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From Artefacts to Meanings: Reframing organisational value propositions through systemic analysis of user-product relationships

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The world is facing complex societal issues that continuously call for organisations to transition towards future-proof models. Design practices are no exception to this. As a case study, this paper focuses on the journey of a company that designs, manufactures, and sells products in the juvenile sector and has operated according to the traditional linear business models for over twenty years and now acknowledges a need for change. Our study starts by challenging future ambitions of the company through a system-oriented framework to eventually explore the role of design(ers) in employing systemic analysis of entanglements to reframe the organisation's value propositions. Our study sheds light on the opportunities that emerge with the expansion of the solution space when the company culture is moved from an artefact-based focus towards a meaning-based focus. Deriving from a series of co-design sessions, we present the evolutionary path of user-product relationships through the product's lifetime and use this timeline to translate the interdependent system dynamics into tangible and actionable strategic directions. We redefine what the notion of "ownership" should look like in an alternative paradigm that enables resilient futures. As a result, we present three core vision principles that guide the future of innovation in the company and thirteen key propositions that illustrate these principles with the aim of transitioning not just the company itself but also the mindset towards new product value in the market as a whole.

Introduction

As the European Union strives towards full circularity by 2050, a few questions become more urgent as the deadline approaches: How can we successfully transition our practices in a way that considers the uncertain futures ahead of us? Which mental and cultural shifts will be required? What tools and methods can designers use to help organisations make the transition?

Owing the name to its definition, organisations can be considered to exist as a way for humans to organise purposeful action in pursuit of a greater goal (Stacey, 2001). For as long as organisations have existed, people have looked for ways to manage and direct their economic trajectories. But, the world of organisations is messy and full of challenges, many of which are difficult to navigate (Thomas, 2003). Burnes (2005) suggests that many organisational change programmes fail due to the methods used not fitting the complexity found in the contexts in which these organisations operate. Organisations can be considered to be sociotechnical systems, operating non-linearly and dynamically through interrelations between both social (e.g. people, culture) and technical (e.g. processes, structures, technologies) aspects of the greater system (Burnes, 2005; Salmi & Mattelmäki, 2021). Adding to the complexity of organisational change processes, organisations also operate within greater sociotechnical ecosystems consisting of actors and subsystems with a wide range of goals and intentions (Mars et al., 2012). The interconnectedness and interdependence of these different actors and subsystems within the broader organisational ecosystem give rise to a complex problematique (Van Patter & Jones, 2014; Jones & Van Ael, 2022), one that cannot be addressed by standard change management practice (Burnes, 2005) or through linear reductionist design processes (Norman & Stappers, 2016; Vink, 2021; Jones & Van Ael, 2022). Instead, scholars suggest systemic design methodology as a method to deal with the complexity present in organisational ecosystems (Van Patter & Jones, 2014; Jones & Van Ael, 2022; Vink, 2021). Though studies have been conducted into the application of

designerly methodology in the realm of organisational transformation, these mostly focus on employing methods of design to engage in ways to change an organisation's culture (Salmi & Matterlmäki, 2021; Elsbach & Stigliani, 2018), rather than an organisation's value proposition. In light of the necessity of an economic transition from a linear to a more resilient means of creating value, it thus becomes interesting to explore how design, and systemic design, in particular, can be of use in facilitating this transition. Recent literature describes the importance of analysing how value in a system emerges from the relationships between critical actors, as well as the need for the design of conditions that lead to the emergence of stronger relationships (Van der Bijl-Brouwer & Malcolm, 2020; Vink, 2019; Hannant et al., 2022; Van der Bijl-Brouwer, 2022). However, systemic design literature is scarce on paradigm shifts for organisations where product design and manufacturing stand in the centre as the core of the business. It is, therefore that user-product relationships are investigated.

In this paper, we try to understand how designers can use systemic analysis of relationships to reframe an organisation's value proposition with a case study that focuses on user-product relationships in a systemic context. The study first describes the research setup and process and reports findings on how to reframe an organisation's linear value proposition to a more resilient one.

The project the case study derives from that is described in this paper was done in collaboration with a company, referred to as Juvenile Company in this paper, that designs, manufactures and sells strollers. The Juvenile Company has a long-standing tradition as a design and manufacturing company, which also means that the company culture is highly product-focused. This company aims to transition towards a circular business model by 2035. The case, therefore, provides a unique opportunity for exploring systemic transitions where a single product group is the focal point. Upon closer analysis of the company's ambitions, it became apparent that the company lacked a vision of what its value proposition and strategy would need to be to accomplish its transition towards a fully circular company. As such, the main objective of the project was to determine this transition strategy. The first step in doing so is to understand the ecosystem the company operates in right now.
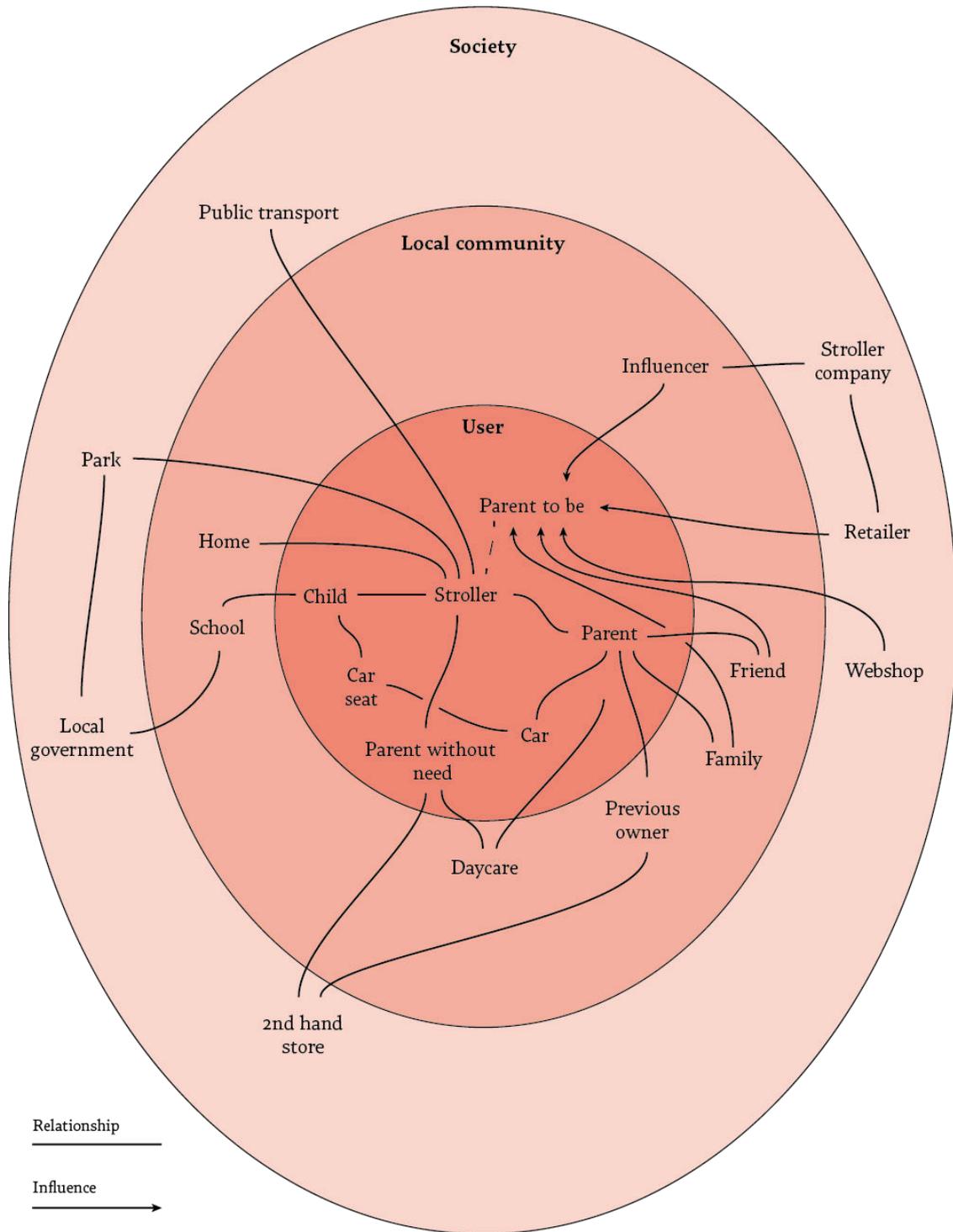
Figure 1: The actor map generated to analyse the organisation's ecosystem.

Analysing the ecosystem

Systems are complex structures of interconnected relationships between different entities. An actor map was made to explore the relationships between the different entities within the system and understand the extent of Juvenile Company's organisational ecosystem. The map (Figure 1) was then used to identify opportunities for system change through the strengthening of weak relationships (Gopal & Clarke, 2015; Jones & Van Ael, 2022). The map was created through an iterative process in interview sessions with both internal stakeholders as well as end-users. The map was then further validated through the qualitative interviews that will be further expanded in the next section. In mapping the system, an interesting phenomenon was discovered. In the system, one entity, a parent, was portrayed by three separate actors in the actor map: Parent-to-be, Parent and Parent-without-need depending on their relationship to the stroller and, therefore, depending on a point in time. The distinction between these different roles is important, as the role the entity plays in the system greatly influences its relationships with other actors in the system. A Parent-to-be and a Parent might both have a relationship with Juvenile Company, but the quality of these relationships and the power dynamics present are different. It was found that the Parent-without-need, for example, has a weak relationship with the Juvenile Company, complicating possible avenues for circular services in the future.

The actor map was then analysed to define critical actor relationships to explore in further research. One way to define which actor relationships are critical is by looking at which actors have the most relational connections, meaning they are more systemically connected to other actors. The actor relationships most critical then are the relationships between the most critical actors. To define the most critical actors, the amount of relationships between them and other actors was counted. The most connected actors in this system are the Parent-to-be and the Parent. 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 Parent-without-need, we see that they are much less connected to other actors within the actor map when compared to the other parental actors. This, again, is not surprising. In the linear sales world most of the commercial actors in this ecosystem

occupy, the Parent-without-need has little to no commercial value, and so this necessitates no relationship to a Parent-without-need.

To transition towards a circular and more resilient future, Juvenile Company would need to form a relationship with these actors in order to return products in some shape or form. 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 their stroller. Where the Parent-to-be might want but doesn't have a relationship with the stroller, the Parent wants and has a relationship with the stroller, and the Parent-without-need has but doesn'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, hypothesised that 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.

Understanding the parent-stroller relationship

To understand what the parent-stroller relationship looks like right now, we also need to understand who is involved in this relationship, what happens over the course of this relationship, what value is exchanged in this relationship and how the relationship and its value changes over time. In order to answer these inquiries, we conducted qualitative research with young parents. As the value derived from a relationship is quite abstract, it can, therefore, be considered to be latent knowledge (Sanders & Stappers, 2012). A generative interview technique was used in the form of context mapping to extract these deep insights from participants. The context mapping interviews consisted of a single interview between one and one and a half hours per participant. 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 deep dive (Figure 2). The three parts each covered one path of expression stage: observe the present, recall the past, and reflect on the past, respectively. The fourth stage was disregarded as the research questions did not call for insight into the future.
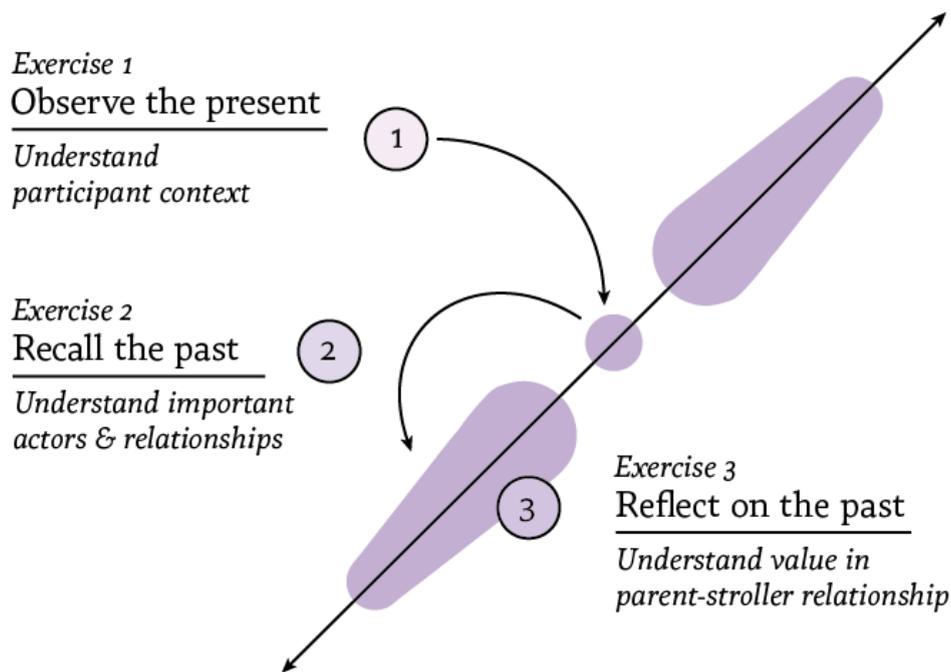
Figure 2: Path of Expression as applied to the generative interviews conducted in the case study project (adapted from Sanders & Stappers, 2012).

The first part of the interview, Personal Introduction, was designed to put the participants at ease and get to know them and their context. The probes in this part were designed to first get the participants talking about themselves, their hobbies, and their families (Figure 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, participants were asked to refer back to the exercise they filled in beforehand, see Figure 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 to an exercise (Figure 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 us to probe the participants for what made the stroller valuable to them, beyond just the functional aspects of the product.

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 generate clustered insights related to actor relationships, insights related to the development of the parent-stroller relationship and insights that can be classified as general findings. One of these insight clusters was called It gets real. This cluster contained quotes similar to this one from one participant: "You can't believe in a couple of months, you know, you're gonna be pushing someone around in it." Another one of these insight clusters was called Sharing my child's wonder about the world, characterised by quotes similar to this one: "They are exploring [the world], they are explorers. And sometimes you are amazed yourself. By how amazed they are about the small things [like little pebbles on the forest floor]."

These insight clusters were then mapped in two ways (Figure 6). Firstly, a relationship map tracked the parent-stroller relationship. This allowed for the analysis of what value was created in what phase of the relationship and to spot patterns in how the relationship develops over time. The insight cluster It gets real indicated conflicting feelings of excitement and fear a parent might experience upon entering a new phase of their life and could, therefore, be placed at the very start of the relationship. The insight cluster Sharing my child's wonder about the world combined with insight clusters Space for child to return to and Helping my child develop autonomy to indicate a phase in the relationship where the stroller helped parents feel less reluctant to let their children explore the world, knowing they would be in safe hands.

1. We would love to know you, a little.

My first name is

Participant #1

My main occupation is best described as

Working from home

This is my family:

These are some things I do with my kids:

Playing in garden

Car ride

Short walk in baby carrier

These are some things I do with my kids & stroller:

Grocery shopping

Travel

Long walk for baby to sleep

2. A meaningful experience with your stroller

My meaningful experience

Me, my child and my stroller went to...

Friends and grandparents using the train.

Who or what else was along for the ride?

Bags, Maxi Cosi, Maxi Cosi adapter

What happened...	Home	Preparing to leave	On the way there	There	On the way back	Back home
Things that happened or things I did	Packing stroller	Getting toddler and me dressed	Managing bags, stroller and toddler	Having a good time	Managing bags, stroller and toddler	Enjoy being home
People or things I interacted with	Husband	Husband	Other people in the train	Family & Friends	Other people in the train	Husband

3. You and your stroller: friendship booklet entry

This is what you look like:

This is you in three words

Energetic, funny, non-patient

These are your best features

solid structure and safe

This is how we met

Just before my daughter was born

This is the best thing we ever did together

Long morning walks while she sleeps

We should definitely do this sometime

Very long walk to the other side of the city

What I value in our friendship

Reliability

Figure 4: Ecosystem exploration interview exercise filled out by a participant.

Secondly, the clusters were projected onto an actor map to generate insight into how value exchanges between different actors in the system have an influence on and are influenced by the parent-stroller relationship. This technique was dubbed Value in context. One of these value exchanges was between the actor's Parental forum and Parent-to-be, the former providing the value of first-hand experience to the latter. Another example is between the actors Home and Stroller, the former providing the value Shelter when not in use to the latter and the latter providing a much-needed break from the ruckus to the former.
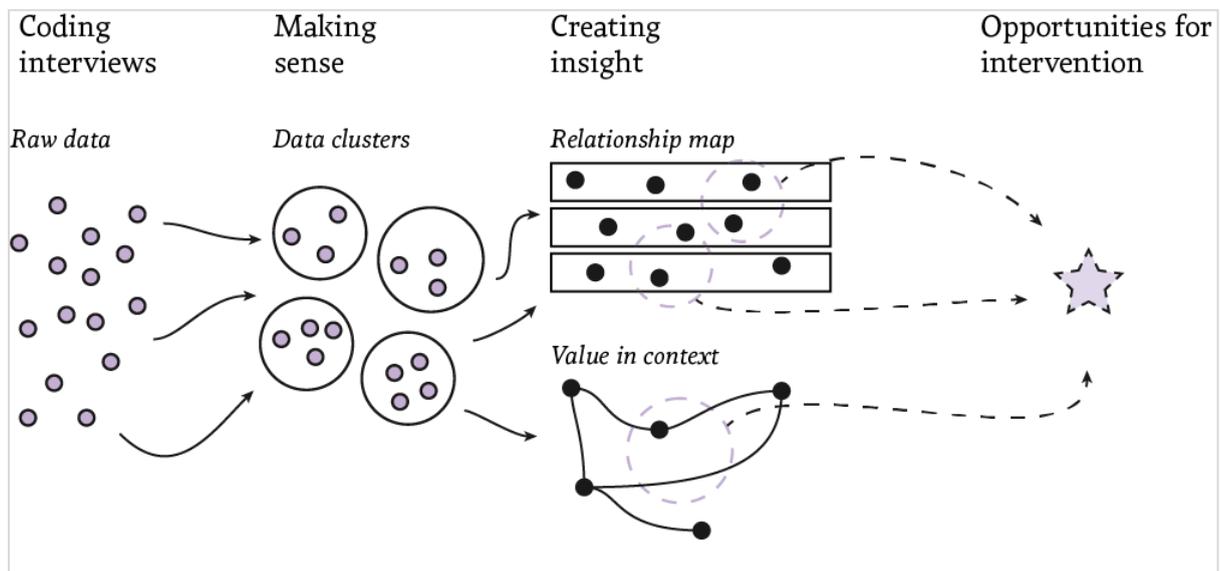

Figure 6: Method of analysis: from raw data to opportunities for intervention.

Research findings

Based on the research findings, we derived a map of how the parent-stroller relationship develops over time, an abstracted version of which can be found in Figure 7. 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 were much more apparent at the start of the relationship, while the emotional benefits seemed 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 of the relationship arises.

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 main use of the stroller, we can identify three distinct stages of use in each of 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 children, loosening their control over the interaction their children have with the outside world. These three stages represent the different types of core values 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 stages of use then is the core value proposition of Juvenile Company strollers.
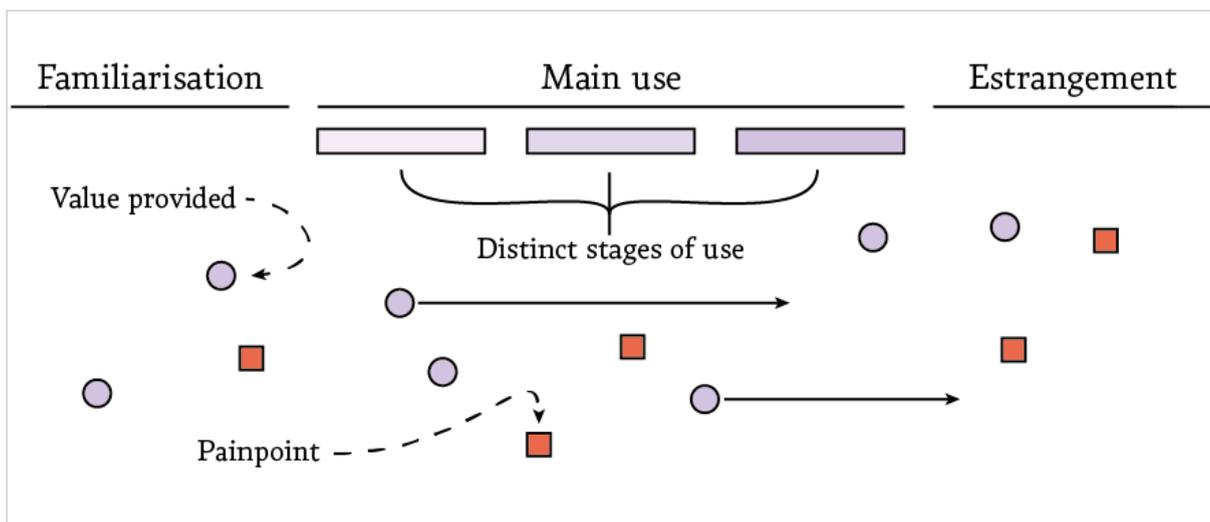

Figure 7: Different types of value and pain points over the course of the parent-stroller relationship were identified. A crucial insight was the discovery of three stages of use, each with its own distinct value.

Stages of use

A place of comfort

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 beer 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 beer. These moments of sleep are immensely valuable to parents, as they grant them some rare peace and quiet during the early months of parenthood.

A source of wonder

In this stage, the parent-stroller relationship starts to really open up from 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 children. 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.

A home away from home

As the child becomes able to walk independently, parents loosen their control of the exploration interaction almost entirely. They allow their children to explore the 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.

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 of giving 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 the routine has set in. When participants were probed about what was important to them when they first met their

stroller, they mentioned functional product aspects like "sturdiness", "stability", and "reliability".

Interestingly, this trust develops over the course of the relationship. In the first major use phase, A Place of Comfort, we see the first indicators of real trust between parent and stroller emerging. Several participants mentioned that their children sleep better in the stroller than anywhere else. 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 even outside. This is a clear indicator that they feel comfortable letting go of some control and trusting 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 parents feel comfortable enough to further let go of control and introduce the outside world to their children more. The foundation of trust in the first phase allows parents to fully embrace the emotional value in the latter phase.

Implicit value

Interestingly, the most valuable way a stroller provides meaning to parents (in the mutual relationship) is delivered completely implicitly. Designers working at Juvenile Company don't explicitly design to provide this value; it just happens to emerge from the relationship between the user and the product. Realising that a stroller provides this meaning implicitly opens up the possibility of designing products and services that explicitly focus on delivering this meaning. So, what happens when we formulate a strategy that sees the company do exactly that, focusing on dealing with the uncertainty of the future?
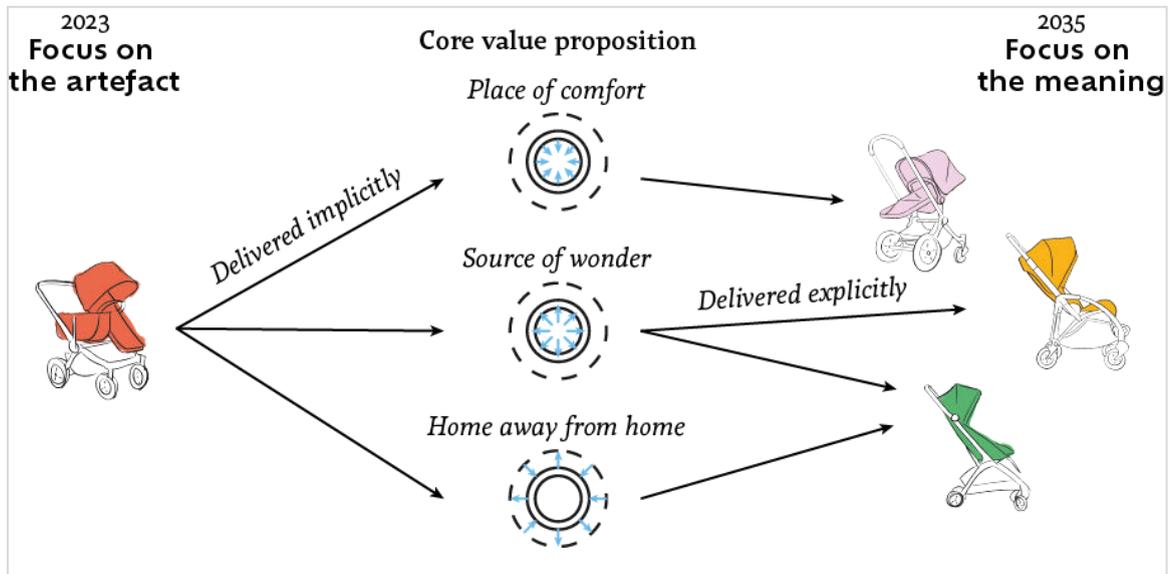
Figure 8: From a focus on the artefact to a focus on the meaning

Developing a tangible strategy

The fundamental basis of all design is creating something new and hopefully better than what was before, i.e., creating a preferred future. 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). 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). Flexibility 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 strategy guided by principles (Broman & Robèrt, 2017).
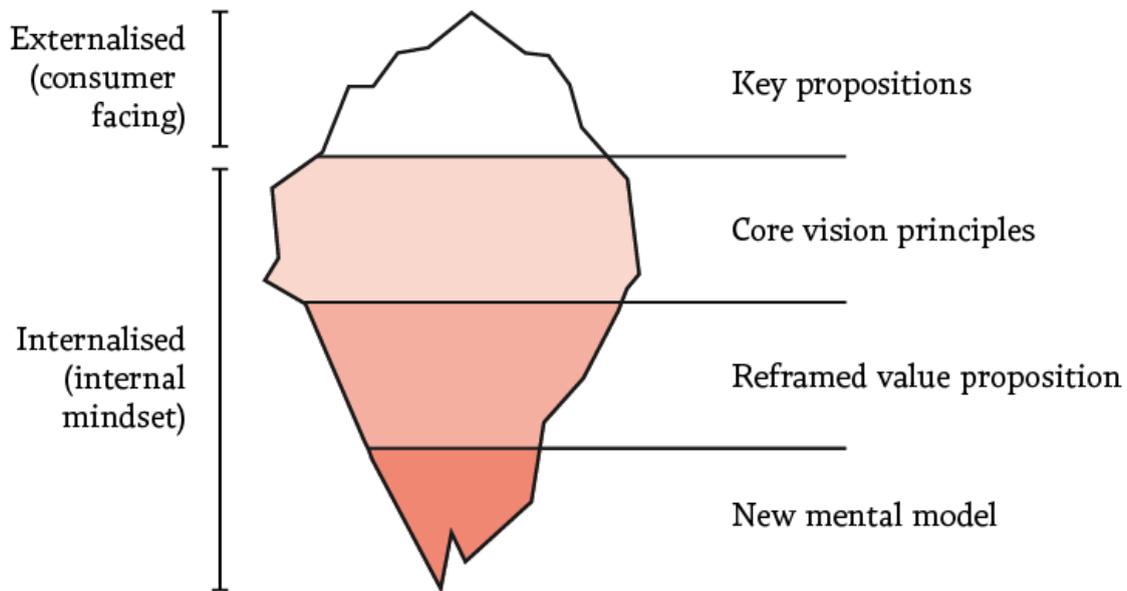
Figure 9: The strategy iceberg summarises the proposed strategy concept.

So, what strategy should Juvenile Company strive for? And what principles should guide this strategy through the uncertainty of the future? The key to realising this lies in the value proposition uncovered in the parent-stroller relationship. 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 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.

The three core vision principles describe how Juvenile Company can maximise the value it delivers to parents over the course of their mutual relationship. The principles are distinct and complementary. Each of them describes a different way through which Juvenile Company future services should provide value to parents. The first, Value beyond product, focuses on explicitly delivering new qualitative value to cater to the different needs in each of the stages of the relationship. The second, Adapting to

changing needs is about facilitating the transitions between the different stages of the relationship. The third, the Dependable guide, is about providing a basis of support parents can rely on them 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. Thirteen key service propositions were developed to help shape these vision principles and spread them across the relationship. These serve to illustrate different types of ways Juvenile Company could deliver value in the spirit of the three core vision principles. Complementing the first vision principle, Value beyond products, was the service proposition of Shared learning, where parents can share practical tips through a Juvenile Company community platform. Adapting to changing needs fit the second vision principle—parents are provided with the service of Flexible modules, allowing them to swap stroller modules when they buy a new car or simply when they make the wrong choice. Complementing the third vision principle, Dependable guide, a key service proposition would be to Co-create optimal configuration for a stroller to ensure the parent and stroller are a perfect fit.

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). These elements are summarised in a strategy iceberg that serves to illustrate how the different elements of the strategy build on each other (Figure 9). Together, the elements present Juvenile Company with a tangible alternative future, one in which Juvenile Company provides value to customers beyond the sale of (new) products and sees the company move away from a linear business model to one built on circular principles.

Concluding notes

This paper takes a critical look towards a product design and manufacturing company's transition strategy towards a circular model and suggests a systemic approach that explores the user-product relationship in a holistic manner. 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, the 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 was found to be the product's primary value proposition.

We used this insight to arrive at the strategy direction developed for Juvenile Company. 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.

To conclude, organisational transition benefits from adopting a systemic lens to unlock the potential that lies within the existing relationships that have been formed throughout the operations. Designers, who are trained to navigate through an abundance of scenarios shaped by alternating entanglements, play an essential role in understanding, narrating and facilitating this paradigm shift and translating the findings into tangible and actionable strategic directions that serve our common search for responsible and resilient futures.

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