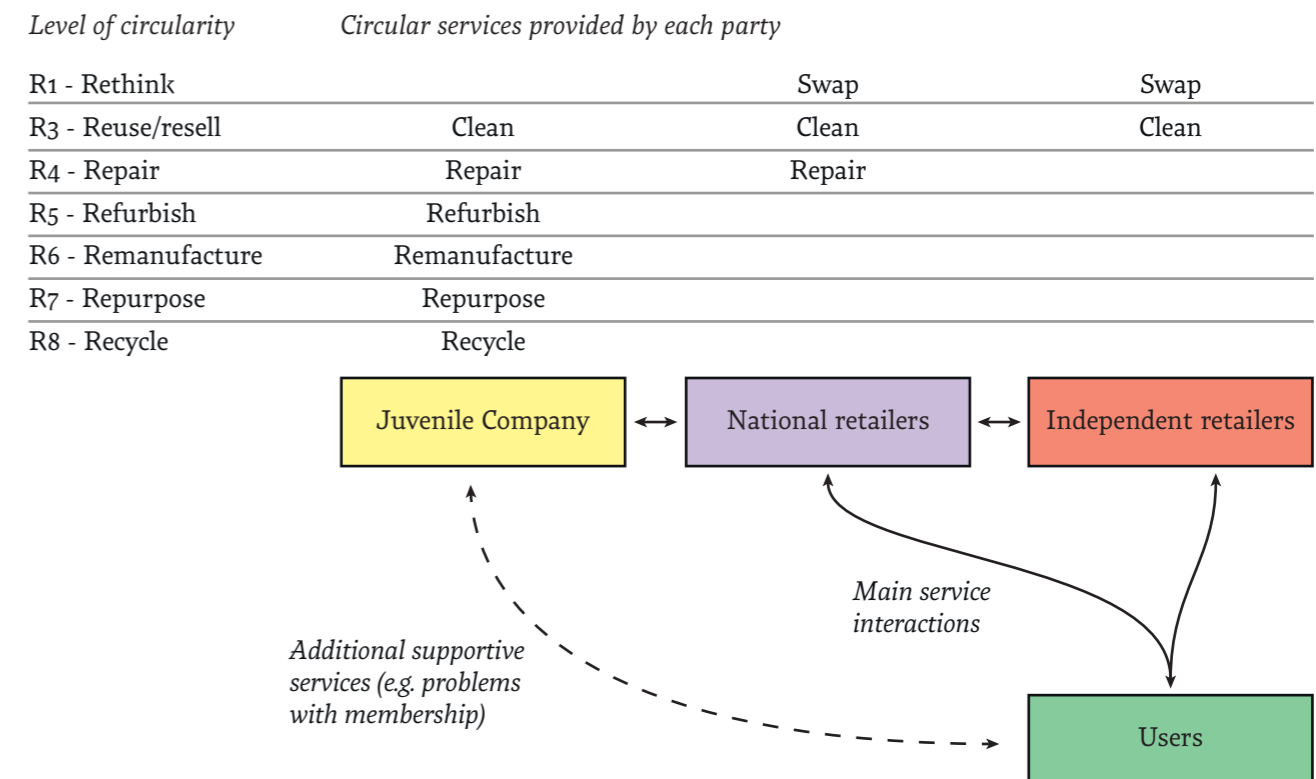
Level of circularity	*Circular services provided by each party*		
R1 - Rethink		Swap	Swap
R3 - Reuse/resell	Clean	Clean	Clean
R4 - Repair	Repair	Repair	
R5 - Refurbish	Refurbish		
R6 - Remanufacture	Remanufacture		
R7 - Repurpose	Repurpose		
R8 - Recycle	Recycle		

Figure 9.4: Some of the circular services provided by the different parties in the ecosystem

Changing relationships to explore further

Flex 2.0 does not only have consequences for the role retailers should play, but also for many other relationships between actors in the ecosystem. Disrupting the status quo creates tensions in current relationships, leading to these relationships needing to change or necessitates the creation of new relationships. Based on the research outlined in this thesis, we can predict some of the relationships that will be directly or indirectly affected by introducing the design concept covered in this chapter. These predictions as well as the reasoning behind each can serve as a foundation upon which further research can be launched in order to guide Juvenile Company's further innovation programme. This section will therefore dive further into what
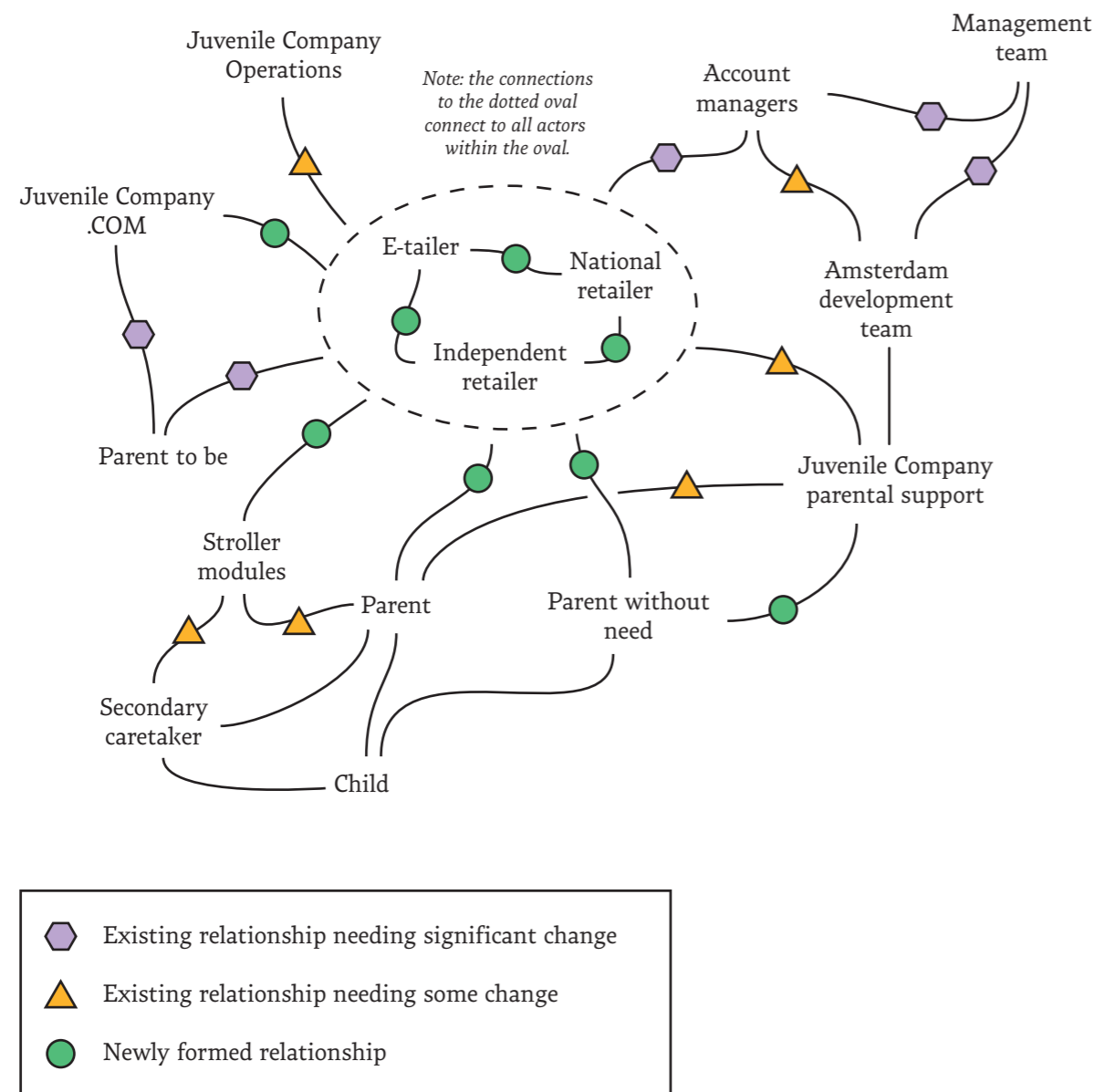
tensions are expected in relationships needing significant change and the reasoning behind why certain new relationships are needed.

Relationships needing significant change
Parent to be - physical retailers (national & independent retailer)
Currently, the relationship between these two actors is characterised by a linear sales relationship. Retailers have a clear incentive to prefer a single interaction with a *Parent to be* in which they sell them as much as possible. In a preferred future scenario, retailers would be the first representative of Juvenile Company a *Parent to be* would come into contact with. They should provide a parent to be with unbiased information drawing from their extensive expertise to make sure their needs are met as much as possible.

Parent to be - Online retailers (Juvenile Company .com and e-tailers)
Similar to physical retailers, online retailers will need to forego their current sales incentives to instead focus on cultivating a position of trust and expertise. The main difference between the online retail channels and their physical counterparts lies in the interaction with a parent to be. Online retailers should aim to deliver similar value in a different service format due to the non-physical nature of its interactions with a parent to be.

Account managers - Retailers (both physical and online)
As mentioned in the previous section on the role of retailers, account managers and retailers are currently engaged in a unilateral relationship. Relationship managements activities undertaken by account managers are mainly used to drive sales in the next bi-yearly sales opportunity. The relationship should instead be driven by a bilateral cooperation, where both sides have the end goal of better servicing current and prospective customers.

Account managers - Management team
Building on the changing relationship between account managers and retailers, the relationship between account managers and the management team should also change. Currently, account managers have KPI's driven by sales targets. Each region has its own specific targets they must meet, but they're all centred around linearly selling a certain amount of products. These KPI's should instead measure the success of account managers' ability to succesfully manage the relationship between account managers and the retail partners in their portfolio.

Amsterdam development team - management team
Similar to the relationship between the management team and account managers, the relationship between Amsterdam development team and management team is currently characterised by KPI's driven by a short term linear sales mindset, centred around the development of cost efficient products. In the future scenario envisioned by the design concept, the most important KPI for the Amsterdam development team is still based around cost efficiency, but not in the sense of initial development cost. Instead, cost efficiency is measured in the long term, along the lines of product longevity. The longer a particular stroller module lasts, the longer it can retain its value, meaning it will generate more revenue over its lifetime. Additionally, this feeds into the company's sustainability goals.

New relationships
Retailers - retailers (both physical and online)
One of the most important new relationships is one between retailers and other retailers. Currently, these retailers are engaged in a competitive struggle for sales from a limited pool of prospective customers. The strength of the design concept developed for Juvenile Company lies in its flexibility. It should be in their best interest to service the customer as best as possible, which in the future envisioned by the design concept would mean functioning as a network of service providers. To fully realise this, retailers should be incentivised not to compete but to work together, constantly sharing not just physical resources but also knowledge.

Stroller modules - retailers
Currently, strollers and retailers don't have much of a relationship to speak of. Retailers have an incentive to sell as many as possible and have no further reason to be engaged with the strollers ever again. In the future envisioned by the design concept, retailers should nurture and care for the stroller modules to the best of their ability to make sure they can be used as much as possible before reaching the end of their lifetime.

Parent without need - Juvenile Company parental support
There is currently no incentive for Juvenile Company parental support to engage with a parent without need, as their commercial value has already been depleted. In the future envisioned by the design concept, this would be one of the most crucial relationships. It is through this relationship that the circular loop is succesfully closed.

Validation & further research recommendations

Validation: focus group

To evaluate the desirability of Flex 2.0, a focus group was conducted with a select group of young parents. This focus group consisted of two main activities: explanation and discussion. In the explanation phase, participants were taken along the journey of a parent engaged in the proposed future relationship with Juvenile Company and asked to imagine as if it were them in that position. This was done by telling the story outlined in the children's book deliverable. Then, in the format of a semi-structured group discussion, participants were asked to give their opinion on the design concept. This resulted in some feedback that can guide the implementation of the key propositions outlined in the design concept.

Results
The focus group results can be broadly classified into three categories: positive aspects, points of attention and suggestions. These are presented here.

Positive aspects
Overall, the concept was evaluated positively by the participants. One of the aspects of the concept that was especially appreciated was the flexibility to trade in modules when needs change. One participant noted that when her second child was born, her first child was almost at the age where they didn't need a stroller anymore. Now they had to lease a secondary stroller from Juvenile Company to facilitate those weeks, which was seen as a hassle. Another mentioned they appreciated how the concept allows for parents to make mistakes. They mentioned that when they bought a stroller, they bought a lot of stuff they thought they would need but never actually ended up using. The flexibility afforded by the design concept would mean that this is no longer the case as one could just access additional products when needed. Additionally, participants noted that this would take away a lot of the stress currently associated with buying a stroller. As it is such a big investment, parents are wary of making mistakes and have to carefully consider all options when making a purchase, causing stress. The design concept would alleviate much of this.

Points of attention
Participants noted that while the idea of a Juvenile Company

community seemed interesting, it would not be the main reason for them to buy into such a service system. It was seen more as a nice-to-have. A community-like platform would be of more value if it were to encompass more than just interactions related to strollers and outside exploration, as many more important factors than that play a role in the life of young parents. Additionally, the role of Juvenile Company as an expert would need to be tailored quite finely to the needs of consumers. Participants noted that, though valuable, the idea of a company having commercial interests in you making a certain decision undermines how much they trust recommendations made in such a context.

Suggestions
Some suggestions to improve the design concept were:

> The participants would like the guidance during transition phases between developmental stages to be even more explicit, specifically tailored to the type of module a parent has.
>
> Participants would like the option to pass on their stroller modules or their membership to friends.
>
> Participants noted that secondary caretakers, such as grandparents, would like to have access to a stroller at times as well. This could be facilitated through something along the lines of a partial membership.
>
> The sustainability and circularity aspect would be a big reason for the participants to buy into this system, so they would like to see that highlighted more.

Discussion

Due to time constraints, participants were sampled from within Livework. This resulted in quite a small sample size of three due to cancellations and a heavy bias towards designers. The results are therefore not representative for the greater target group of Juvenile Company. Additionally, participants were asked to imagine a relationship consisting of many different services and touchpoints over multiple years. What these services and touchpoints actually look like will vary significantly depending on how the key propositions are actually implemented. As such, the focus group results are primarily interesting as avenues to explore in further development of the design concept.

Recommendations: first steps into the future

Juvenile Company is in a position where it can make steady steps into the future outlined in this chapter. Flex 2.0 is firmly rooted in the foundations built by internal design initiaves to create more modular strollers, as well as the company's fledgling leasing programmes. An opportunity arises to build the desired future from these foundations. As a modular stroller platform is still a few years away, the first steps into a circular Juvenile Company future should be taken on the service side of the equation.

As it stands, the leasing programmes Juvenile Company has built up offer little extra value beyond a different way of accessing the same products one would normally buy. The company should therefore first focus on developing new service propositions that create distinct value when compared to a linear sales relationship. Further research should be done to determine which of the key propositions proposed in this chapter can be considered low hanging fruit and make steps to develop these. The company currently does not employ any service designers, so they should therefore opt to partner up with a service design agency to develop service propositions and build their service delivery capabilities. Additionally, the company should start working on upskilling their product oriented designers to develop their service design capabilities. In this intermittent phase the company can test different business
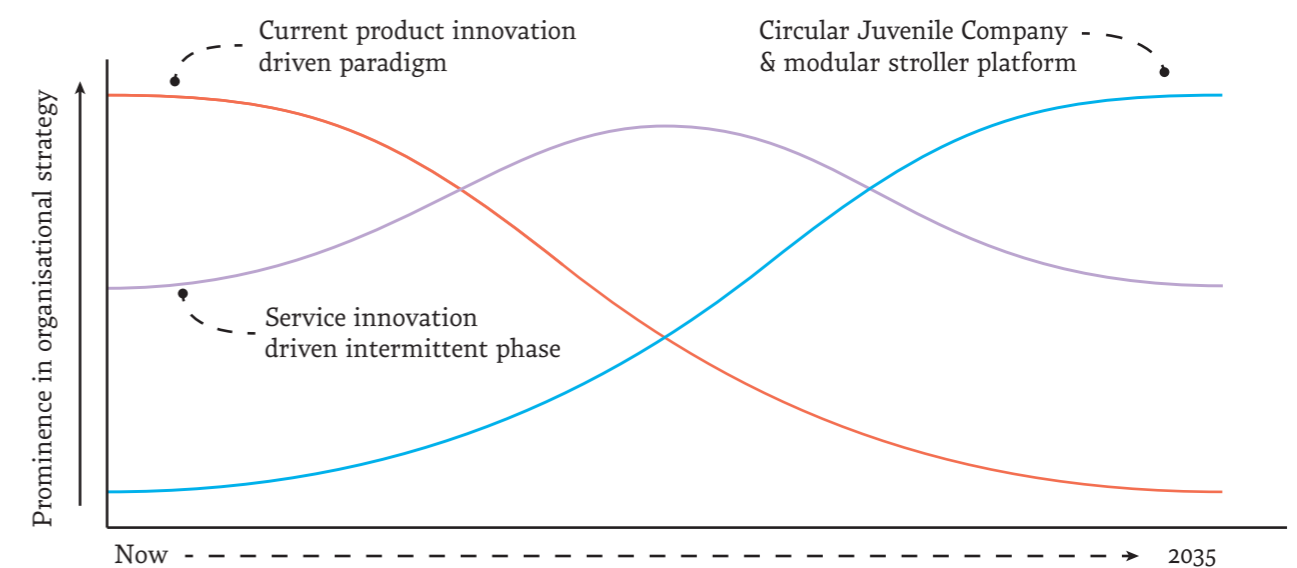

Figure 9.5: An intermittent phase driven by service innovation will help Juvenile Company transition towards a circular future.

models to see which works best, before scaling to a full size operation while slowly phasing out a linear sales model.

Recommendations: verification and deepening

Further research should be done to verify and further build on the research outlined in this thesis. Due to the sampling methods used as well as the research objective, results are skewed towards Western European cultural sensibilities, which tend to lean more progressive and liberal. It would be interesting to discover if the developmental stages discovered in this thesis are indeed a universal parental truth as hypothesised. These developmental stages form the basis for the design concept, so if the value derived during these stages is drastically different across cultures this could also have implications for which key propositions should be developed.

Recommendations: second-hand sales platforms

In conversations with Juvenile Company employees, it became quite clear from the onset of this project that second-hand sales serve an interesting role within the ecosystem. Due to the strollers' long lifetime, they are often given a second or even third life through these second-hand platforms. This is an interesting problem in the current state of the system. Second-hand platforms drive sales away from Juvenile Company, while actually being beneficial to the company's net zero goals. However, it is hypothesised that these platforms are counter productive for the company's circularity goals in the long run as the company loses track of where these strollers are and they ultimately can't be recycled. Though not explicitly mentioned before, the qualitative research seemed to indicate that a major reason for parents to opt for selling their stroller on a second-hand platform is that it's a way for them to recoup some of its value. One would assume this would no longer be necessary in a future where parents are incentivised to return stroller modules, but it would be interesting to see if this is actually case. And if it isn't the case, to conduct further research into what role second-hand platforms could play in Juvenile Company reaching its circularity objectives in the near future.

Recommendations: psychology of ownership

Though the psychology of ownership was not a factor that came up during the qualitative research with parents during this thesis, one would expect this to make a big impact on the

potential desirability of a future implementation of the design concept. Research has shown that ownership provides certain psychological benefits that would not be present in the case of an access model (Murphy, n.d.). Western cultures, for example, have been in some shape or form been driven by an aspiration towards ownership. Even in ancient Greece, Artistotle believed citizens could not be productive members of society if they were not driven by the desire to own things (Murphy, n.d.). It would be interesting to further explore whether current leasing customers have a different view of the benefits of ownership when compared to "normal" customers. Perhaps Juvenile Company could learn more about the viability of certain business models rooted in access models through such research.

Concept
Final conclusion and Juvenile Company project limitations

On roads taken

This project started from the question "how can Juvenile Company transition towards net zero by 2035?". This question was prompted by the company's ambitious sustainability goals: Push to Zero. The Push to Zero strategy aims to make Juvenile Company net zero by 2035, with minimal carbon offsetting. Subproblems related to this aim were formulated as such: what will ownership need to look like if Juvenile Company is to transition towards net zero? What effect will this have on its relationship to its consumers and partners? What internal and external barriers need to be overcome? What steps will the company need to take to reach this desired future? In further analysis of the Push to Zero goals we discovered two key insights. For one, to become net zero, Juvenile Company will need to adopt a circular business model. Additionally, the Push to Zero strategy is not actually a strategy, but rather an ambition of things we don't want to happen. This means that the company lacks an actual desired state it should move towards, which will complicate their transition.

By analysing the company's ecosystem, we found that the key to what ownership needs to look like lies in the value parents and strollers derive from their mutual relationship. Though many different types of value are derived during different points in the relationship, most interesting was the pattern of value creation that followed the developmental stages of early childhood. It was found that the relationship between parents and strollers

produces value in three key stages: a place of comfort, a source of wonder and a home away from home. Over the course of the relationship, parents have distinct needs that seem to change with these developmental stages. The value that is intrinsically provided by the stroller to meet these needs were found to be the product's primary value proposition. This key insight was used as input for further design activities.

At the same time, we found an internal barrier in the form of a tension between the company's culture of product innovation and their aims to be circular. This seemed problematic, as one of the company's main strengths lies in their new product development. Through further analysis, we found that revenue growth through product innovation is fundamentally incompatible with the company's Push to Zero aims. Additionally, we discovered that while product innovation and circularity are at odds, qualitative value creation in the form of service innovation is not. It was therefore concluded that Juvenile Company is to innovate through qualitative value creation if it is to be a truly sustainable company while keeping competitive relevance.

From this we derived a vision statement of what the company's desired state will need to look like if it is to transition towards circularity by 2035. This solved the main issue with the company's current Push to Zero strategy: a lack of vision. This vision statement is the following: "Juvenile Company empowers parents and their children to explore the world by providing value beyond products that adapts to parents' changing needs without compromising the future needs of their children."

Taking all of these ingredients, we arrive at the strategy direction developed for Juvenile Company: Flex 2.0. Building on both its fledgling lease programmes as well as internal projects focused on developing modular strollers, Flex 2.0 imagines a future in which Juvenile Company enters into a long term relationship with parents to help develop their children into curious people. This strategy is built up from four different elements: an underlying mental model based on qualitative value innovation, a reframed value proposition based on the identified developmental stages, three core vision principles which should be the basis of future innovation, and thirteen key propositions that serve as an illustration of these principles. This design concept serves not only as a possible strategy to pursue, but more importantly also as an artefact that makes an alternative paradigm not just tangible but something to actively pursue. Two key deliverables were developed to help further this sense

of tangibility: a relationship journey map and a children's book. Where the relationship map serves to clarify the interrelations between core principles, key propositions and relationship stages, the children's book serves as an artefact to inspire internal organisational stakeholders. This strategy concept describes what ownership will need to look like, what effect this will have on partner and consumer relationships, describes barriers towards this future state and illustrates the next steps Juvenile Company will have to take on its path to circularity. The strategy concept therefore forms a concrete idea of how Juvenile Company can transition towards circularity.

Limitations: this has only just begun

Though not as much a limitation to this specific project, as it is a limitation to consultancy-based work for sustainability transitions: this has only just begun. Literature points to the unfortunate truth that, while devising strategy to deal with complex problems is one thing, actually doing the work that comes after this project is much harder still (Norman & Stappers, 2015). Dealing with complexity does not just mean setting sail for a destination and then navigating there in a straight line. Instead, one must prepare for the rowdy sea and deal with the waves as they come crashing on deck. Though the strategy concept leaves room for multiple interpretations as the future unfolds, a lack of actual ways to deal with this uncertainty embedded into the strategy is a flaw. Literature does point to a way that can deal with this however. A key term used by Norman and Stappers (2015) is that of "muddling through": the operations don't have to be perfect, they just need to point towards the end goal and be good enough. To think that a single thesis project could deal with these implementation difficulties would be either naive or arrogant, but it still remains a flaw to the work done.

Limitations: sustainability as a non-factor

Early on in the project, I made the conscious decision to leave out sustainability as a factor as much as possible in my research. This might seem ridiculous when we consider that this project is focused on helping an organisation transition towards a more sustainable future, but I genuinely believe that sustainability should be like the bedrock which all other value creation activities sit on top of. Oat milk should be an alternative to cow's milk not because it's sustainable, but because it's tastier

/ cheaper / healthier / etc. And also it's more sustainable. To give a concrete example from the project, sustainability was not taken into account during the qualitative interviews as a topic of research. This was partly because the current relationship does not have a sustainability component, but also because I believe value creation in this future relationship should be inherently sustainable. The value created in the relationship should be valuable in itself, and also be sustainable. The value should not be created through its sustainability. Later on in the project, I realised that while this might be a nice ideal to strive for, not everyone actually thinks like this and including a sustainability component throughout this sort of research might have helped create extra opportunities for value creation, avenues for further stakeholder buy-in or input for a marketing plan.

Limitations: the politics of design

In a similar vein, another limitation arises from the inherent political nature of design. Designers like to think that design is inherently apolitical, some might even go so far as to say that design always serves the greater good. However, the uncomfortable truth is that a design is always a reflection of the ways of thinking of a certain group of people, informed by the greater cultural structures in which these people live. We must therefore acknowledge that much of the ideas underpinning the design concepts have been shaped through an inherently political vessel, which is me, with certain ideas about how certain things should work. The interpretations and conclusions drawn from the research leading to the design strategy concept are therefore biassed towards my cultural upbringing and political beliefs.

10. Systemic insight

As we return from our journey, we are left with answering the question this thesis was prompted by: "how can Livework designers use systemic design in sustainability transition projects?". Combining everything we've learned about systemic design from theory as well as practice, we gain insights in two different categories: the knowledge gap that designers must cross and implications and opportunities for how Livework approaches design projects.

Knowledge gap between service and systemic design

Three categories of knowledge gaps

The knowledge gap Livework designers untrained in the methodology of systemic design will experience, can be classified into three categories: Comprehension, Ability and Understanding. These three categories of knowledge build on one another and increase in level of abstraction, see figure 10.1. Depending on the role a Livework designer plays in a design project, it becomes more important to grasp all three levels of knowledge.

Comprehension
The Comprehension category consists of explicit knowledge, a type of knowledge that's easy to articulate and share (Hill, 2018). The knowledge in this category is what's needed to understand what systems are and how they work. This is essential to be able
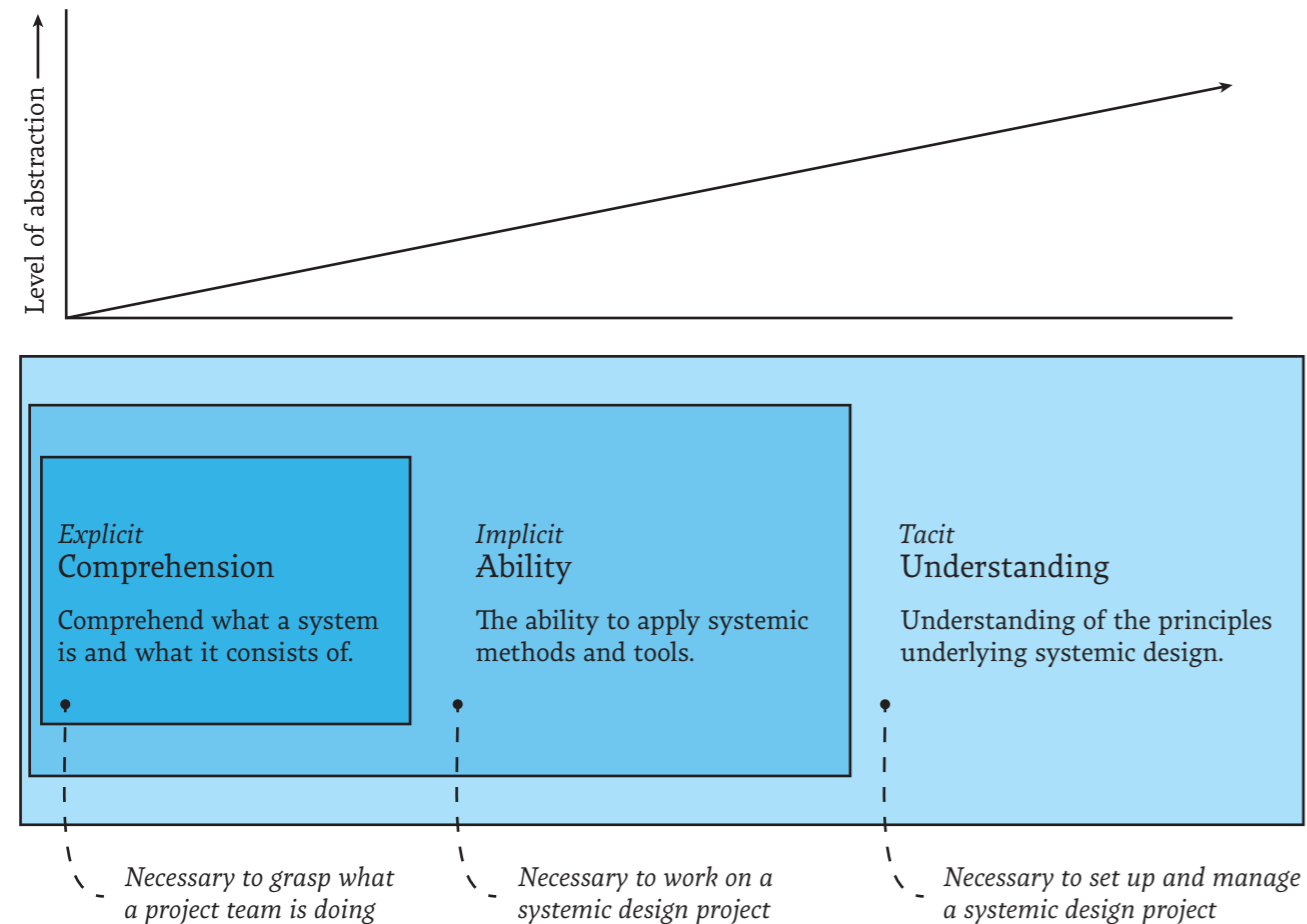
to understand what a design team working on an ecosystemic project is doing and why, as well as to sell an ecosystemic project to prospective clients. This first level of the knowledge gap is relatively easy to cross, through the form of a workshop or lecture.

Ability
The Ability category consists of implicit knowledge, a type of knowledge characterised by the application of explicit knowledge (Hill, 2018). It covers the ability one should have to apply systemic design methods and tools in a design project. Crossing this gap is essential to be able to work on and support a systemic design project. This second level of the knowledge gap is more difficult to overcome. Designers should be familiarised with the tools and methods used throughout a systemic design project and have the opportunity to practise these tools in a project.

Understanding
The Understanding category consists of tacit knowledge, a type of knowledge that's gained through personal experience (Hill, 2018). This category describes the fundamental understanding one must have of systemic design principles as well as an eco-centric mindset. This is essential to be able to successfully set up and manage a systemic design project. The last level of knowledge is most difficult to attain, as it can only be reached by internalising the principles and thinking underlying systemic design. This, presumably, requires extensive experience with systemic design practice.

Closing the gap

Now that we have identified where the knowledge gap might lie, we can start to figure out how to help Livework designers close it. The gap in Comprehension can be closed by familiarising Livework designers with the concept of systems and designing for systems. One way to do this effectively is through a workshop or masterclass, in which Livework designers are explained the concepts behind systems. The masterclass format that has already been developed by some Livework designers more familiar with systemic design and that I had the opportunity to attend in the early stages of this project would be a perfect fit. The gap in Ability is more difficult to close, as designers will need to get some practical experience under their belt to further familiarise themselves with how to apply the tools and methods used in systemic design projects. In the next section we cover some of the practical findings derived through this project that might help Livework designers get started

Level of abstraction

Explicit Comprehension Comprehend what a system is and what it consists of.	*Implicit* Ability The ability to apply systemic methods and tools.	*Tacit* Understanding Understanding of the principles underlying systemic design.

Necessary to grasp what a project team is doing   *Necessary to work on a systemic design project*   *Necessary to set up and manage a systemic design project*

Figure 10.1: the abstraction levels of systemic knowledge

with the tools and methods used in systemic design. Lastly, we have the gap in Understanding. This one is difficult to cover, as I myself don't feel like this project was enough to fully grasp and internalise systemic design thinking. The biggest difference in Understanding between service design and systemic design lies in adopting an ecocentric lens. Later on in this chapter we'll cover some insights that might be helpful for adopting an ecocentric lens, as well as key systemic design principles.

Ability

As mentioned in chapter three, systemic design is essentially a happy marriage between analytical systems thinking and practical design thinking. Taking a look back at a graphic we saw earlier in chapter three, figure 10.2, we see that the different stages of a systemic design project are either more rooted in systems thinking with a dash of design thinking or more rooted in design thinking with a zest of systems thinking. This means that for Livework designers working on a systemic design project, there's always going to be some familiarity in the unfamiliar and some unfamiliarity in the familiar. In practice this means that we can make a distinction between more analytical systemic activities which will be more difficult to adapt to and more practical designerly activities which will be easier to adapt to. We'll address these by reflecting back on the design activities undertaken throughout this project, to understand the goals of each of these activities and how this goal might be reached. Drawing from my own experience as a service designer attempting systemic design for the first time, we'll get a better understanding of what Livework designers might struggle with and what might help.

Systems thinking
infused with design thinking
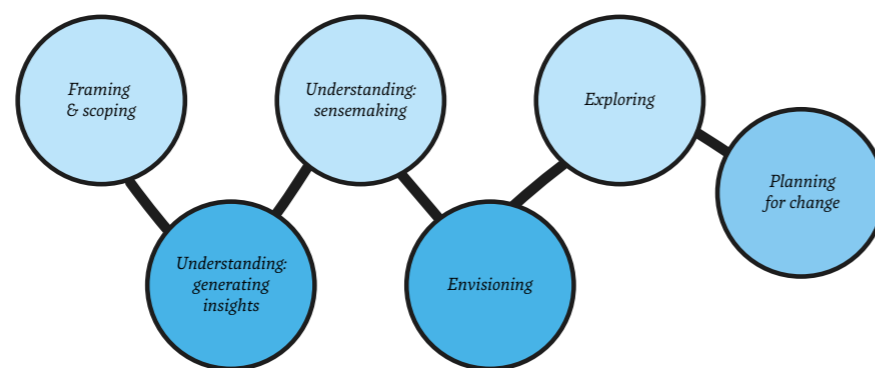
Design thinking
infused with systems thinking

Figure 10.2: The different stages are either more designerly or more systemic (adapted from Van Ael, K (2020).

Framing: Actor mapping
Systemic thinking infused with design thinking

Right off the bat we start with an activity that might be quite uncomfortable for Livework designers. The goal of the actor mapping activity is to understand what the system of interest looks like, to identify what actors might be critical for a future design intervention and to understand what relationships might be interesting to explore in further research. The actor mapping activity is the first time a designer is asked to explore a problem area with an ecocentric lens rather than a human centred lens. For me personally this was quite an uncomfortable experience, as one is tasked with exploring an unfamiliar problem area with unfamiliar tools. Because of the way I set up the actor mapping phase in my project, through 3 distinct sessions with system stakeholders, I put pressure on myself to derive a perfect actor map from these sessions, which further increased my discomfort with the process.

Two important insights helped me to become more comfortable with the actor mapping process. First was the realisation that the way you structure your actor map doesn't really matter, as long as it makes sense to you. Due to my initial unfamiliarity with systemic tools and methods, I religiously stuck to the actor mapping method as described by Jones and Van Ael (2022). While it was certainly a good starting point to understand how actor mapping works, forcing my thinking into the format provided by this book only made the process more uncomfortable for me. This also leads us into the second major insight: the realisation that an actor map is not an objective in itself, but rather a tool to map and inform further research. This means the actor map doesn't have to be a perfect representation of the system, it just needs to be good enough to discover further research gaps and possible opportunity areas for future research. My advice to Livework designers would then be to not do distinct actor mapping sessions with system stakeholders like I did. Instead, I hypothesise that the most resource efficient way to construct an actor map is to do a quick and dirty session with client stakeholders to form a crude map, identify interesting system stakeholders to talk to and then use the input from conversations with those stakeholders to further increase your understanding of both the systemic problematique as well as the actor map.

Suggested approach
1. Quick and dirty actor mapping session with core team. Generate actors and draw relationships between these actors.

Identify interesting actors to talk to in order to better your understanding of the system.

2. Quick and dirty interviews with stakeholders. Try to get a crude understanding of their experience living / working in the system and identify which actors they interact with, why they interact with these actors and what value is exchanged in these relationships.

3. Update your actor map with the new insights, identify possible new stakeholders to talk to. Repeat steps two and three until a clear representation of the most important actors and their relationships is formed.

4. Identify actors or relationships to explore in more depth. These could be actors that have a disproportionate amount of power, actors that stand to gain or lose from changing the current system or actors that are particularly systemic.

Organising the actor mapping process in such a way would be more resource efficient as the team better understands the system in the process of mapping it, leading to high quality understanding of the system's problematique. It would also lead to more new insight for client stakeholders engaged with the process, in comparison to the method I employed in which stakeholders primarily relay information already known to them. This could be critical to retain stakeholder buy-in.

Framing: Rich context workshop
Systemic thinking infused with design thinking

The rich context workshop is a way to better understand what institutional structures inform the system's behaviour. The goal of this is to better understand how the system to be examined deals with and responds to long term trends through co-creation with system stakeholders. An added benefit of this is that the workshop, in line with the theory on reflexivity and reformation discussed in chapter three, helps participants realise what institutional structures inform a system's behaviour and, more importantly, that these institutional structures can be changed if necessary. The workshop is structured around dissecting organisational and ecosystemic challenges, as discussed in chapter five.

A difficulty I personally experienced when conducting this workshop was how difficult it can be to pull participants out of their organisational bubble. This might have been partly due

to the fact that I sourced participants exclusively from within Juvenile Company. I hypothesise that this will be less of a problem when stakeholders from different organisations within the ecosystem are asked to participate in the workshop, leading to a more open and fruitful discussion. Additionally, participants noted that the workshop was quite open ended and felt unresolved. Seeing as participants invest precious time into the workshop this is to be avoided, lest we lose buy-in from critical stakeholders. A suggestion to try for future iterations of this or similar workshops is to engage participants in the me to we to world and back again process (Jones & Lundebye, 2012). Through this process, participants are first asked to engage with their own challenges, which are then discussed in group to understand other perspectives. These are then plotted onto a rich context canvas to illustrate the greater system, after which participants are asked to reflect on the impact these new insights would make on their own experience within the system. This would hopefully lead to participants gaining more actionable insights from the workshop.

Understanding: context mapping
Design thinking infused with systemic thinking

The first design activity that will be more familiar to Livework designers, context mapping in a systemic design context is not all that different from context mapping in a service design context. Though the techniques used to do research are the same, the way they are employed is slightly different. Where context mapping is usually used to understand a person's experience in a certain context, in a systemic design project it is used to understand a person's experience over one or multiple relationships. The biggest difference lies in the fact that the experience we are trying to understand is not limited to a specific context by the project's problem area as is the case in service design, but can stretch across multiple areas of the system depending on a person's experience.

Where it does become more unfamiliar for designers is in the sensemaking. Depending on the project goal and research findings, sensemaking can become more grounded in systemic thinking. In my project, I tried to apply sensemaking lenses grounded in hard systemic thinking, such as causal loop diagrams but these did not end up fitting what I was trying to figure out. Causal loop diagrams are used to understand system dynamics, useful when trying to figure out how stocks of resources flow from one point to another. This ended up not being as useful for the research question I was investigating,

as it was more grounded in social relationships rather than hard and analytical values. Point being that I hypothesise that multiple systemic lenses, such as causal loop diagrams or the value in context analysis I ended up using, used in sensemaking should be tried and tested in a project context to see what works for a particular research question.

Envisioning: Futuring workshop
Design thinking infused with systems thinking

The goal of the envisioning phase is to co-create a vision of what an alternate future system state might look like. The activities undertaken in this phase are likely highly context dependent, meaning that what workshop or co-design activities take place here are largely influenced by earlier findings during the understanding phase. I don't expect Livework designers to experience difficulties during this phase, as it mainly draws on research findings rather than systemic theory. The concept for the workshop I developed was formed through the realisation that interventions within the parent-stroller relationship were likely to influence relationships beyond this parent-stroller relationship as well. To engage participants with ecosystemic thinking, it was therefore decided to have them introduce interventions into the system and then reflect on how this would change value exchanges present in the system currently. They were then asked to assess if there changes were desirable and what should done to combat unintended consequences.

Conclusion

The more analytical and systemic phases in the project were more difficult to adapt to, so it is not unreasonable to think this will be similar for Livework designers. Activities in the framing phase were especially uncomfortable to work with, due to the inherent complexity and uncertainty that's present in this phase. It's important for less experienced designers to realise that the outcomes of these phases are mainly used to inform further research and are not actually all that important as deliverables on their own. I personally experienced that, as the project moves from analysis heavy to design heavy activities, it becomes easier to deal with the complexity and uncertainty inherent to systemic design projects. This could be due to one growing in the project, becoming more comfortable with the design approach and materials, or both. As long as a more experienced designers can help less experienced designers through the early phases of the project, I don't foresee any difficulties adapting to systemic design methodology.

Understanding

The key to getting to a point where a designer has internalised the principles underpinning systemic design is a lot of experience bringing these principles to practise. As my experience with systemic design is limited to this project, I can't confidently say how one can cross this gap. What I can say is that the difference between bringing systemic design and service design in practice, aside from everything mentioned previously, lies mainly in being able to adopt an ecocentric lens to design. To say I have mastered this to a point where I can bring this into practice without actively having to put in an effort would be a lie, but I have through my practice found things that might help Livework designers build the bridge to cross the Understanding knowledge gap.

Ecocentric lens
The key to ecocentric design lies in realising that humans are no more important in an ecosystem than other non-human actors. The reason why this is so difficult to internalise is that classically trained designers, like myself and most other Livework designers, have been taught to take a human perspective when it comes to design. Designers are urged to design for the human experience. This has in the past led to unintended consequences, where value for humans was successfully created at the cost of harm to nature. What complicates the matter is that at the end of the day most design interventions are targeted at humans. Sustainability problems are the result of human behaviour, so often the key to successful sustainability interventions lies in influencing human behaviour in one way or another. To successfully design with an ecocentric lens means constantly zooming in and out, to create interventions that target human behaviour or relationships with both human and non-human actors, without losing track of the needs of the non-humans in the greater ecosystem. By taking in the needs of non-human actors, we can reduce the possibility of unintended consequences happening.

Principles for systemic design derived from practice
As we saw in chapter two, Livework designers don't follow a set method. Instead, methods and tools are chosen on a project to project basis, depending both on the topic of a project as well as the designer tackling that specific project. Livework designers rely on design principles to guide their decision making, so they will need a set of principles to guide systemic activities as well. By combining my personal experience applying systemic design in practice as well as systemic design principles derived

from theory, we come to the following set of design principles Livework designers can use to guide their design projects.

Embracing complexity
Systemic problems are both endless and ever changing. If you don't stop looking, you will keep finding new interdependencies or new factors that influence the problematique in new ways. Key to designing for systemic problems is realising that a single truth is both unknowable and unattainable. Instead, one should aim to analyse and design for incrementalism, moving forward in small steps rather than in one leap into the future. Iterative development of both our understanding of the problematique as well as our intervention efforts is essential. Additionally, we should constantly zoom in and out from a human-focus to a more abstract level, considering both lived experiences as well as expert views.

Designing for relationships
Systemic value emerges from the many interactions and relationships between actors in a system. Analysis should focus on understanding how value emerges in relationships between critical actors, while interventions should focus on designing for the conditions that lead to the emergence of stronger relationships between critical actors.

Plurality of perspectives
Actors in a system will have a valuable perspective on their own interactions with the system around them, but will have no insight into what happens in different parts of the system. It's therefore important to take into account the perspectives of different actors across the system, taking extra care to include the perspectives of marginalised actors whose voice might otherwise not be heard.

Facilitating the process of reflexivity and reformation
As discussed in chapter three, to have a longer term impact on a system we need to change the mental models that underpin the current system. The goal of design projects then becomes to influence the mental models of influential stakeholders through a continuous process of reflecting on and reforming the institutional structures that shape our mental models, and vice versa.

Facilitating participatory empowerment
The complexity of systemic problems means there will not be a silver bullet that will instantly solve all problems. Instead, we need to aim for a continuous process of incremental improvement. As designers, we can only be involved in a process for so long. It's therefore important to facilitate a collective understanding of a challenge and empower participants to become agents of change long after the design project has concluded through co-creative and participatory design activities.
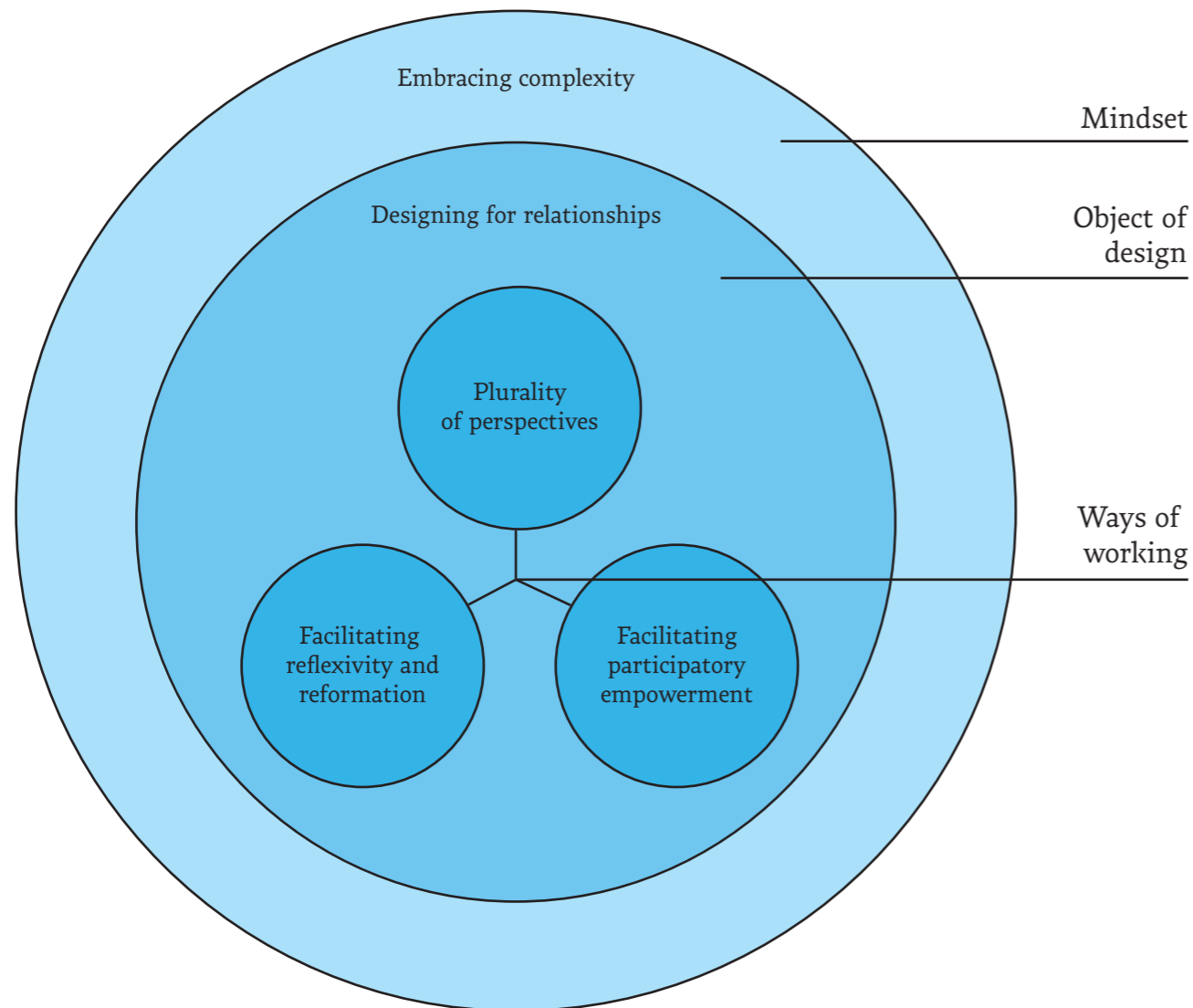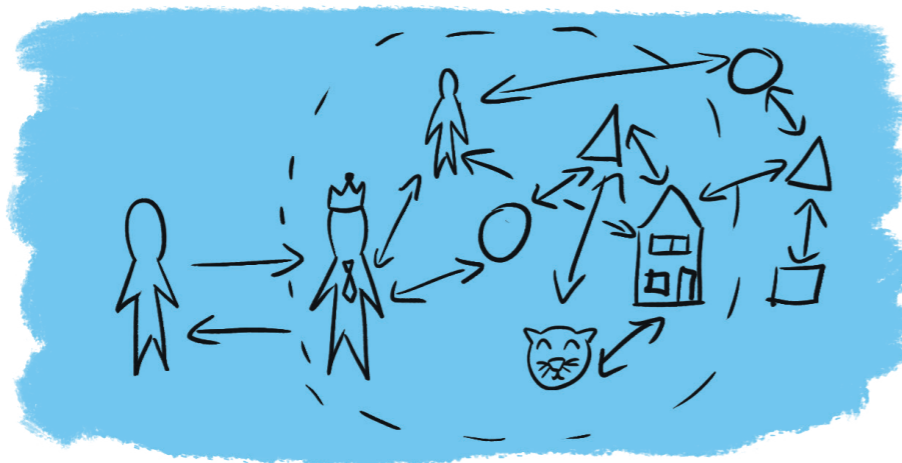
As we see in figure 10.3, these principles are nested within and interlinked with one another. Where the principle embracing complexity describes the mindset one should have when working with systemic design methodology, designing for relationships describes the object of design. In the middle, we find the three remaining principles, visualised to be interlinked as they build on one another. Plurality of perspectives helps build reflexivity and reformation, participatory empowerment helps build a plurality of perspectives, etc.

Figure 10.3: Different systemic design principles interlink to become a way for Livework to adopt systemic design.

Implications and opportunities *for way of working*

Implications: Consultancy-client relationship tension

As a consultancy agency, Livework enters into a commercial relationship with their clients with the promise of delivering some sort of workable result for their client. This means that the type of problems Livework works on are by definition owned by a single entity, their client. Additionally, a client's brief is bounded in scope by the business targets or strategy of the broader organisation. Such a relationship works in the context of non-systemic project work. After all, the problem and solution lie within the scope of the client's organisation itself. As we've seen in chapter 3, systemic problems are by definition complex and unrestricted in scope. While some actors in the system have more power or influence over the implementation of systemic interventions, no single actor owns the problem (Jones & Van Ael, 2022).

The complexity of sustainable transitions warrant a systemic lens, looking beyond the organisation itself to the ecosystem within which they operate. As Livework aims to foster such transitions in the future, their traditional consultancy-client relationship is put under pressure. A client pays Livework for their services and expects to be the major party of interest. As an actor in the ecosystem they operate in they might actually be of limited importance, however. All actors in an ecosystem are biased towards their own perception of the system they operate in (Jones & Van Ael, 2022). This is no different for a client in a systemic design project. Their definition of the problem-to-be-

solved is biased towards their own organisational capabilities and mental models. This is not necessarily a bad thing, in fact is to be expected, but it does require careful project- and stakeholder management by the designer to make sure that the client is kept happy without biassing the design project.

All Livework designers interviewed for this project mentioned some form of what they call downloading existing information. This step involves diving into the information a client provides that tells the designer something about the status quo. Though this information is always biased towards the client's interpretation of the status quo, this is more problematic in a systemic context. A client's needs might not align with or might be opposite to those of other actors in the system and to the system itself. Whether this is the case is hard to tell at the start of a project so the information provided by a client must therefore be taken with some grain of salt.

Livework designers are also used to setting up a core team, a small team of internal client stakeholders that serve as a champion for the project within their organisation. A project's scope is determined in collaboration with this core team. Again, this practice is problematic in a systemic context, as this biases the project framing to the needs of the client as an actor. This impedes the forming of an unbiased understanding of the system in later framing & scoping stages. Projects should therefore be set up with a core team of stakeholders drawn from multiple actors within the system, or a project frame should be challenged in early analysis stages (for example through the actor mapping process described earlier).

Finally, this has implications for what we think of as systemic design in Livework's practice. Due to their relationship with clients, design interventions will in most cases be limited to the opportunity space of a specific client or organisation. In other words, it will be difficult for Livework's design projects to directly intervene on a systemic level, as the opportunity space for interventions is limited to be within the scope of a particular organisation within the system. This does not mean that a systemic way of thinking has no added value. By analysing the greater ecosystem, we are more aware of and reduce the chance of any unintended consequences. Additionally, taking a systemic point of view can also enhance the richness of research methods or deliverables that might otherwise not be "systemic" per se. An example of this is the qualitative research I did for the purposes of the Juvenile Company project. If this project had been tackled through a traditional service lens, which was definitely

also possible, chances are the focus on human - non-human relationships would have been less pronounced. This focus was what led us to discover truly new and interesting value exchanges and get a more rich understanding of the ownership experience. It is impossible to say this insight would not have been found without the use of a systemic design approach, but chances are quite likely. This also leads us to the opportunity that arises for Livework to sharpen its way of working through systemic design methods.

Opportunity: systemic design as multi-interpretable

An ecosystemic way of thinking is not limited just to organisational transformation of course. As we saw in the previous section, an ecosystemic basis to qualitative research can provide added depth and richness due to the more holistic way of looking at the thing to be researched. When I compare the way peers and friends have employed ecosystemic thinking and approaches in similar projects, many approach researching relationships in the ecosystem in a different way, with more emphasis on breadth rather than depth. Where they would interview tens of different actors and stakeholders, the research described in the Juvenile Company project focused more on exploring a single relationship and its periphery in greater depth. As both ways of doing research have proven to be valuable, this reveals an interesting quirk to systemic design. The result from an ecosystemic analysis is multi-interpretable. The ecosystem to be analysed then becomes an input to guide the further design process, depending on the topic and brief of a project. So what if we were to employ ecosystemic thinking in all kinds of Livework projects, even if the problem to be analysed is not necessarily systemic? Perhaps we could better understand what problem a client is trying to solve, reduce unintended consequences and deliver more value. Perhaps an ecosystemic analysis of a company's greater ecosystem to inform their future change process could be a value proposition Livework could deliver in on itself?

Conclusion, limitations and research recommendations

Conclusion

Now at the end of our journey, we can start to look back and see how far we've come. We started this project with the central question "how can Livework designers use systemic design in sustainability transition projects?", with a subgoal being to find out what knowledge gap exists between Livework designer's current practice and one grounded in systemic design. We discovered that this knowledge gap consists of three levels: Comprehension, Ability and Understanding. Depending on the role a Livework designer plays in a design project, it becomes more important for them to close the gap in one, two or all three of the knowledge gap levels.

We discovered that a major difficulty in applying systemic design in projects might prove to be adapting an ecosystemic lens, while a human centric lens is deeply ingrained into the practice of Livework designers. The key to resolving this difficulty is to try and internalise the idea that humans and non-humans are equally important in the broader ecosystem. Another technique to deal with this to constantly zoom in and out between a greater ecosystemic level and a more human focused behavioural level, in order to reduce the unintended consequences of our design interventions.

We also discovered five interlinking principles Livework designers can use to bring systemic design into practice. These principles cover the mindset one must have going into a project, the object of design as well as the ways of working one must adopt.

Lastly, we found implications for how Livework designers approach projects. Livework's client-consultancy relationship is put under pressure by a systemic approach, as this requires us to de-emphasise the needs of our client as a single actor in the ecosystem. An opportunity arises to apply systemic principles to more projects than just those focused on organisational transformation, as the ecosystem analysis is multi-interpretable depending on our design objectives. Applying these principles to more "classical" service design projects could help bring extra richness and depth to the designs, as well reduce potential unintended consequences.

Limitations: me

Due to the way this research was structured, it was extremely dependent on my personal experiences of how to apply systemic design methodology in practice. Of course, this setup brings with it multiple limitations. Firstly, things I struggle with might not be the same for different designers. I have some, but ultimately a limited amount of working experience as a designer in a professional context. It's therefore difficult to separate struggles related to running a project in a professional context and struggles related to applying systemic design. I tried to limit this by discussing findings throughout the project with more experienced Livework designers, but if this was 100% effective is difficult to say. Another limitation related to me, is that the research findings are completely based around my interpretations of both theoretical and practical insights and thus might be biased to what resonates with me, what I personally find interesting or what happens to work with my way of working. Lastly, I am very much a designer whose practice is driven by intuition. In my projects, I try to look for hooks or snippets or things that make me feel like there's something interesting to further explore. In that sense, at times I might have not steered the direction of this project as much as I could or should have. This could also mean that the more human-centred turn the Juvenile Company project ended up taking was due to the biases in my intuition leading me there, but that's difficult to say.

Limitations: truly systemic?

Since pretty much the start of the project I struggled with the question if the Juvenile Company project was truly systemic or not and whether this mattered for the validity of my findings. I have come to the conclusion that this project was indeed not systemic, for two reasons. First off, the problem area is clearly limited in scope and boundary by the business and strategy of Juvenile Company, one of the clues that this project lies in the Design 3.0 or organisational innovation realm. Secondly, the scope of this project was already quite limited due to the project brief: Juvenile Company wanted to know what *ownership* would need to look like if they were to become circular by 2035. This means that the project would naturally gravitate to the more human centred direction it ended up taking. Now the question remains if this matters for the validity of the research done for Livework. I'd say no. It might not have been a truly systemic project, but it was a good representation of the type of project

Livework would need to apply systemic design methodology on in future projects. At times, this mismatch between tools meant for systemic projects and this not-quite-systemic project caused tension in the application of the tools, which caused some stress when bringing these tools into practice. But then again, one could argue that to work through these tensions and arrive at a point where these tools fit the problem context is a valuable finding.

Research recommendations: applying the principles

Due to the nature of the project, it is difficult to say whether the design principles I found over the course of this project are applicable to any project or whether or not they're biased towards the specific topic of this project. It's therefore recommended to see these design principles not as set in stone, but as a foundation that can be used to experiment with and see what works and what doesn't. This would mean applying these principles throughout projects and evaluating afterwards.

Research recommendations: reflective practice

The knowledge gap findings described in this chapter are probably biassed towards my own strengths and weaknesses as a designer. I'd therefore recommend to apply a reflective mindset in future projects infused with systemic design, to further shape the extent of the knowledge gap elements. Similar to the applying principles recommendation, the knowledge gap elements can be seen as a point from which to further reflect, building on what I found through this thesis and gaining a further understanding of the true knowledge gap Livework designers might experience.

11. Personal reflection

We covered the separate conclusion, limitations and recommendations for both the Juvenile Company and Livework project already in chapters nine and ten, so all that's left is a final personal reflection. It seems fitting that a project that was largely based on reflections on practices and methodologies is bookended by a final personal reflection.

Personal reflection

General reflection

This project has been both a humbling and an empowering process, which seems contradictory. Empowering, because I am glad to have found a purpose for (at least) the next few years of my career, and maybe I might actually be quite good at something I enjoy doing as well. Over the course of this project I've (obviously) learned a lot about systemic design and about how I could use the principles and methods throughout my future design career, something I was very keen on learning over the course of this project. I am glad to have had the opportunity to manage a complex multi-stakeholder project. Over the course of this project I have grown a lot in how I communicate with and manage the stakeholders within a project, which will undoubtedly be a handy skill in my future career.

Humbling, because I have never been confronted with my flaws as much as I have during these past months. Some of the patterns in my thinking I might have been tacitly aware of, but never have I been so harshly confronted with my insecurities.

Perfectionism and procrastination

Over the course of my studies, I have always "suffered" from a peculiar mix of both perfectionism and procrastination. At first glance, these might seem incompatible. On the one hand I wanted to strive for the best possible result, but on the other hand I often put off doing something until the last possible moment. Over the course of this project, I have come to realise both of these tendencies are manifestations of my insecurities. My perfectionism seems to stem from a deeply rooted fear of not being good enough, which manifests itself as an impossible strive for perfection. My procrastination is also rooted in a similar insecurity, where I put off work because I find it difficult to admit to the sometimes less than perfect quality of my work. Over the course of this project, both of these things made me uncomfortable with making decisions, which was not really helpful in alleviating these insecurities. Though I haven't yet found a reliable way to deal with this, the first step is realising you have a problem.

Comfort in research

Most of the people who've known me for a longer time know I am a curious person, to a fault sometimes. As many people in our lovely country, I love taking walks into my neighborhood and look through people's living room windows to catch a glimpse of how someone lives, to catch a hint of what type of person this might be. For similar reasons, I've always loved doing human research, because it allows you to temporarily step into someone's life and learn a little bit about how they look at things and then step out again. Throughout this project, I've also discovered a more sinister tendency in my behavioural patterns when doing research. I tend to feel safe in research phases, because you can spend all the time you like learning about new and cool things. Due to my aforementioned insecurities, I have a hard time moving from research into the production of actual insights because I feel like I am never sure enough about my ideas to put them into words. As a result of this, I often keep double- or triple checking my work, because I never feel like I know enough to write about the things I need to write about. Especially in the last few weeks of the project, I've broken away from this tendency a little bit. By literally preventing myself from doing more research, by actively blocking websites I use to find new research papers and to refrain from constantly going back to my research. This helped to combat my insecurities and put my ideas into words and pictures, hopefully to a satisfying and understandable conclusion.

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Appendices

List of appendices referenced

1.   **Graduation brief**

2.   **Livework designers way of working research**

3.   **Rich context script**

4.   **Interview guide**

5.   **Interview exercises**

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DESIGN FOR our future

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TUDelft

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT
Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME
Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy".
Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !

family name	Rempt
initials	G.J.A. given name Gijs
student number	4536274
street & no.	
zipcode & city	
country	
phone	
email	

Your master programme (only select the options that apply to you):
IDE master(s): ( ) IPD ( ) Dfl (★) SPD
2nd non-IDE master:
individual programme: - - (give date of approval)
honours programme: (Honours Programme Master)
specialisation / annotation: (Medisign)
(Tech. in Sustainable Design)
(Entrepeneurship)

SUPERVISORY TEAM **
Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair	Sine Celik	dept. / section: DOS
** mentor	Anna-Louisa Peeters	dept. / section: HCD
2nd mentor	Anna van der Togt	
	organisation:	Livework
	city: Rotterdam	country: The Netherlands

comments (optional)

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v.

Second mentor only applies in case the assignment is hosted by an external organisation.

Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

IDE TU Delft - E&SA Department /// Graduation project brief & study overview /// 2018-01 v30

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Page 2 (right form)

Procedural Checks - IDE Master Graduation

TUDelft

APPROVAL PROJECT BRIEF
To be filled in by the chair of the supervisory team.

chair Sine Celik date 28 - 09 - 2022 signature

CHECK STUDY PROGRESS
To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair.
The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: __18__ EC   (x) YES all 1st year master courses passed
Of which, taking the conditional requirements into account, can be part of the exam programme __18__ EC   ( ) NO missing 1st year master courses are:

List of electives obtained before the third semester without approval of the BoE

name K. Veldman date 4 - 10 - 2022 signature

FORMAL APPROVAL GRADUATION PROJECT
To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **.
Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content: (V) APPROVED ( ) NOT APPROVED
Procedure: (V) APPROVED ( ) NOT APPROVED

comments

name Monique von Morgen date 17/10/2022 signature MvM

IDE TU Delft - E&SA Department /// Graduation project brief & study overview /// 2018-01 v30

Page 2 of 7

Initials & Name G.J.A. Rempt Student number 4536274
Title of Project A Service Designer's Guide to Systemic Design

A Service Designer's Guide to Systemic Design
project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple.
Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date   05 - 09 - 2022   24 - 02 - 2023   end date

INTRODUCTION **
Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

Livework is an international strategic service design agency with studios in Rotterdam, London and Sao Paulo. Livework focuses on improving the way people live and work through better services. The agency's clientele is diverse in nature, ranging from big corporates to NGO's and local government. In their projects, Livework incorporates a lens of social responsibility, often turning down projects that are not in line with their vision. In the past few years, the agency has realised that in order to truly improve the way people live and work now and in the future, the agency must take responsibility and help society steer away from planetary overshoot. Livework is therefore changing its portfolio and approach to design projects.

Sustainability in design is mostly focused on technological and ecological improvements of a products initial production and lifecycle. As a service design agency, the role Livework can play in this field is limited. The agency is therefore interested in exploring what other ways it can be of value.

One of the other ways Livework is exploring is through systemic design projects focused on pivoting a client's long-term business strategy to be more sustainable, in the ecological, social and financial sense of the word. However, most of Livework's employees have been trained to be and have mostly worked as service designers. There's an overlap in the skill set required to tackle service design and systemic design projects, but there's also a big difference in how projects in these fields are executed. Livework is therefore interested in finding out what gaps exist between current knowledge and skills and the knowledge and skills necessary to run systemic design projects for their clients.

One part of my research into this knowledge and skill gap is a systemic design pilot project for a client. By doing this project, Livework will know what opportunities and pitfalls exist when doing a systemic design project. This has the added benefit of being a case study the agency can use in the future to make it easier to sell their expertise on systemic design projects to future clients.

The company I will be doing the pilot project for is ▮▮▮▮▮▮ is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. In the last few years, ▮▮▮▮ has launched its Push to Zero, a vision and strategy in which the company aims to emit zero grams of carbon dioxide in 2035. The company has therefore set itself clear and achievable targets on the production side of things, aimed at changing what materials they use, how their products are manufactured etc. Things on the customer/consumer side are more murky. The company's current business model is completely geared towards generating revenue from product sales, through its own channels and click & mortar partners. This complicates their aim to be a circular business by 2035.

While ▮▮▮▮ has recently been experimenting with lease and refurbishment models, the company is interested in exploring what else is possible within the system they operate in. The company wants to develop a future vision on what its relation to its consumers and retail partners will need to look like if ▮▮▮▮ is to become carbon neutral in 2035. For this project, the main focus will be on ▮▮▮▮ EMEA market. This market is a mature and stable retail market, without a lot of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.

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introduction (continued): space for images

Research set up
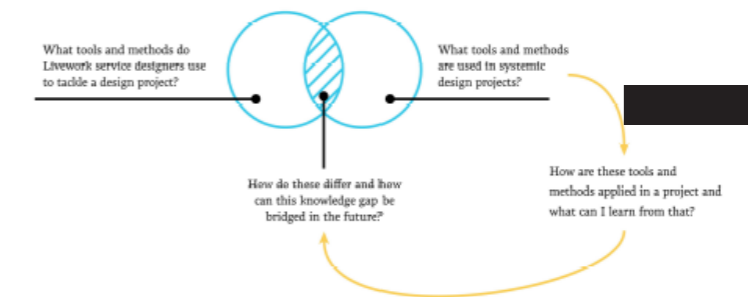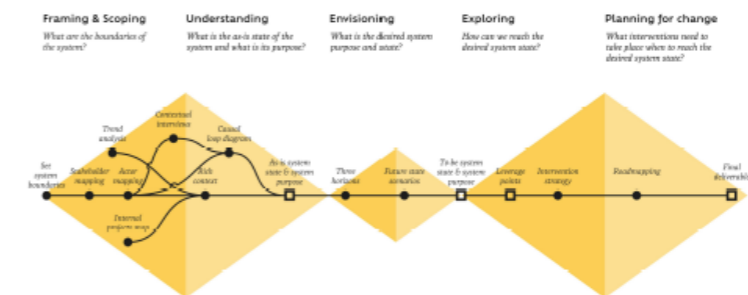

image / figure 1:   Research overview

image / figure 2:   Bugaboo project approach

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

Livework is interested in discovering what value the agency can bring in the transition towards a more sustainable future. Their hypothesis is that systemic design skills can add to their existing skill set. They want to know what tools and methods are applied in a systemic design project and when, understand how those tools and methods differ from their current methods and tools applied for service design projects and develop guidelines on how to tackle a systemic design project they can use in future client projects. They want to know how these methods and tools are applied in practice and what "best practices" they can use in their future projects.

███████ wants to develop a business strategy that aids their sustainability mission now and in the future. They want to envision a future strategy for the next 10+ years that guarantees business continuity with respect for ecological and social boundaries. This strategy will be centered around the customer/consumer facing side of the organisation. The focus will lie on the ownership experience of the future, what role ██████ plays in that future and what its relationship to its retail partners and consumers will look like. The company wants to know what internal and external barriers to change exist to reach this desired state and what steps they must take to get there.

Other subchallenges:
- The outcome must be in line with the ██████ brand DNA. How can ██████'s brand be translated to a new context?
- The outcome must be in line with ██████'s Environmental, Social and Corporate Governance goals.

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, ... In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

For Livework, I aim to develop a report that functions as a service designer's guide to systemic design. For Bugaboo, I aim to develop an illustrated future vision and a guide to reach that vision.

For Livework, the deliverable will be a short report, no more than a few pages, which focuses on illustrating the difference between service design projects and systemic design projects. The report will highlight what skills / tools are necessary for systemic design projects and contain guidelines on how to tackle a systemic design project, specifically geared towards Liveworkers.

For ██████ the future vision and guide are focused on the EMEA market. They will serve as a first step for ██████ to develop its global strategy. The future vision and artefact must be able to travel the organisation on its own, without additional explanation from me or people close to the organisation. ██████ would like to see a test of the assumptions the deliverable is based on.

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 5 - 9 - 2022   24 - 2 - 2023 end date
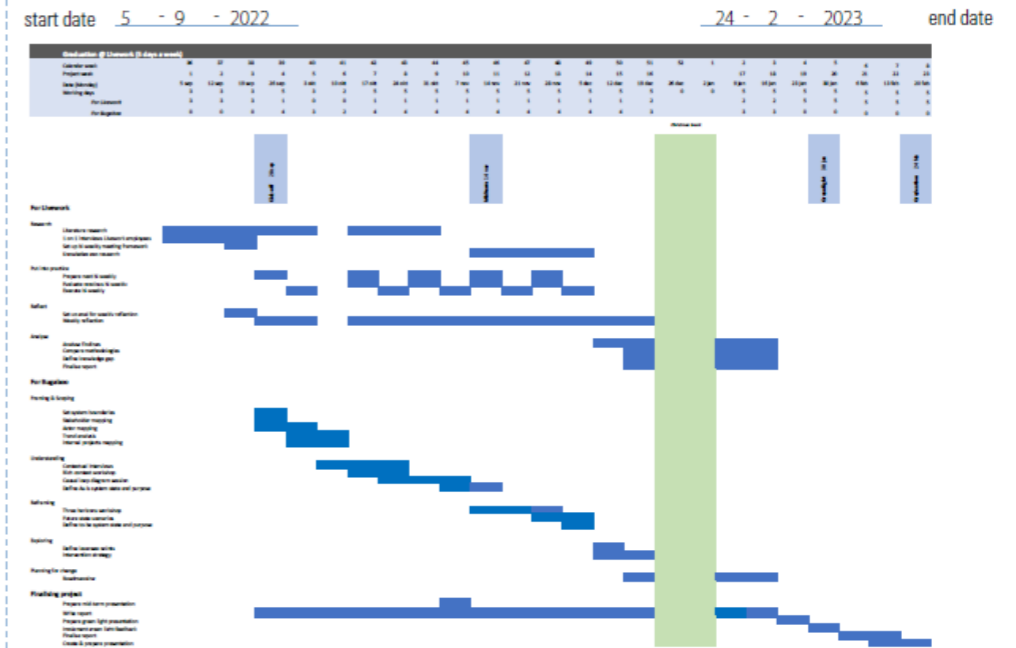
The first three weeks of my project are planned to be part-time, as I have just moved to a new home and need the time to settle down and create a space for me to work effectively on my project. The 5th and 6th week of my project are also part-time, as I will be attending workshops and activities unrelated to my project. Finally, I will take 2 weeks off from working on the project during the christmas break.

Personal Project Brief - IDE Master Graduation

MOTIVATION AND PERSONAL AMBITIONS
Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, ... Stick to no more than five ambitions.

Throughout the SPD programme, I have come to believe that a designer's main objective in their career should be to help solve the great problems our society faces today and will face in the future. It is no longer enough to design products or services for the sake of newness. Strategic designers in particular should aim to help businesses transition from their current unsustainable focus on short-term revenue and shareholder gain to a future where businesses and organisations work not just to provide value to immediate stakeholders, but to society in general and the environment as a whole as well. But organisations are and operate within complex systems. Throughout the SPD programme I have not learned enough about how a strategic designer can influence these complex systems. This is why I want to dive deeper into systemic design methodology, to learn how I can put into practice what I truly believe and help change organisations for the better.

Throughout the MSc programme I have become quite familiar with service design methodology and have successfully adapted it to my own way of working. I want to dive into how systemic design differs from my current way of working and learn how I can apply the methodology in my own projects in the future.

2. Liveworkers way of working research

Project brief

Context
[REDACTED] is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. As such, their products and production chain are already quite sustainable. They aim for their products to have a 10 year lifespan. Their current business model, completely geared towards sales from both click & mortar partners and their own channels, complicates their aim to become more sustainable. The company is therefore looking to develop a future vision with sustainability at its heart that reframes the value [REDACTED] delivers to its consumers, retail partners and its employees. They want to know what is possible to make the company more sustainable in the future. For this project, the main focus will be on [REDACTED] EMEA market. This market is a mature and stable retail market, without a lot

of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.
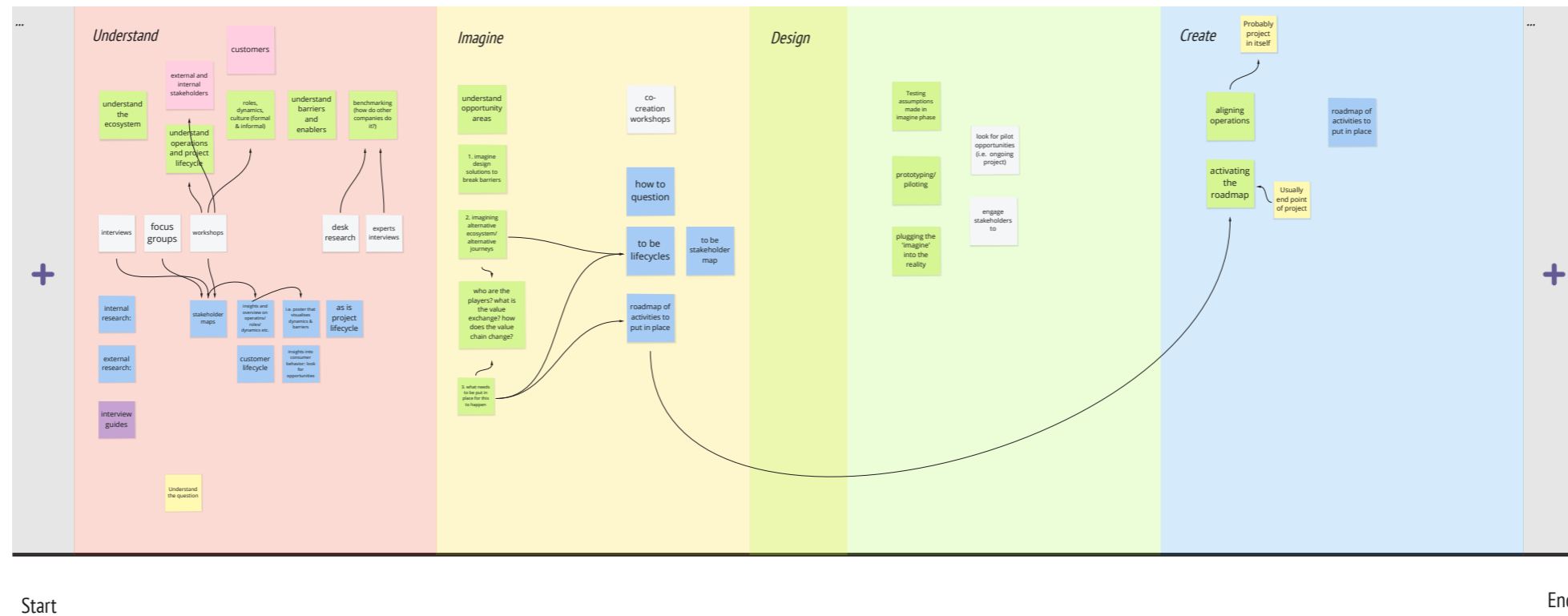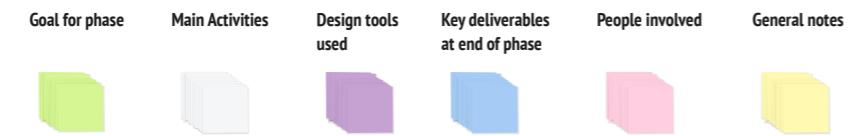
Problem definition
[REDACTED] wants to develop an organisational strategy that aids their sustainability mission now and in the future. They want to envision a future strategy for the next 10+ years that guarantees business continuity with respect for ecological and social boundaries. This strategy will be centered around the customer/consumer facing side of the organisation. The focus will lie on the ownership experience of the future, what role [REDACTED] lays in that future and how that changes their relationship with their retail partners. The company wants to know what internal barriers to change exist to reach this desired state and what steps they must take to get there.

Name:	Alexandra Coutsoucos
Years at Livework:	5
Years of experience as a (service) designer:	5

Project timeline

Goal for phase | Main Activities | Design tools used | Key deliverables at end of phase | People involved | General notes

Start | End

Project brief

Context

███████ is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. In the last few years, Bugaboo has launched its Push to Zero, a vision and strategy in which the company aims to emit zero grams of carbon dioxide in 2035. The company has therefore set itself clear and achievable targets on the production side of things, aimed at changing what materials they use, how their products are manufactured etc. Things on the customer/consumer side are more murky. The company's current business model is completely geared towards generating revenue from product sales, through its own channels and click & mortar partners. This complicates their aim to be a circular business by 2035.

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focus will be on Bugaboo's EMEA market. This market is a mature and stable retail market, without a lot of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.

Problem definition

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Name:	Type here
Years at Livework:	Type here
Years of experience as a (service) designer:	Type here

Project timeline

Goal for phase **Main Activities** **Tools used** **Key deliverables at end of phase** **People involved** **General notes**

Understand · Imagine · Design · Create

Start — End

Project brief

Context

⬛⬛⬛ is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. As such, their products and production chain are already quite sustainable. They aim for their products to have a 10 year lifespan. Their current business model, completely geared towards sales from both click & mortar partners and their own channels, complicates their aim to become more sustainable. The company is therefore looking to develop a future vision with sustainability at its heart that reframes the value ⬛⬛⬛ delivers to its consumers, retail partners and its employees. They want to know what is possible to make the company more sustainable in the future. For this project, the main focus will be on ⬛⬛⬛ EMEA market. This market is a mature and stable retail market, without a lot
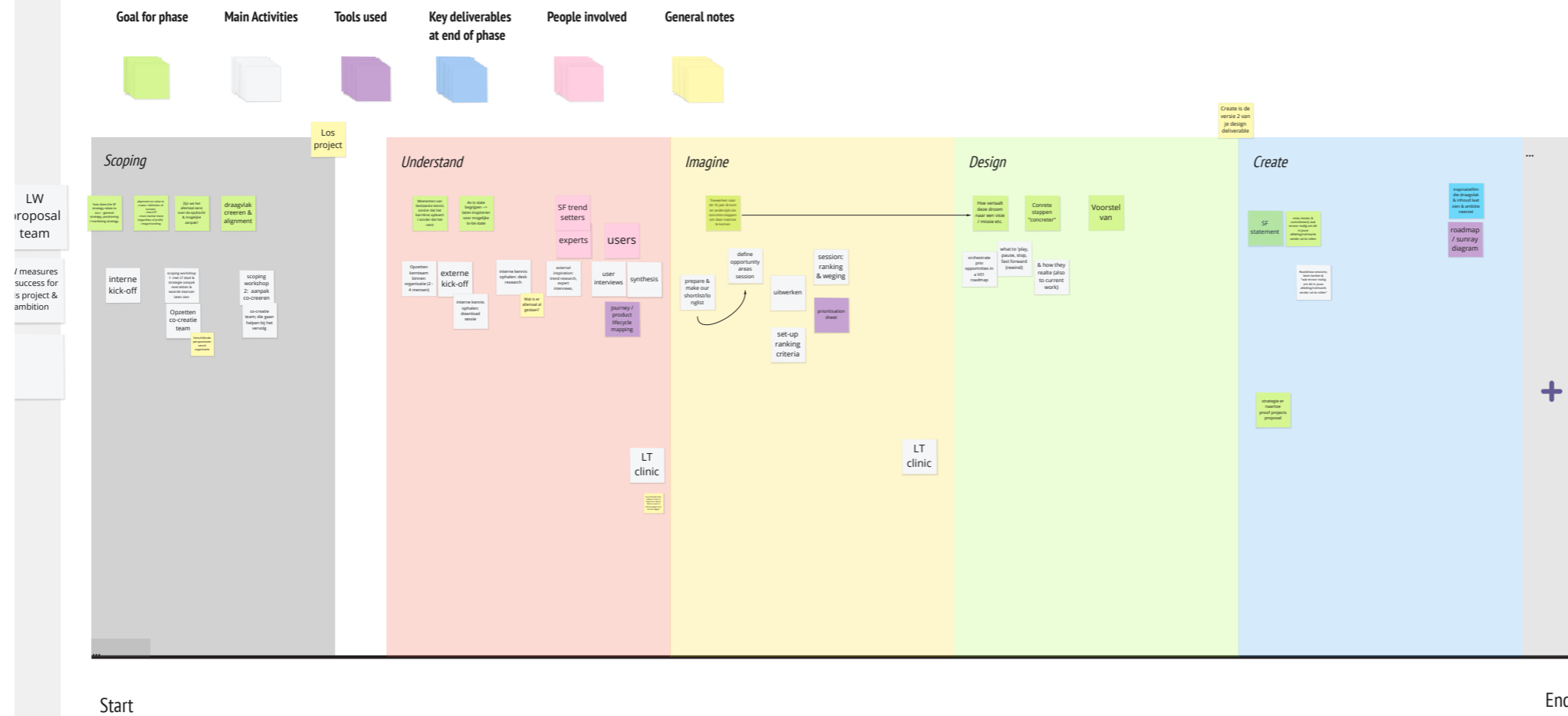
of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.

Problem definition

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Name:	Anouk
Years at Livework:	4
Years of experience as a (service) designer:	14

Project timeline

Goal for phase	Main Activities	Tools used	Key deliverables at end of phase	People involved	General notes

Start

End

Project brief

Context

██████ s a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. As such, their products and production chain are already quite sustainable. They aim for their products to have a 10 year lifespan. Their current business model, completely geared towards sales from both click & mortar partners and their own channels, complicates their aim to become more sustainable. The company is therefore looking to develop a future vision with sustainability at its heart that reframes the value ██████ delivers to its consumers, retail partners and its employees. They want to know what is possible to make the company more sustainable in the future. For this project, the main focus will be on ██████ EMEA market. This market is a mature and stable retail market, without a lot
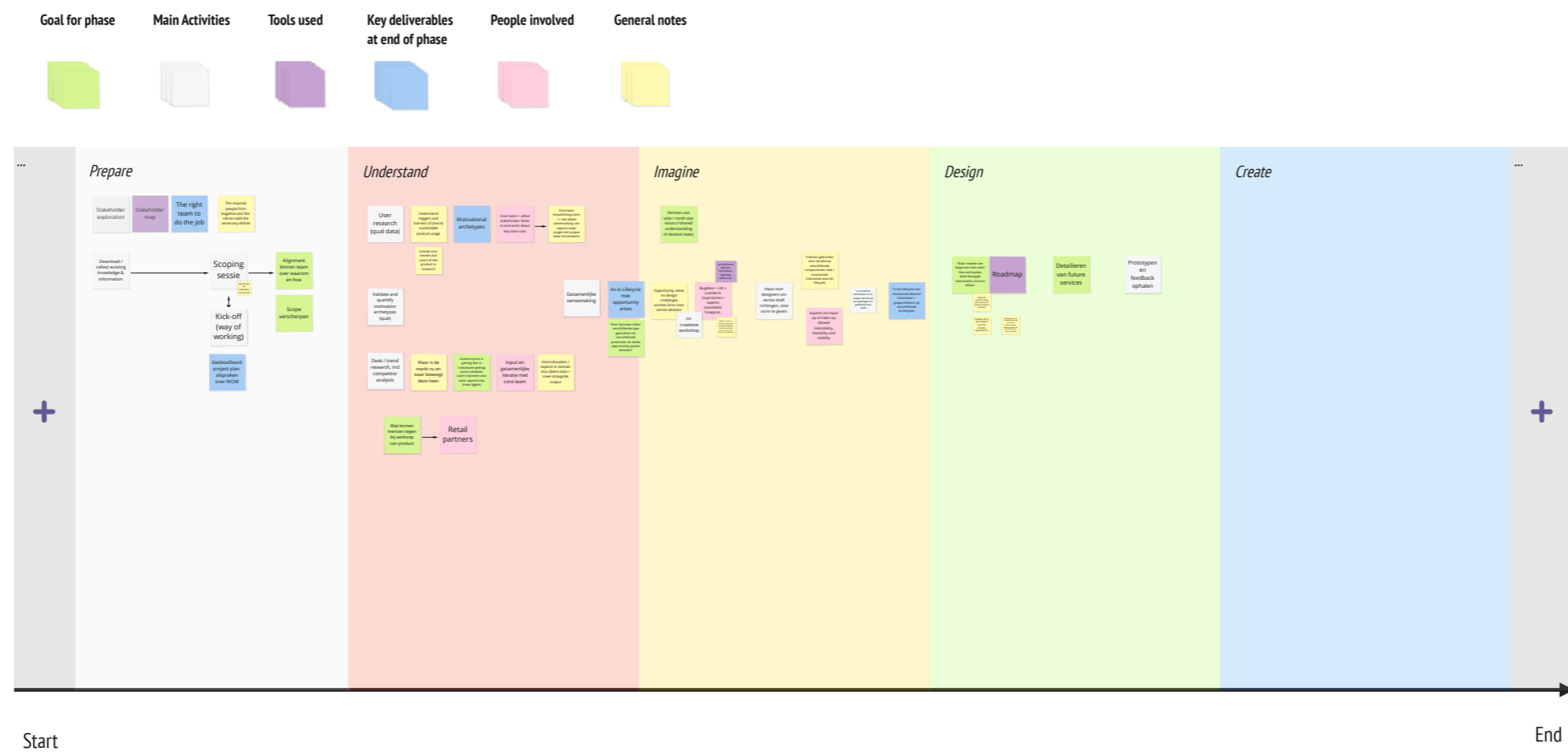
of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.

Problem definition

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Name:	Dorine
Years at Livework:	3
Years of experience as a (service) designer:	8

Project timeline

Goal for phase	Main Activities	Tools used	Key deliverables at end of phase	People involved	General notes

Start   End

Project brief

Context

_____ s a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce <u>high-quality</u> and <u>long lasting</u> products for its consumers. As such, their products and production chain are already quite sustainable. They aim for their products to have a <u>10 year lifespan</u>. Their current business model, completely geared towards sales from both click & mortar partners and their own channels, complicates their aim to become more sustainable. The company is therefore looking to develop a future vision with <u>sustainability at its heart that reframes the value</u> _____ delivers to its consumers, retail partners and its employees. They want to know what is possible to make the company <u>more sustainable in the future</u>. For this project, the main focus will be on _____ EMEA market. This market is a mature and stable retail market, without a lot
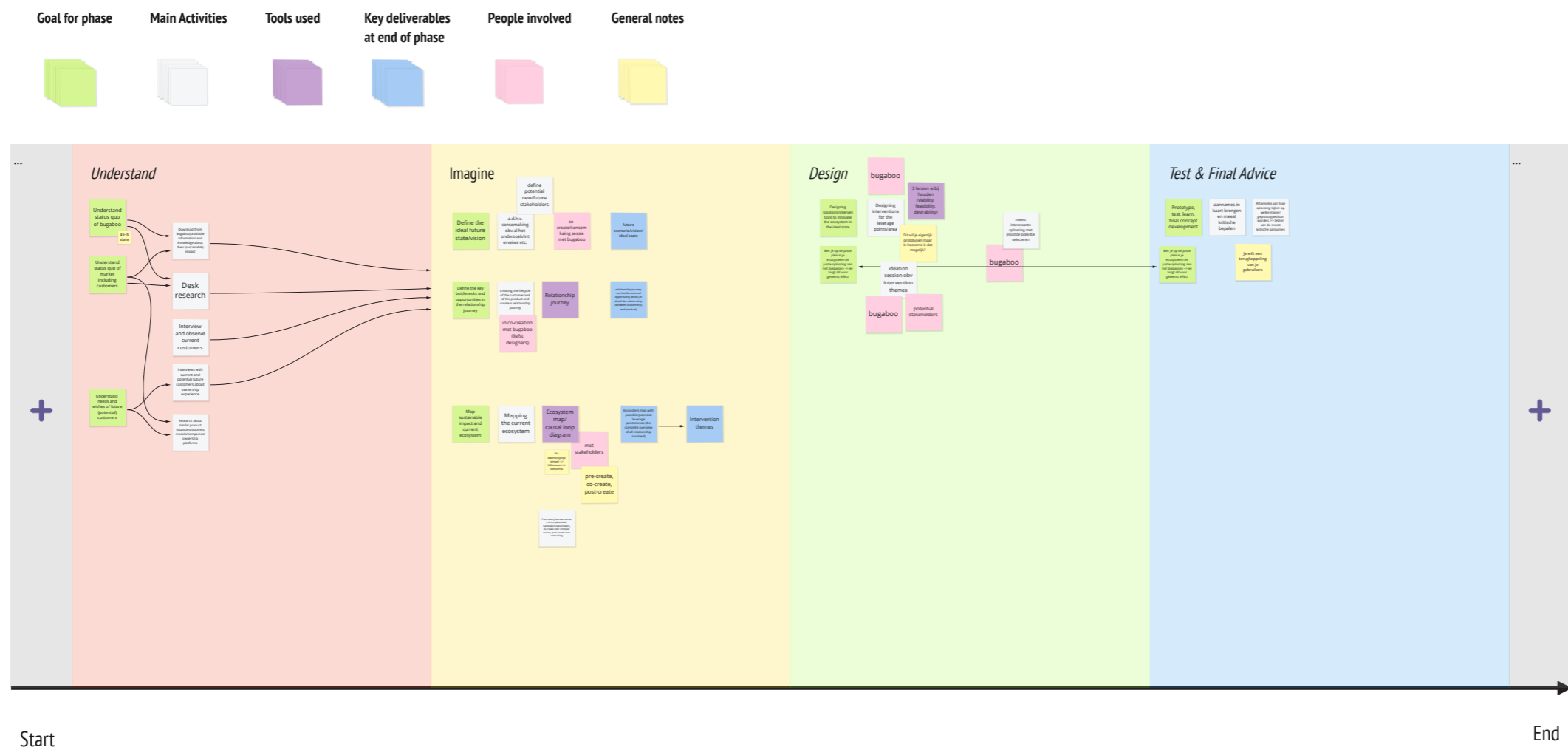
of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.

Problem definition

_____ wants to develop an <u>organisational</u> strategy that aids their <u>sustainability mission</u> now and in the future. They want to envision a <u>future strategy for the next 10+ years</u> that guarantees business continuity with respect for ecological and social boundaries. This strategy will be centered around the customer/consumer facing side of the organisation. The focus will lie on the <u>ownership experience</u> of the future, what rol _____ plays in that future and how that changes their relationship with their retail partners. The company wants to know what <u>internal & external barriers</u> to change exist to reach this desired state and what steps they must take to get there.

Name:	Louka Commu
Years at Livework:	9 maanden
Years of experience as a (service) designer:	9 maanden

Project timeline

Goal for phase **Main Activities** **Tools used** **Key deliverables at end of phase** **People involved** **General notes**

Understand

Imagine

Design

Test & Final Advice

Start

End

Project brief

Context

████████ is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. As such, their products and production chain are already quite sustainable. They aim for their products to have a 10 year lifespan. Their current business model, completely geared towards sales from both click & mortar partners and their own channels, complicates their aim to become more sustainable. The company is therefore looking to develop a future vision with sustainability at its heart that reframes the value it █████delivers to its consumers, retail partners and its employees. They want to know what is possible to make the company more sustainable in the future. For this project, the main focus will be on the ██████EMEA market. This market is a mature and stable retail market, without a lot
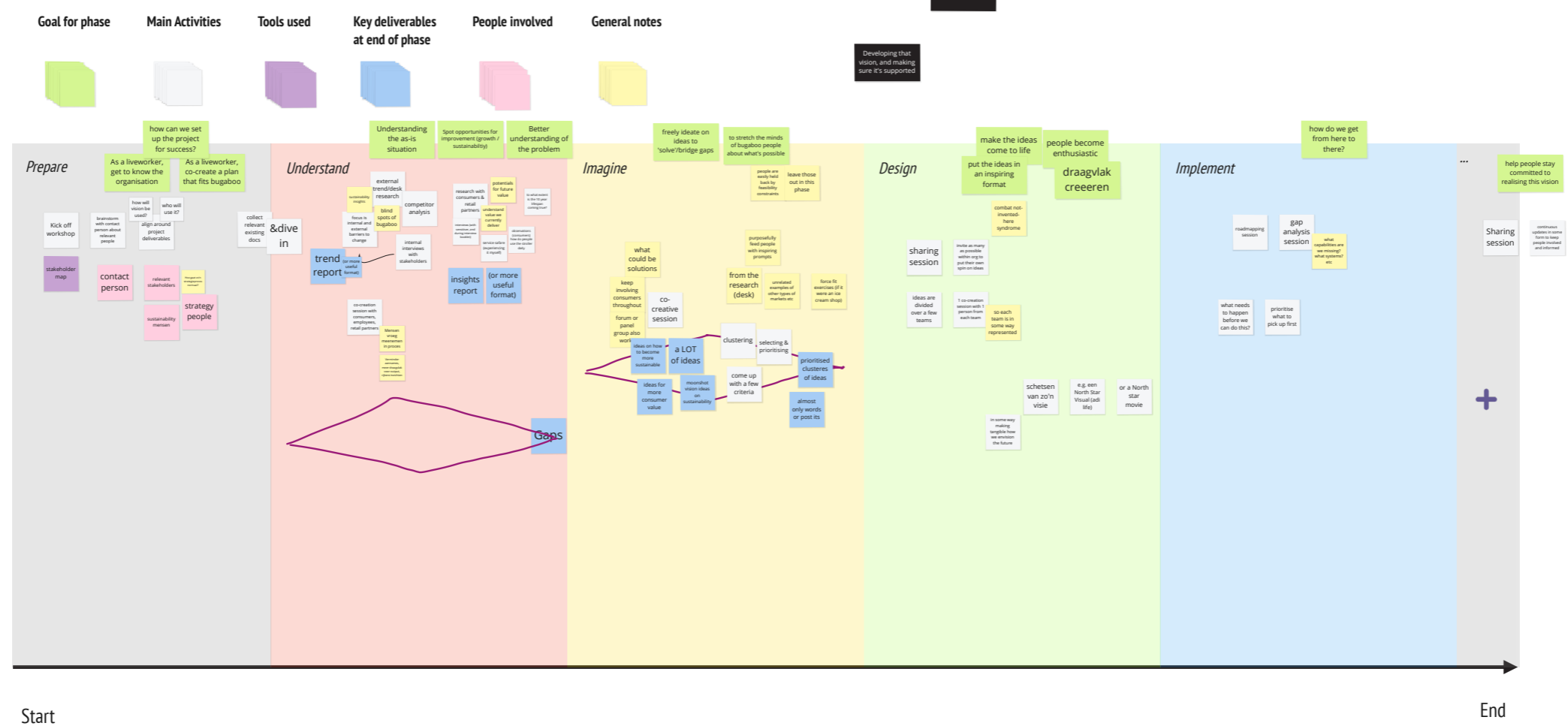
of possibilities for growth. This means that companies need to win existing market share from their competitors, in lieu of creating new possibilities for growth.

Problem definition

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Name:	Rosa Storm
Years at Livework:	3
Years of experience as a (service) designer:	3

Project timeline

Project brief

Context

████████ is a Dutch company that manufactures and sells strollers, car seats and accessories worldwide. The company's vision is to produce high-quality and long lasting products for its consumers. As such, their products and production chain are already quite sustainable. They aim for their products to have a 10 year lifespan. Their current business model, completely geared towards sales from both click & mortar partners and their own channels, complicates their aim to become more sustainable. The company is therefore looking to develop a future vision with sustainability at its heart that reframes the value ████████ delivers to its consumers, retail partners and its employees. They want to know what is possible to make the company more sustainable in the future. For this project, the main focus will be on ████████ EMEA market. This market is a mature and stable retail market, without a lot

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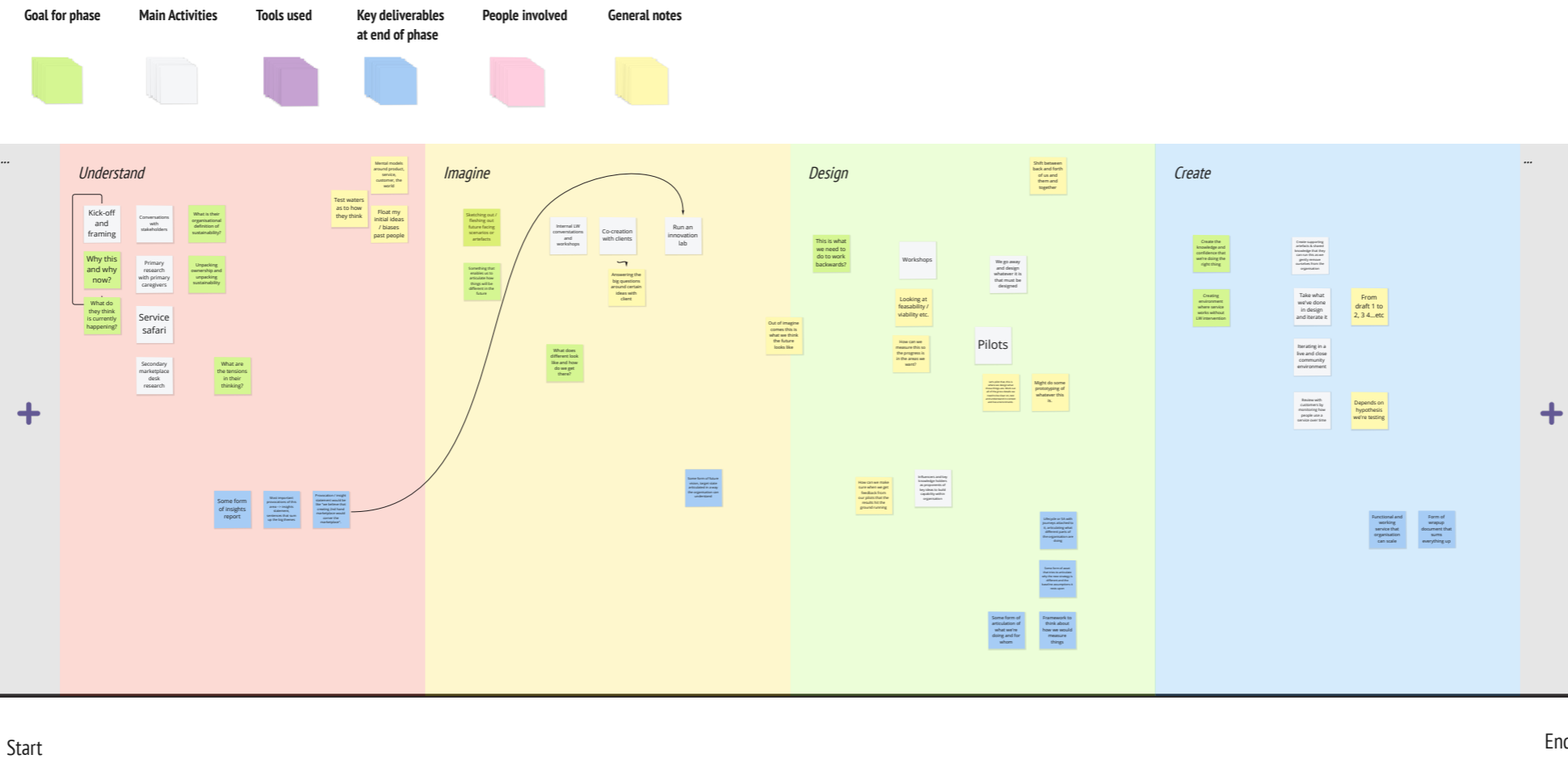**Problem definition**

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Name:	Victoria
Years at Livework:	1
Years of experience as a (service) designer:	Type here

Project timeline

Goal for phase	Main Activities	Tools used	Key deliverables at end of phase	People involved	General notes

Start
End

3. Rich Context workshop script

Note: this script has been translated from Dutch to English by Chat GPT 3

Welcome 11.00 - 11.05

Welcome, look to the left for more information on how Miro works
Today's goals: Identify potential barriers to change & try to place Juvenile Company in a systemic perspective
Agenda:
o Welcome & intro; provide a little more explanation of what I mean by a systemic perspective to help you with   the tasks we'll be doing (may be removed)
o Gathering and deeper analysis of challenges
o Defining emerging alternative solutions for the identified challenges
o Next steps & reflection

Introduction 11.05 - 11.10
Goal of this section: Introduce what we're going to do & why
Slide 1:
Story of the six blind men and the elephant.
If we only look at the legs, we miss the rest of the elephant.
Slide 2:
Triple bottom line, introduced in 1994 by John Elkington, helps companies see the importance of more than just profit.
Planet and society became peripheral
Withdrawn by John Elkington in 2018 out of frustration with lack of understanding.

Actual intention:
Companies part of interconnected system
This means that companies only thrive if society flourishes, which can only happen if the planet can support our needs.
Slide 3:
Current way of looking at challenges is too narrow.
Porter's 5 forces, focus on company, no consideration for value of planet and society
5 forces in a systemic context, more underlying factors
Slide 4:
Workshop based on 2 exercises.

Exercise 1 11.10 - 11. 30
Probes:
Gathering of challenges
- What challenges do we see if Juvenile Company were to fully focus on repair? Or on reuse? Or on remanufacturing? Or on recycling?

Further analysis

- What is the reason you specifically wrote down this challenge?
- Why is it important that this challenge is solved for the transition?
- Are there parties in the ecosystem who would benefit from not solving this challenge? Why?
- If you interpret this challenge from the point of view of a related actor, does it change? What does that say about this challenge?
- Can you reformulate this challenge to better fit the domain of Use and Post-Use?

Exercise 2 11.30 - 11.50
Probes:
Gathering of niche initiatives
- Have you seen anything outside of work that reminds you of this?

Further analysis

Check-out 11.50-11.55

Buffer

4. Interview guide

Interview guide
Interview general flow
Part 0: General introduction 5 min
- Administrative aspects
- Warmup
Part 1: Personal introduction 15 min
Goal: get to know participant and their context
- Personal background
o Family situation, parenting responsibilities
o Living situation, neighbourhood, friends & family, social standards
o Work, hobbies
o Phase in life, big changes

- Child(ren)
o Age
o Primary caretakers
o Personality?
Part 2: Ecosystem of going outside with your child 30 min
Goal: understand most important actors in the ecosystem and the relationships between
them
- Actors included (human, non-human, living, non-living)
- Actor relationships
o Quality of relationship
o History of relationship
o Routines, typical activities
o Goals other actors
o External influences on relationships
Part 3: Parent-stroller relationship deep-dive 30 min
Goal: understand nature of parent-stroller relationship and value of relationship
o Recent and typical experience
o History of relationship
o Reflection on qualities
o Hopes for the future
Part 4: Conclusion 5 min
o Summary of take-aways
o Cover any closing questions
o Thank and end interview
Part 0
Total time 5 mins
1.1   Opener 5 min
Welcome and introduction
        Thank for participating and preparation
        Introduce yourself (and colleague) and roles

GDPR
        All answers will be anonymized
        Video recording for research purposes
        Read and sign consent form
Goal of the research
        Learn about your experiences, expectations and needs when using a Juvenile
Company stroller
        Use insights to develop products and services that are more sustainable

Type of conversation
        One and a half hours conversation - not a strict interview, informal.
        I have a list with questions, but I want to keep the discussion very open, so all
thoughts and opinions are welcome and if there is anything you don't want to talk about
that's fine. It is your experience that matters today. There are no wrong or right answers.
        About your personal experience. I speak to a lot of other people as well. This
conversation is about you and your point of view.
        We will use the pre-assignment and refer back to it, so please navigate to the miro
board and leave it open.

CHECK for availability
I don't want to take up too much of your time and so will sometimes continue to question,
sometimes we break things off. That is not out of a lack of interest. It is just so we can go
through all our topics of today. Can you confirm that you have 1,5h of time for us? If we
would need 5-10 minutes more, would that be a problem?

Do you have any questions about the research or its purpose, before we get started?

Part 1
15 min – Goal: get to know participant and their family situation

1.   Can you tell me a bit about yourself?
o   What kind of things do you do on a daily basis? (work/hobbies/volunteer work)
o   What are your interests or passions? (topics you follow/care about)
o   And about the stage of life you are in right now: how do you think it influences/
manifests in how you relate to the people and things around you in your daily life? (family
upbringing, cultural background, biases, assumptions, beliefs, values)
o   Any big events/changes in your life lately? How do these influence you?
o   What are your feelings about parenthood?

2.   And a bit about your family and home
o   Where do you live? (City/suburb/town/village)
o   With whom do you live here? (Partner/children/pets)
o   Can you tell me a bit about your child(ren)? (How many? Age? Personalities?)
o   What other caretakers take care of your children?

3.   And a bit about the things you do with your children outside
o   Can you tell me a bit about the typical things you do when you take your children

outside? (Errands, play, park etc.)

o   When do you take your stroller along? When don't you?

o   If you think back to the last time you took your child(ren) outside: What did you do? What was your favourite thing about that experience? What did you dislike?

Part 2

30 min – The goal of this section is to get an overview of the people, animals, objects, etc. that often interact with a stroller and the relationships/dynamics between these actors and the stroller.

[introduction to section]

Stap 4 aan de hand van pre-exercise waar participant tijdlijn van laatste gebruik stroller in kaart heeft gebracht.

4.   We were talking before about typical things you do with your children where you take your stroller along. What would you say is the most meaningful or important thing you use your stroller for? Can we talk a bit more about that? (@interviewer continuously probe for People, Objects, Environment, Message, Services)

o   What was the last time you used it?

    Where did you go?

    Who did you take along? (e.g. siblings, friends, animals, toys, groceries, etc.)

    What steps or activities did you take for this trip?

    What time of day? What kind of moment is that? What else happens?

    If you think back to this last time: what moments come back to mind? How did these influence you? Your mood? The rest of your trip?

    What did you do when you got back home?

    Where do you store your stroller when not in use?

o   What other people make use of the stroller? For what purposes?

o   Was this experience different from a typical experience?

Andere scenario waarvan je denkt daar wil ik het over hebben. Pak wat voor hen betekenisvol is.

5.   We've taken inventory of a lot of different people and things that interact with you and your stroller. Let's zoom in a bit more into these people and things. (@interviewer: depending on amount of actors discuss with interviewee what actors are most important and focus on those.) (@interviewer: repeat list of probes for each important relationship)

o   What typical activities happen in interactions between these people and things?

o   How would you describe their relationship?

o   Can you tell me about how this relationship changed over time?

o   What are the goals for either party in this relationship?

o   What does this relationship mean to you?

Part 3

30 min – The goal of this part is to get more in-depth knowledge on the nature of the parent-stroller relationship, what value is exchanged from one to another and how this relationship has evolved over time.

[introduction to section]

6.   If your stroller would be your friend:

o   How would you introduce them to me? (@interviewer: use pronoun them, not "it" to drive home "personhood" of object)

o   How would you describe getting to know this person?

    Most memorable moments together

    Changes or hiccups in relationship?

    When did they become someone special to you?

o   How did your relationship with them change over time?

    Probe for changes in context and how that has influenced the relationship:

•   As child has grown

•   Changes in family composition

•   Moving to a new home

o   Have you ever stopped using it for a while? Why?

o   What would you do with your stroller if you'd no longer use it?

7.   Can you reflect on the value this stroller brings to your life? How does its design enable you to do things in the way you like?

o   What makes this a valuable product to you?

o   What role does this product play in your life?

8.   Do you take care of your stroller?

a.   If so: How do you care for it?

i.   Actions/steps?

ii.   What makes you do that?/When do you do so?

iii.   What do you hope to accomplish by doing so?

iv.   Do you ask for help from the brand or place you bought it from?

b.   If not: What makes you not do so?

c.   Are there other things you do with your stroller than the things it's made for?

Skip als weinig tijd

9.   I'd like to know more about your interactions with the brand.

o   Do you remember what made you choose this brand over others back when you bought it?

o   How would you describe your connection to the brand?

o   What type of interactions have you had with the brand, if any?

    How did you feel about these interactions?

    Did they influence your relationship with the product?

    How did it affect it?

o

10.   Lastly, we'd be interested to know your idea of the perfect stroller relationship in 2032.

-    Imagine you'd be a parent in 2032, so ten years from now. What would your ideal stroller relationship look like in ten years? What would you like your relationship with the brand to look like?

11.   Potentieel vragen over bredere kinderopvoed context, maar alleen als tijd over

Part 4: Wrap-up
Total time 5 mins

Recap
If you had to tell a friend about what we've been talking about today, what would you say?
Do you have anything else to add?

Close off
Thank for contribution and time.

5. Interview exercises

How to use this digital whiteboard (miro)

Read this:
In preparation of the interview and during the interview we will use this interactive platform. It is a digital whiteboard which we can use to write, draw and paste post-its.

Almost everything you need in order to be able to use this platform is located in the toolbar.

In order to **drag, edit or remove objects and text** click in the toolbar on the arrow.

In order to **type,** click in the toolbar on the letter "T", and click on the spot where you want to type.

In order to **create a post it.** click on the post-it icon, select a color and click on the place where you want to add the post it note.

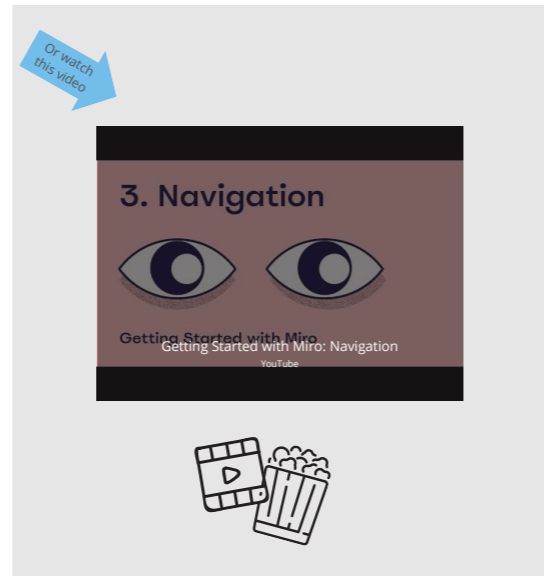In order to **draw**, click on the toolbar on the pencil icon, select a colour and draw with your mouse.

Copy me using Ctrl+C and Ctrl+V

To **undo or redo** what you did, you can resort to this other bar to the left or use CTRL+Z (to undo) and CTRL+SHIT+Z (to redo)

Zooming in and out can be done with the square on the bottom right. Select the plus and minus sign (if you use a track pad, you can just swipe)

Find the moderator if you are lost on the board, click on the image of the moderator to find the right location

⚠️ **Please, do not unlock anything that is locked.**
Unless it is really necessary and you are familiar with how Miro works.

Or watch this video

3. Navigation

Getting Started with Miro: Navigation
YouTube

We would love to know you, a little.

My first name is
[type your name here]

My main occupation is best described as
[type a description of your occupation - job-title, working from home, stay-at-home parent, etc.]

1.1 This is my family
Drag the emojis into the house to complete your family portrait!

Tip: Click on the arrow in the toolbar to drag emojis!

1.2 Typical activities
We'd love to know more about the typical activities you and your children do when you take them outside. Can you think of three things you do with your children without your stroller and three things you do with your children and your stroller? Please fill out the post-its below!

Some of the things I do with my kids without my stroller...

Some of the things I do with my kids with my stroller...

Tip: Double-click the post-its to write on them!

A meaningful experience with your stroller.

2.1 A meaningful experience
In the previous section, we asked you to name some typical activities you do with your children and your stroller. In this section, we would love to know more about an activity in the last month that was meaningful or important to you. Can you think of a particular experience that stands out?

Me, my child and my stroller went to...
Type here!

Who or what was also along for the ride?

2.2 What happened?
Think back to this meaningful experience. Could you tell us in a bit more detail what happened, what you did and who or what you interacted with along the way?

Drag the post-its into the timeline on the right!

Home	Preparing to leave	On the way there	At the destination	On the way back	Returning home

Things that happened or things I did

People or things I interacted with

You and your stroller

3.1 Friendship booklet entry
Write a friendship booklet entry dedicated to your stroller! Don't be afraid to share with us what makes your relationship special!

Click on the marker icon in the toolbar on the left to start drawing!

This is what you look like
Draw a picture of your stroller. Don't worry about what it looks like, there is no right or wrong!

This is you in three words
Type here

This is how we met
Type here

We should definitely do this sometime
Type here

These are your best features
Type here

This is the best thing we ever did together
Type here

What I value in our friendship
Type here

Th