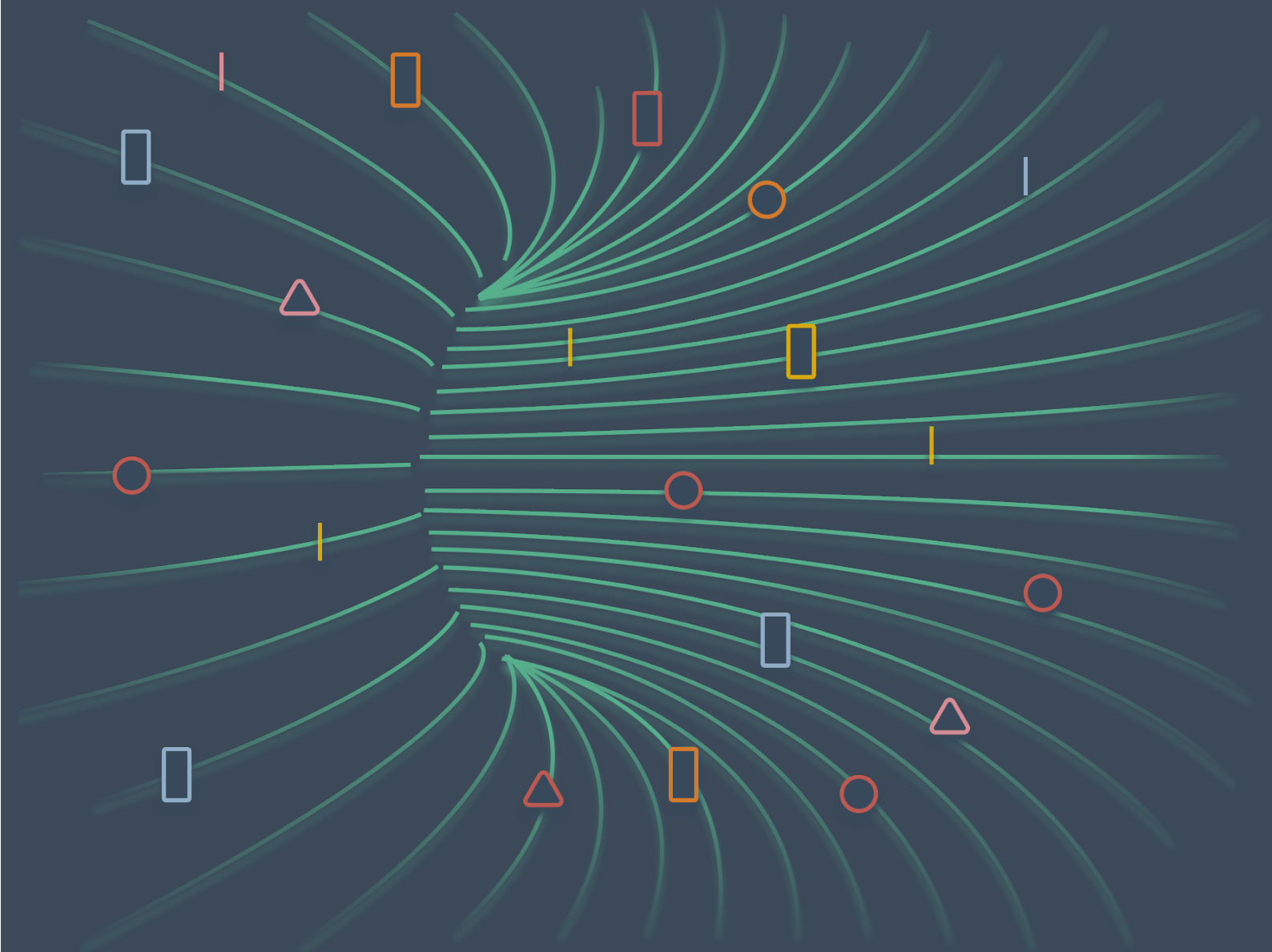


Decoding A Holistic Laundry Product Experience to Envision the Future Product Innovation

Graduation Thesis
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Executive Summary

Henkel is one of the world-leading consumer goods manufacturers. For years, the innovation direction has primarily moved towards product performance and won colossal success. However, today's consumers are savvier than ever. Their purchase discussions are evolving into capturing an idea and desire experience, not by one-off interaction at a single touchpoint.

This thesis aims to facilitate a more holistic understanding of laundry product experience for Henkel to envision future product innovation. The project is, therefore, divided into two parts. First is to establish a holistic understanding of the laundry product experience, and then design the strategy for the Henkel innovation team to implement it further.

The definition of holistic laundry product experience was developed by first conducted consumer research. The design-ethnographic approach revealed people's current perspective and assumptions about the product and laundry activities. It was found that people experience the product as a unified whole, which the interaction with the product is highly contextual. The meanings of laundry are co-shaping by the experience in the past and their desire of the future. A meaning pyramid demonstrated the meaning evolving across time from functional to emotional and identity, from a personal perspective to a more common shared one is identified (see chapter 2). The research results also implied the influence of other laundry system actors, a follow-up analysis of how washing machine manufacture, textile manufacture was integrated to define the final definition of holistic laundry product experience (see chapter 3).

The holistic understanding from consumers and other actors in the laundry landscape also revealed the Henkel's knowledge gap. In an attempt to fill in the gap and see how the organization can utilize the holistic understanding, stakeholder interviews were conducted (chapter 4). The results showed that the current stage-gate process is not flexible and adaptable enough to support a more radical innovation. And the misalignment between the two primary functions-R&D and marketing is an existing bottleneck. The project thus decided to redesign the current stage-gate process. Proposed actions to enhance R&D and marketing integration, redefined the gate definition, and replaced the brand-fit gate with three "light-weighted" new gate to support the innovation projects (chapter 6).

To conclude, this graduation project proposed a new definition of holistic laundry product experience for Henkel. The definition also leads to an adjustment needed in the current innovation process. Therefore, the implement strategy to facilitate the holistic understanding was delivered.

0. Introduction

In this chapter, an introduction is given to present this thesis's topic by clarifying the context and problem. Based on that, the research questions are formalized, and the approach is designed.

0.1 Project context

0.1.1 The Laundry & Home Care Business Unit of Henkel AG & Company

The graduation project is performed in collaboration with Henkel Laundry & Home Care business unit. This consumer goods business has flourished into a globally active unit with a broad product portfolio. The project is initiated by the senior new product design manager of Henkel Laundry & Home Care, together with his team consisting of part of the marketing and R&D departments as key stakeholders.

The Laundry & Home Care business unit has a leading market position with a broad product portfolio ranging from heavy-duty and specialty detergents, laundry additives, dishwashing products to air fresheners and insect control products (Figure 1). The products are sold mainly in brick-and-mortar stores right now and increasingly promoted by TV-based and e-commerce.

The sales performance of the Laundry & Home Care business continued to gain organic growth, supported in particular by the launch of the successful innovation such as Persil 4-in-1 Discs (Figure 2). The core brand Persil and the specialty detergents business were the primary contributors to growth. (Henkel, 2019)

The company has defined its ambitions and strategic priorities to become more customer and consumer-focused. With a mission to make the company even more innovative, agile, and digital. Besides that, Henkel has a continuing commitment to promoting sustainability. (Henkel, 2019)

Our Laundry & Home Care product portfolio encompasses:

- Laundry Detergents
- Laundry Additives
- Dishwashing
- Hard Surface Cleaners
- Toilet Care
- Air Care
- Insect Control Products



Figure2: Persil 4-in-1 Discs

Figure 1. Product portfolio of Laundry & Home Care

“Lines between products, services, and user environments are blurring. The ability to craft an integrated customer experience will open enormous opportunities to build new businesses.”

-McKinsey & Company

0.1.2 The Laundry & Home Care Business Unit of Henkel

To succeed in the highly competitive consumer-goods environment, it is essential to shift the focus from price and product superiority to customer insights and experience. Going toe-to-toe with competitors is not the top priority in formulating strategy anymore, but attention to customers' needs and a close analysis of a company's capabilities in responding to those needs (Golub et al. ,2000). As explained by Bill Buxton, consumption is now shifting its focus from object-centered to experience-centered. The overall consumer behavioral, experiential, and emotional responses that converge to the outcome of a commodity. Consumers nowadays do not only buy products or services. Their purchase discussions are evolving into capturing an idea and desire experience. Therefore, to meet rising customer expectations and face the challenge of developing user environments, an integrated view of product experience is needed to help the organization understand how the converging journey takes shape and prepare for the competitive opportunities and challenges in the future.

0.1.3 Project Objective

“To help Henkel innovation teams broaden its development goals to think beyond feasibility, functionality, and usability.”

-Project Owner

As mentioned earlier, in need of understanding more in-depth consumer insights to keep pace with the current competition and stay relevant in the market, Henkel is interested in how a holistic product experience can be defined and leveraged.

This project will put the main focus on the detergent product. Still, as its experience is related to other experiences within the whole laundry experience, to understand the laundry product experience in a holistic manner, we need to know how different parts are interconnected and reference the whole to make it explicable.

On the other hand, from the corporate perspective, several aspects can hinder the internal use of 'holistic experience,' such as the current product development approach, distributed tasks, silos among departments, etc. Henkel's general guidance for implementing the holistic experience should be conceptualized and adapted to the current organizational structure.

0.2 Project deliverable

Therefore, this assignment reflects the coming together of holistic experience and its narrative and a new approach to product development. With those mutually supporting ends in mind, the project can be structured around two key phases:

- Develop the user context, definition of holistic product experience, and its narrative, differentiated with the product experience for functionality and usability.
- Conceptualize the implementation for Henkel Laundry & Home Care R&D department to leverage for the holistic product experience.

0.3 Research question

To address the initial problem and generate a comprehensive understanding of the laundry product experience. The research will look into both consumer and industry perspectives by responding to the following main research questions and respective sub-questions.

First, a thorough understanding of the current customer laundry product experience is developed. This analysis from a people perspective aims to build a comprehensive understanding of customer's needs and perspectives.

Research questions to understand everyday laundry product experience from the consumer perspective:

Q1: What is the current laundry product experience?

- What are they trying to achieve by consuming a detergent?
- What kinds of pain points can be identified?

Q2: What is the current laundry experience?

- What is the sequence of events or scenarios during the experience?
- What is the customer's goal, need, and expectation through the experience?
- What is the relationship between laundry product experience and laundry experience, and how they influence each other?

Q3: What is the laundry activity's perception, and why do they think the way they do?

- What is the emotion flow during the process?
- What is the attitude, thought, and mindset towards laundry activities?

In parallel, to framing the landscape of products and services, research into the laundry experience landscape to explore who are the actors, how they and their competitors respond to the changes, and how their impact on shaping the product experience will be conducted, the questions to be explored are listed below.

Research questions to understand the laundry product experience landscape:

Q4: What does the current laundry experience landscape look like?

- Who are the main actors, and what are they doing?
- What are their interrelationships, and how do they influence each other in shaping how people do the laundry?

Q5: What's the trend and signals from the adjacent markets?

- What are the actors' current interests, and what they foresee and expect changes?
- What kind of actions the actor is taking to adapt to the changes?

The above explorations were brought together to identify the forces shaping the laundry product experience and its landscape. The following are the internal research questions to understand better Henkel's key stakeholders' expectations and how each department/team corporates.

Main research questions to :

Q1: What are the current approach and perceived barriers for Henkel to innovate?

Q2: What is the current consumer understanding, and how it has been applied to work?

Q3: What are the advantages and disadvantages of current Henkel product offerings?

0.4 Research approach

Due to the undefined nature of holistic laundry product experience, the research approach follows a design thinking logic represented by the double diamond but adopted the RSA model of ‘think like a system, act like an entrepreneur’ as process of marrying design and systems thinking (Figure 3) (Conway et al., 2017). It started from capturing the current laundry product experience by doing design ethnography research, which set a fundamental background to understanding laundry behaviors and emotion. Its vital insights on users help define the actors and topics to be covered within the laundry business landscape to develop a targeted system’s deep understanding. Both consumer and adjacent industries’ perspectives were taken into account and elaborated as the holistic laundry product experience at the end of this phase.

To understand the current approach of Henkel innovation management, the second phase started with the stakeholder interviews. Insights were generated and clustered into themes that informed the potential barriers and inspired later conceptualization. By appreciating factors like system dynamic, internal resources, and culture, this phase was also characterized by two workshops which collaborated with the key stakeholders to see how they resonated with the results from external research and what would be the potential actions to integrate into their daily work.

Overall, the project has applied design thinking and a system thinking lens to question the holistic laundry product experience and identify opportunities to change accordingly. It is worth noticing that the problem frames and corresponding solutions were ‘co-evolve’ to adapt to the new knowledge and challenges. (Dorst & Cross, 2011). As a result, it was not a step-by-step process but maintained in a rather organic manner that navigated along the way.

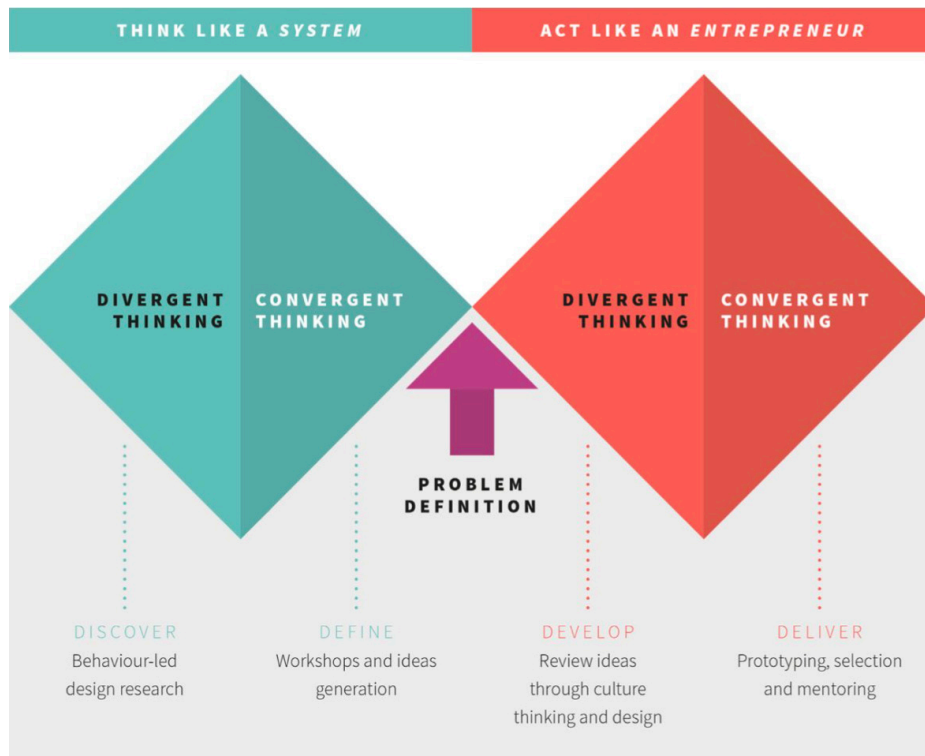


Figure 3: Model of 'think like a system, act like an entrepreneur' (Conway et al., 2017)

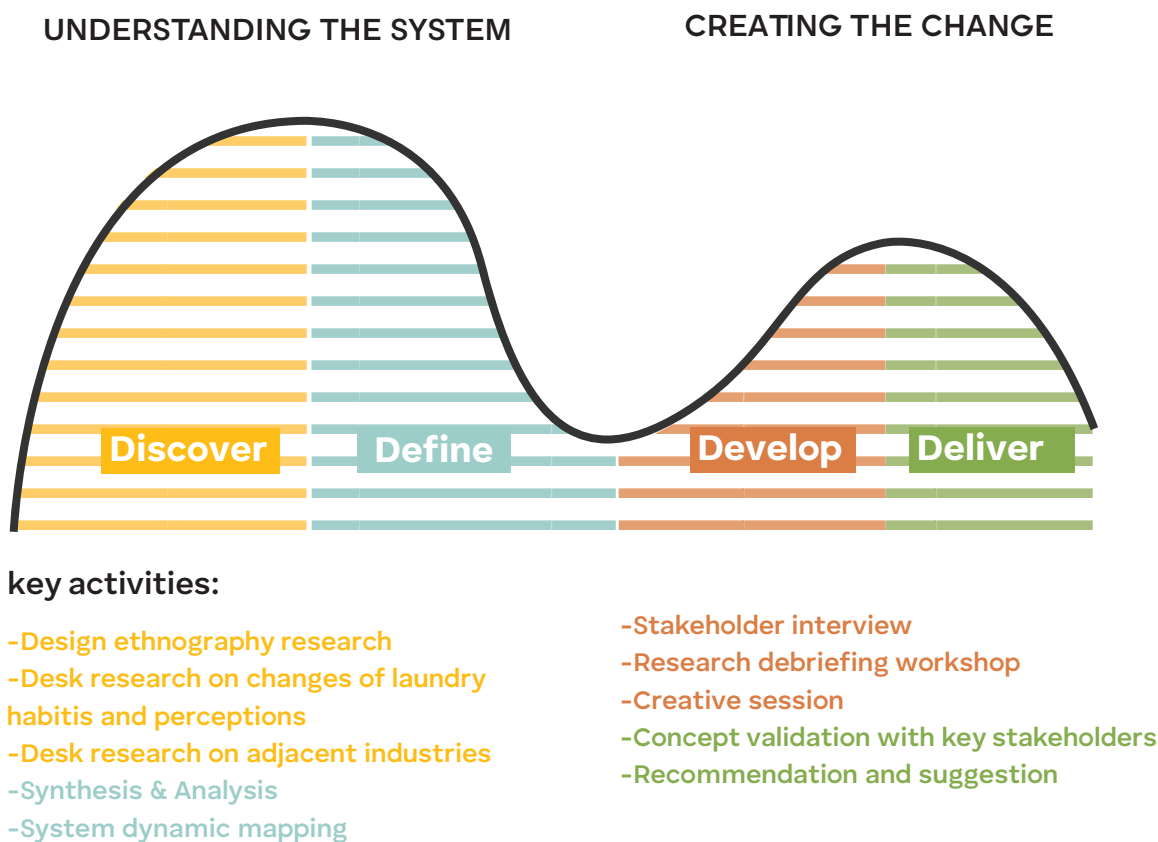


Figure 4: The research process

PART 1. DECODING THE HOL

1. Capturing the current laundry product experience

To understand the current laundry product experience, this chapter starts with the literature review on product experience. It helps set up a theoretical background and highlights the importance of product interactions, and context aspects in creating a comprehensive understanding of product experience. Based on that, first research was conducted, the findings represent the insights of current laundry product experience.

ALISTIC PRODUCT EXPERIENCE

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1.1 Literature review on product experience

1.1.1 Product experience from a design perspective

Despite the multi-faceted nature of product experience, which consists of fragments like subjective feelings, behavior, expressive or physiological reactions, the user perceives the experience as a whole. Design research on 'product experience' has a long history focused on people's subjective experiences that result from interacting with a product. It aimed at exploring the awareness of the psychological effects by understanding the senses that are stimulated, the values and meanings people assign to the product, and the feelings and emotions that are elicited. Desmet and Hekkert have proposed a model that aimed to offer a framework to explain the product experience with three distinguished components or levels: aesthetic pleasure, attribution of meaning, and emotional response.

The aesthetic experience occurs before attaching meaning, mainly due to people's perceptual processing of the product or its attributes. Experience of meaning is the cognitive processing of a product upon perception, and the emotional experience is associated with the perceived beneficial value. They argued that even though product experiences are principally holistic, understanding how these three experiences interrelated can help designers further con-

tribute to a holistic experience (Desmet & Hekkert, 2007).

For example, designers can play with aesthetic enjoyment, which contributes to the product's sensory perception. The meaning defines the goal people want to achieve by interacting with the product, leading to various emotional reactions.

elements at such micro-level (i.e. particular product properties such as shape, color, and sound) or macro (product-interaction) level is not always sufficient. In a broader sense, researchers found every product also affects how people behave and experience the world, whether it is intended or unintended (Verbeek, 2005). This highlights the importance of context in which the interactions take place in shaping the understanding of product experience. In this meta-level, ranging from the physical surrounding to the broader sense like the cultural and social situation, the product has various effects on experience.

Based on the discussion above, the ecology of product experience is depicted below in Figure 5. Even though the way people experience real-life products is not as fragmented as explained, designers need to take a closer look at analyzing the product. Its properties, functions, and interactions under both the micro and macro levels, and be aware of zooming out to understand the context where the interaction occurs.

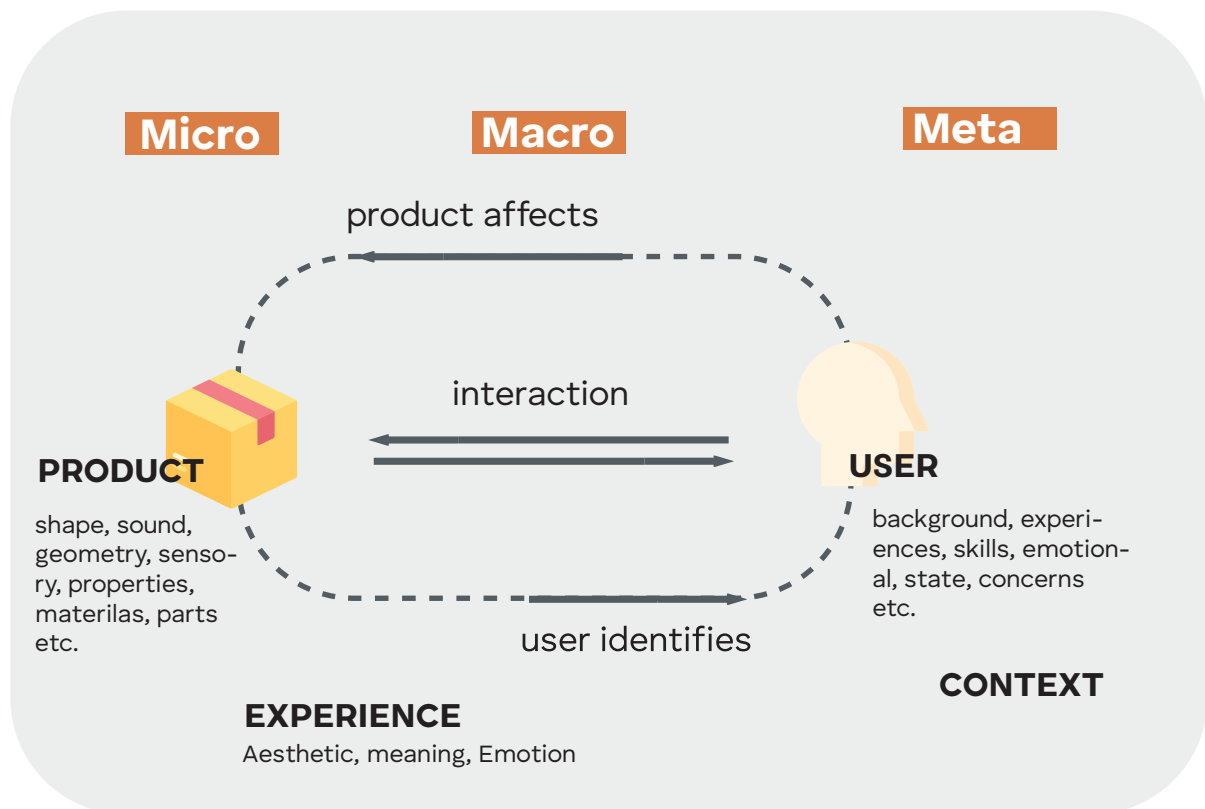


Figure 5: Ecology of product experience (adapted from Desmet and Hekkert,2007).

1.1.2 Product experience from a market perspective

The field of marketing studies product experience to identify their way of approaching customers. The product experience within market research emphasizes the subjective evaluation of physical products or services, aiming to bring a product or brand to a market in a profitable way (Kotler, 1984). The theory of Moment of Truth is a presentative example showing marketer efforts in pursuing a desirable and coherent customer experience that enhances the brand image. The product's purchase and consumption play an essential role, amplifying the first moment of truth when a customer first confronts the product either online or offline in the retailer. The moments after that, when consumers use the product and then give feedback or reaction towards a product, service, or brand offering, are the second and third moments of truth. The marketers explore these moments of truth to ensure that they can positively impact the product experience. As Herbert Simon's famous quote: "Everyone designs who devises courses of action aimed at changing existing situations into preferred ones."

1.1.3 Product experience from an economic perspective

As stated by Pine and Gilmore in the introduction of Experience Economics, 'an experience occurs when a company intentionally uses services as the stage, and goods as props, to engage individual consumers in a way that creates a memorable event.'

There have been emergent marketing trends to engage consumers beyond merely offering physical products. Experience has been recognized as a distinct economic offering, separating from services as a memorable event that engages consumers in an inherently personal way. It is worth noting that the boundary here between product and experience is blurring as the offering is understood experientially.

1.1.4 Implications for this project

The discussion above shows that the study on product experience is positioned at the intersection of various domains since its multifaceted nature. By recognizing this complexity, it opens the opportunity space for the later exploration of laundry product experience for this project. To identify the holistic laundry product experience, we need to adapt to different levels of abstraction and bridge various fields of expertise. We need to find ways to stimulate people's subjective responses to laundry activity beyond merely considering the human product interaction or product functional attributes and pay attention to the context of use in a broader sense. We need to be open to engage other disciplines, use design as a bridge to further elaborate on the understanding of laundry product experience, and create a shared definition that enables internal communication.

1.2 The field research set up

The research started with exploring the laundry product experience from a consumer perspective. Due to the nature of the laundry experience as a series of complex and fragmented actions, the hedonic and emotional signals can be hard to capture through interviews. This study's primary method is design ethnography, which uses prototype or stimuli to create dialogs with respondents during the fieldwork. The emphasis of this research approach on "natives' points of view," holism, and natural settings (Blomberg, J. et al. , 2009), can give the researcher first-hand experience of the context and access to explicate patterns from fieldwork observations.

To better understand the user and context of use, the research consists of four parts of studies, the homework before fieldwork, warm-up, semi-structured interview, and guided tour (Figure 6). Below is the description of the general procedure and its purpose for each study. For the detailed research plan, please refer to Appendix A.

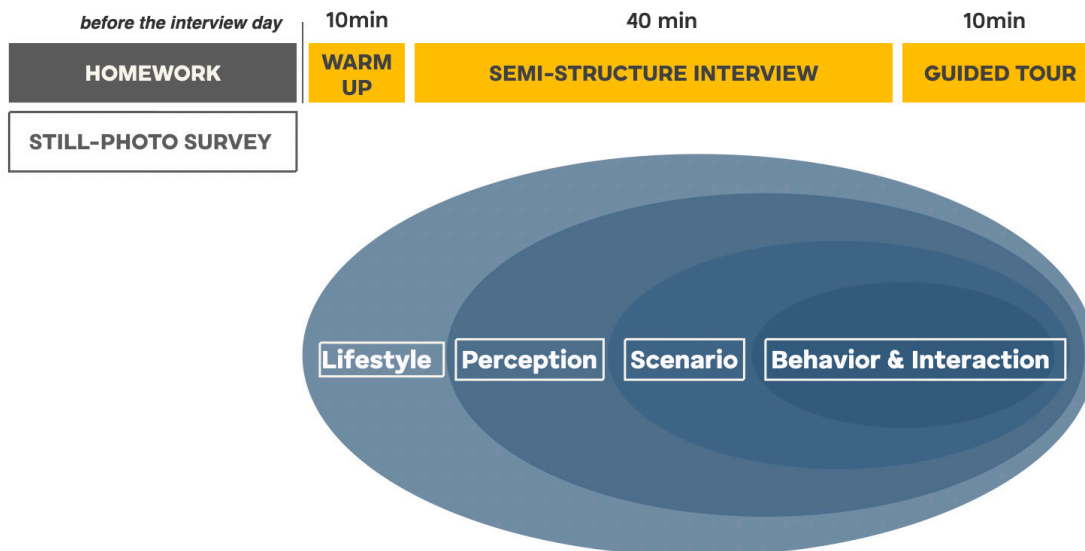


Figure 6: The research plan

1.2.1 Homework: still-photo survey

The homework sent out before the field-work aims to allow participants to capture their emotions and notice their behaviors in the laundry experience. The participants were asked to capture at least five key moments the last time they did the laundry. The visual evidence can serve to uncover patterns of behavior and perceptions related to laundry activities and help the researcher identify the user cases in advance to ensure that relevant information can be obtained during the interview. Figure 7 shows a example of this activity.

1.2.2 Warm-up

To build rapport and understand respondents' background, the field research started with introducing the study's goal and researcher information. The Consent Form was signed to ensure the participant content with the recording for study purposes.

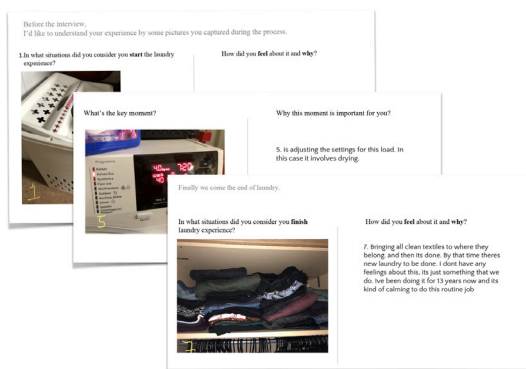


Figure 7: The homework example

1.2.3 Semi-structured interview

The semi-structured interview followed a interview guide (Appendix B), covered topics and issues from general lifestyle, perception about laundry, use scenarios to detailed product interaction. The main questions and props are defined in advance to ensure the data and logic flow's comprehensiveness. Still, they remain conversational and situational flexibility for researchers to uncover new topics based on emerging observations. The interview structure is illustrated in figure 8.

The interviews started with lifestyle questions. The participants were asked to do a self-Introduction describing themselves and the living condition briefly. Following the laundry's perception, the comparison of laundry and other chores was being made, the decision-making process in the washing machine, detergent, and related products was explored further to understand the overall opinions about the laundry acti-

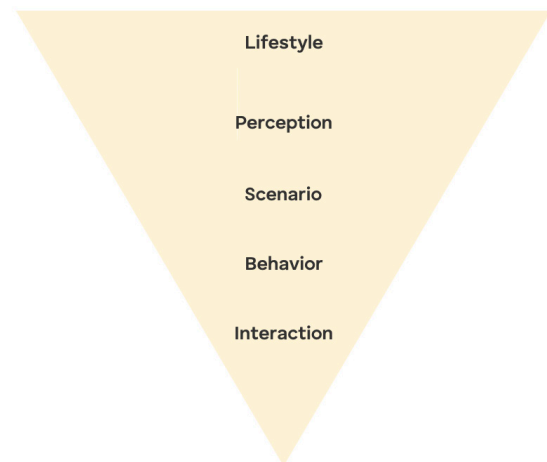


Figure 8: The interview structure

vities. Together with the Journey map and homework results, example questions like “How do you plan your laundry activity?”, “Before you start to introduce this journey, can you tell me that the ideal mood of this journey? And why?” and “Can you tell me the reason why this moment is important to you?” were proposed to help the respondent recall and complete the journey. To deep dive into the laundry experience’s behavior and interactions, questions were made based on the specific touchpoints can be found in Appendix A.

Stimulus in interview

Journey map

A blank journey map with a timeline was provided during the interview. The participant was asked first to recall and complete the map using the key moments captured from homework, and then start to explain the journey based on a time sequence. The spatial and emotional transitions are also noted in this map to give research a comprehensive understanding of the experience.

Card sorting

Several key factor cards and blank cards were provided for participants to help express their understanding of the current laundry product experience. The key factors are: supporting, predictable, trustworthy, familiar, interesting, exciting, impressive, pleasant, inviting, desirable.

Mood board

A mood board was created with both positive and negative images to stimulate participant emotion.

1.2.4. Guided Tour

The researcher accompanied participants on a guided tour to the laundry space to explore the objects and actions in situ. This helps participants recall their intentions and values of doing laundry activities and further empathize with the participants.

1.3 Synthesis

The synthesis process aims to interpret the data collected from the field, searching for patterns and generating findings that can fit the project objectives and answer the research questions.

1.3.1 Analysis

The analysis was guided by Ackoff’s DIKW scheme (Figure 9). The sensemaking process consists of building information from data, finding patterns in that information, and distilling knowledge to create insights (Sanders & Stappers, 2008). First, the interview transcript, card sorting, and journey mapping results, together with the notes from observation, were collected. The data processing process was characterized by making the statement card (Figure 10) from interviews, and the debrief form documented the data from the field activities. During the process, the memo writing was actively conducted by the researcher through interpretation. After that, the pattern was sought by generalizing and abstracting from the individual data and information.

The analysis provided three main journeys through the laundry experience: purchase, the context of use, olfactory. The insights are described below. Furthermore, to distill the intent and perception of people doing laundry, a meaning pyramid has been created and expressed in Figure 11.

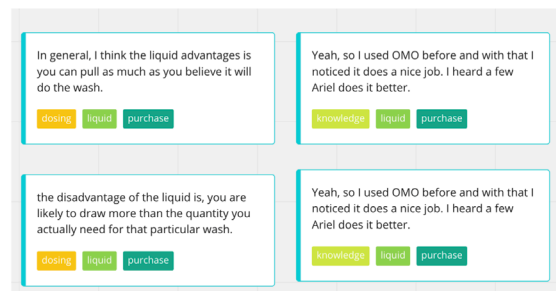


Figure 10: The statement card example

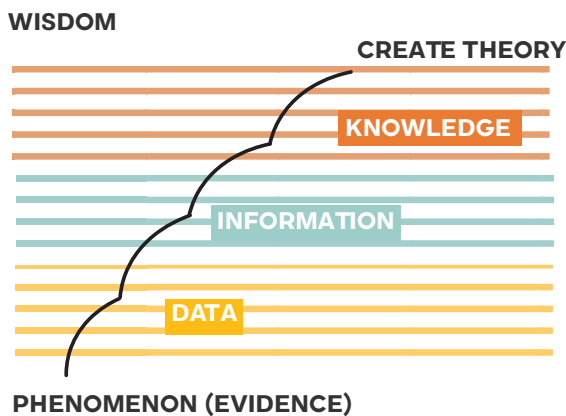


Figure 9: The Ackoff’s DIKW scheme

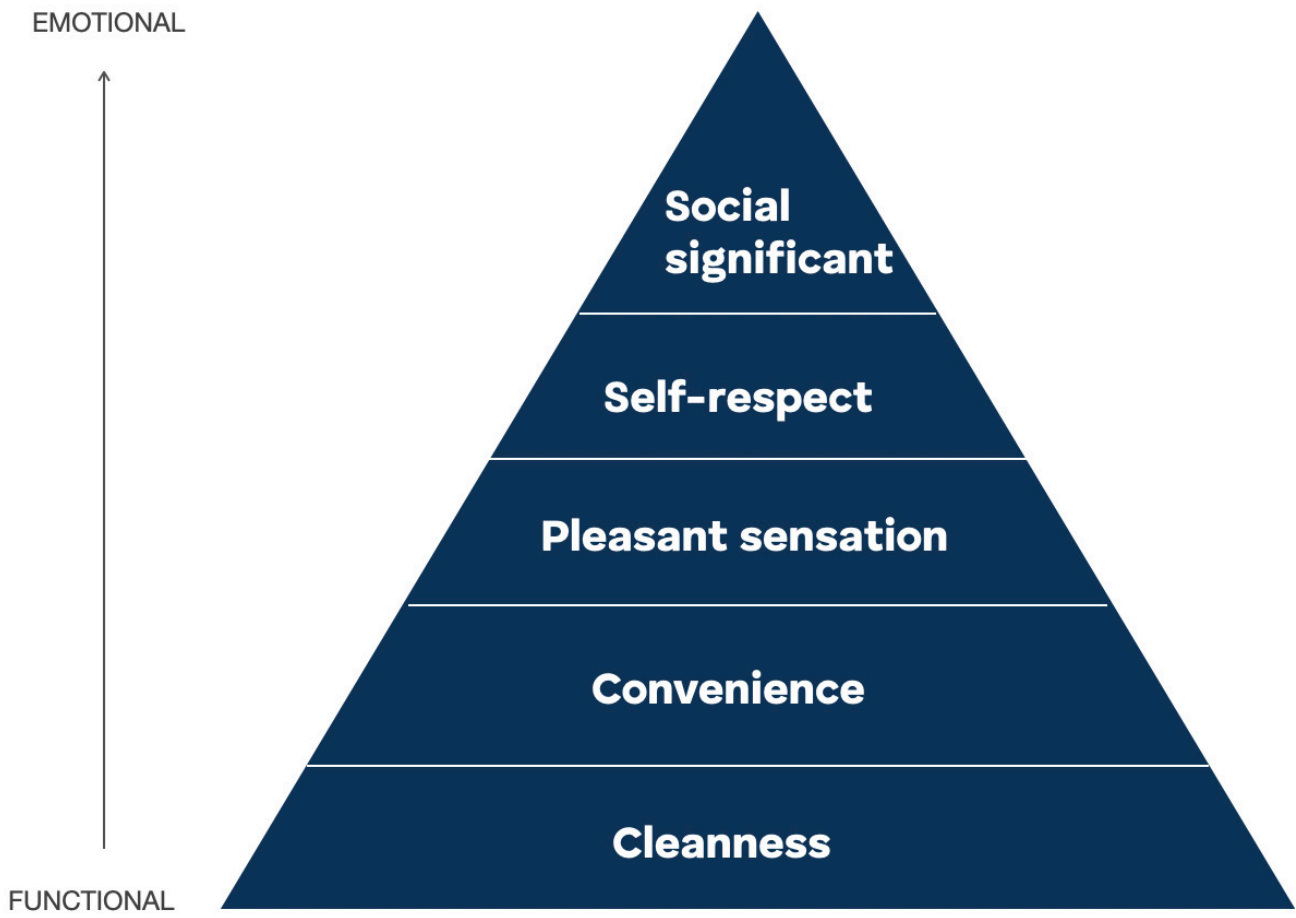


Figure 11: The a meaning pyramid

1.3.2 Results

A. Purchase Journey

A1. Price priority & unaware of price superiority

When talking about what triggered them to buy the detergent they are using, participants would mention the price. They were looking for the sale among the brands they knew, which ensured the quality. Some of them admitted that since they are unaware of the price superiority, they would buy the cheaper one, for example, the laundry powder from the discounters like Aldi, Lidl (as depicted in figure 12).



Figure 12: P1 explained the purchase decisions for a different laundry product

"I will go for the middle price."-R5

"And most of the time, the main brands are pretty good."-R6

"But what I usually do is I go to this discount shop, which is very cheap. And their price is like half the price of the detergent in the supermarkets, but it's the same detergent. So I have the feeling that it's just like all the design package packaging."-R3

B. Context of use Journey

B.1 Doing laundry is an improvising process, not a routine

Respondents found it hard to describe which particular day or the specific time they will perform the task. It indicated that the activities are now actually built around individual schedules rather than routine. Unlike the "Washing Monday" in the past, people nowadays tend to find time to wash rather than pre-determining the time. With this thought in mind, they often combine laundry activity with other chores, like cooking, dishwashing, etc.

"It's something you do while you're doing something else. I usually cook and do the laundry at the same time." -R9

"Instead of finding time to wait, I find time to do it."-R3

"Mostly in the meantime for breakfast, I'm always busy."-R2

B.2 Have a sufficient washing cycle

A full laundry basket is a signal for doing laundry. Participants believe that only washing half-load is a waste of water and energy, so they will wait until they have stacked enough dirty clothes for a sufficient washing cycle to perform the task.

"So when the basket for laundry is full, I start thinking about 'Okay, I have to do the laundry.'" -R2

"I've got red clothes, and then I collect many red clothes so that I have a full machine. I'm not going to put three items in the machine and wash them. I wait until I have the same color clothes." -R5

"I just think it's a waste of water and time and detergent if I just wash three shirts. So I prefer a bit fuller." -R3

B.3 Where and how I place the laundry influence my life

Since people will wait until the laundry basket is full to perform the task, clothes sorting has become an ongoing household process. One participant referred to it as a "personal system" based on individual washing habits and preferences. They also pointed out the dirty laundry basket at home can be an eyesore that upset them before the laundry.

"We have four baskets, we have black, white, and 20 degrees and hand wash." -R6

"I didn't understand the system either at first, but it was my boyfriend's. He's like 'yeah because when you put it in you can decide wash and dry, or only wash.'" -R1

"Because clothes are dirty, and I don't feel fresh the way I want to be."

"I'm totally not very happy because I see a lot of dirty clothes, and that doesn't really resonate correctly with me." -R6

"The children are the most important thing. I like that my house is a little bit. I like that it's clean. It doesn't have to be. We live with children. It's okay. We have toys around. But I like that it's clean but not a lot of laundry and baskets." -R10

B.4 Bedsheet & towel are different

Participants treat bed sheets and towels differently, not only because they are for everyday use, but the perception of cleanliness for this type of linen is different. Special treatment like using vinegar to ensure the softness and deodorization or choosing a higher temperature to disinfection is applied for this particular need.

"60 is always bedsheets and towels because I think they are better clean with 60 degrees. Higher so it can kill the germs." -R9

"Mostly because I want them to be fairly clean." -R2

"In the past when we put it in the washing machine and then after that you forget it. So when you go to bed, you think, 'Oh no, we've got to get then.' So now we always do it on Friday, because otherwise, we forget it all the time."-R7

"When I do towels or my sheets. I use vinegar."-R2

B.5 Feel in control, feel relief

The problem of overdosing is quite common among liquid detergent users, and they have been aware of that. They look for a reference point at their connivance to dose the detergent without following the instruction from detergent producers. They believed that the more they use, the cleaner the wash will be.

The pre-dose detergent capsule seems to solve the overdosing problem and make the dosing process even convenient by minimizing the step from three to one (Figure). Users feel like it actually limits their choices. Especially when the basket is a little bit fuller than usual, the capsule doesn't provide them the flexibility to decide the amount they would like to use.

"I use a Chinese spoon. It's not based on experience. I don't know I was just doing something."-R9

"I always use, usually until you know you have a blue point on the machine. Because you can't put more on the machine, it's not good for the machine."-R5

"I think I use too much."-R3

"I don't follow the package instructions correctly in general. It will tell me the quantity which I need. I have a tendency to pour more than I need."-R6

"So I get the project on it, and I know that I only have to use very little. But then I feel like it's not really. Yeah, it's strange. I know that it should be clean, but it feels like it's not clean."-R3

"It tells me that, you know, I heard the news that you may be more washing liquid, the cleaner the wash will be."-R6

B.6 Prefer to engage in the process instead of being served

Using a generative tool to trigger how people envision the future laundry experience could be, participants assumed that it takes less effort. But it doesn't mean they think effortless is the most desirable approach. Minimal human intervention is still necessary because it is the way they can show their personal values and feel engagement.

I don't have to do so much as I have to do now. It's giving me a hand, so it's helping me. Something is helping me doing the washing.-R7

I also think it has to be effortless. So it doesn't take so much effort.-R8

"Walking to where I hang it up would be the one I would like to keep Because you put some effort into this process. It's just like Facebook is to you, like they make you think something good happens, so that's why you are clicking everything."-R7

"It's going to use less water or less detergent, and that's t I think what I really want to control. If the rest can be done by someone else, I would be fine. But this part I still want to control because I think it's my personal value. I don't want someone else to tell me how much water to use or how much detergent. I want to balance this off."-R4

B.7 Feel my effort and share the load

Laundry has been one of the grueling responsibilities over the house. People take granted the cleaning results and often forget to appreciate the tedious process.

"When I cook, I see that people enjoy it and they are like it. But the laundry is something you have to do, but nobody sees it."-R10

"She helps me fold sometimes because I want her to help in a household. In Holland, we always say it's not a hotel here like you live here you help. I'm not going to do everything by myself."-R1

"If she takes her own laundry down, then it's improved. And maybe when she is out of the house, then that's not a problem anymore. Well, yesterday, they folded the towels. I will show you. Like it's not that they are not doing anything. Now they send me a picture. They were doing it."-R9

B.8 Quick ready for me to enjoy life

For most respondents, the washing machine doesn't really liberate them from the tedious task of laundry. Even though the

the washing machine only requires minimum human intervention, it finds it hard to relax their mind when the engine is going. Because of that, they feel like the task has taken away their quality family time, and the desire for a shorter washing period has become desperate.

"when the washing isn't ready yet, and it stays in my head, and I can come to something I don't go outside. I never go outside when the washing is busy, so I don't have freedom when the laundry is doing his job."-R10

"So when I hear the washing machine beep and then afterward I know I have to handle laundry, it's in the back of my mind like, 'Oh, yeah, I cannot relax. I have to do it.' I have to get up."-R4

"Because I have to do it every day, every day I have to wash, there is no stop. It goes, and when I don't have to do the laundry, I have time to relax or to enjoy my family, my friends the good things in life."-R7

B.9 The more I care, the more differences I aware of, the more interested I am in the laundry

Most of the respondents recognized that the life stage changed their viewpoints of laundry. At a young age, they are less cautious about this activity. Three out of ten recognized the significant difference after having a baby. The caring aspect does not like the past, they do it all along. But also for the loved one, indeed changed their general attitudes towards laundry activities. Continuous learning even helps them find interest in this mandatory task.

"when I was younger, I wasn't really interested in it. I just, if I had a pile of laundry, I put it in the washing machine. I didn't care if it was black, white, colorful, whatever and I did laundry. Nowadays, including with a small child. So I try to educate myself more what the difference is between different kinds of laundry detergent and what it does to different kinds of laundry."-R2

"Because of the children I don't like that it's messy or that there are dirty things. With children is more important for me."-R10

"And now I really did see differences, how the color stays right. The fabric stays right. So I always try to educate myself to do the right thing."-R3

B.10 Taken for granted the clean clothes

The way people evaluate the washing outcome has changed a lot. Respondents found it hard to answer how they can be sure about whether the clothes are properly washed. They believe in the machining process and seldom pay attention to the outcome. The relative whiteness, we can see in most of the detergent commercials demonstrated, is rarely asses by consumers in real life.

"It's always clean. I don't checked."-R1

"But I think I never, yeah okay, maybe the only thing that sometimes it's not clean is like the white sock, I can see it."-R3

"I see physically that the clothes look good, they look clean, and they smell good. Once I know it if it's literally been washed, then of course, physically I would see that it's clean."- R6

C. Olfactory Journey

C.1 The smell is a signal of cleanness

As mentioned before, the cleaning result is now taken for granted as long the laundry has been in the washing machine. It also applies to how people will evaluate whether the item needs to be washed. The visible stain is no longer the criteria but the smell of the cloth.

"So if I smell more like laundry detergent, it looks like the clothes are cleaner. And like for them a few times the smell will go away, of course. And that's from me also saying like, 'okay, it needs to be washed again.'"-R4

"But if it's just like most of my T-shirts, I'm washing it not because they're very dirty, but just because I wore them a few days. Yeah. So then how do you know? It's only because it smells super nice. Ah, yeah. So there's trust, and the smell is really important."-R8

C.2 The smell can camouflage the cleanness

Interestingly, the smell can even camouflage the cleanness since its association has dominated people's minds. It's worth noting that, especially in laundry service, the scent plays a significant role in evaluating the results. As participant 8 discussed below, he only asked the laundry shop to iron his shirt, but the strong smell made him feel like the clothes had been cleaned.

"And your whole house can be a mess. But it's a little bit, but it smells clean. So that's a nice feeling."-R5

"Maybe it's let's say that your machine wash is not so good. But it's a very good softener. Very good. Like detergents, you can maybe camouflage the smell a little bit that maybe your clothes are not that clean."-R8

"Sometimes I only let them (laundry shop) iron like a shirt, for example, I did not wash it with the laundry shop but only brought it to iron it for me. And they even spray that shirt in with some kind of like good smell. Oh, then they wrap it up in plastic and fold it. So when you open the package, this smells good even though they didn't wash it, so they always use like stronger perfumes."-R8

1.4 Discussion and conclusion

In this chapter, the definition of product experience has been explored based on the literature review. It sets a theoretical background recognizing the multi-faced nature of product experience requires a comprehensive understanding of the function attributes, human product interactions to the context where the interaction takes place and can be expanded to society and culture. And the product experience is not a design territory. Several disciplines have kept contributing fruitful discussions to this area, which made the definition of product experience stay open and adapt to change.

The initial research on laundry product experience explored the current consumer understanding of laundry. The three main experiences have been captured with insights for further elaboration. The meanings of people doing laundry have been distilled, ranging from functional to emotional level. And the main actors in this experience have been identified to serve the need for further research: washing machine manufacture, laundry and related product manufacture, textile and fabric producer, and laundry service provider. The following chapter will use this as a starting point to navigate the laundry product experience landscape.

2. Understanding the launch product experience lands

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2.1 Approach to gain a holistic understanding of laundry product experience

2.1 Approach to gain a holistic understanding of laundry product experience

As described by the Cambridge dictionary, “holistic” means dealing with or treating the whole of something or someone and not just a part. In other words, a holistic understanding of laundry product experience must place the laundry product within the larger systems in which it is embedded and see relations and identify the essential connections in a real context. It requires a systemic focus on the connections and relations between users, objects, products, and interactions, rather than seeing them separately. There are many different views on how to approach holism, the systems think it is one way to approach to deal with complexity.

2.1.1 What is system thinking

System thinking is distinguished from linear thinking, which adopts holistic (integrative) thinking to organized complexity (Weaver’s). The Iceberg Model in figure 13 depicted the characteristics of human-designed systems. The events and patterns we can observe are caused by the structures and mental models that are often invisible or hard to investigate. To understand human behavior, we must first identify and then understand that system’s structures and the underlying mental models that cause them. Another form of system thinking is the system dynamic, which emphasizes the inter-relationships among system components by studying the dynamic behaviors derived from using system dynamics modeling (example of causal loop diagram to depict system dynamic, figure 14).

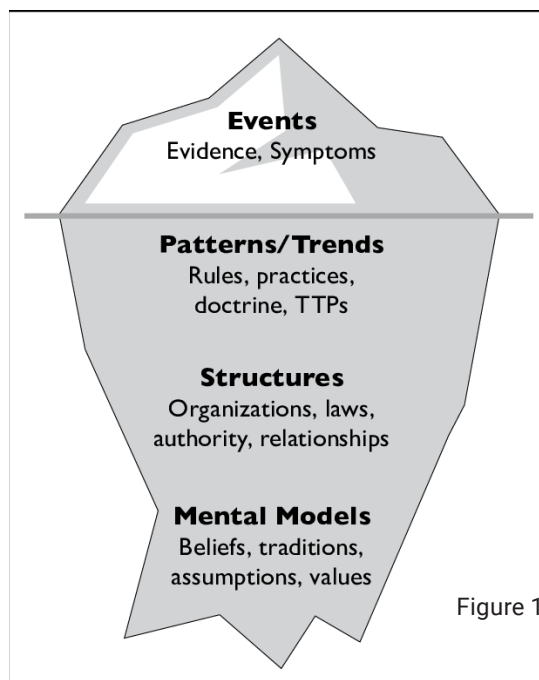


Figure 13: The Iceberg Model example

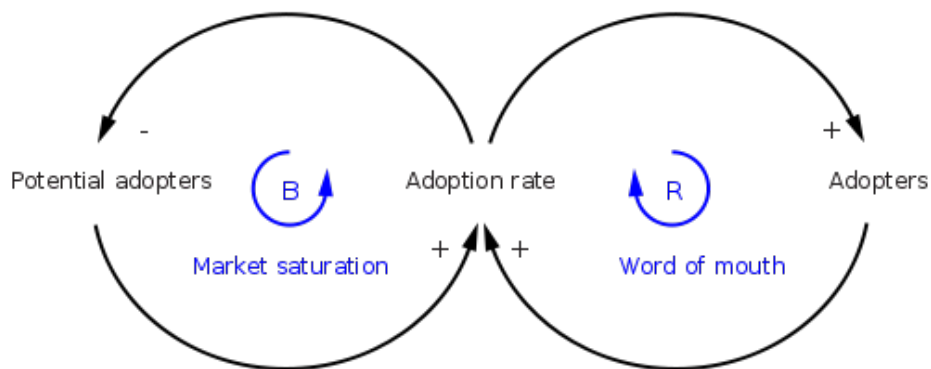


Figure 14: The system dynamic example

2.1.2 How system thinking can be applied to the holistic understanding of laundry product experience?

As discussed above, holism recognizes that the whole is more than the sum of its parts, and the behaviors of each element affect the whole, which cannot be seen separately. To understand the underlying mental models, the key actors in the structure level, which have been identified from the consumer perspective in Chapter 1, can be served as a starting point and then see how their interrelations influence the patterns. The system dynamic framework would be applied at this level to understand the systemic changes over time and how one can influence the system. The research questions in each level with its design methods and expected outcomes are illustrated in figure 15

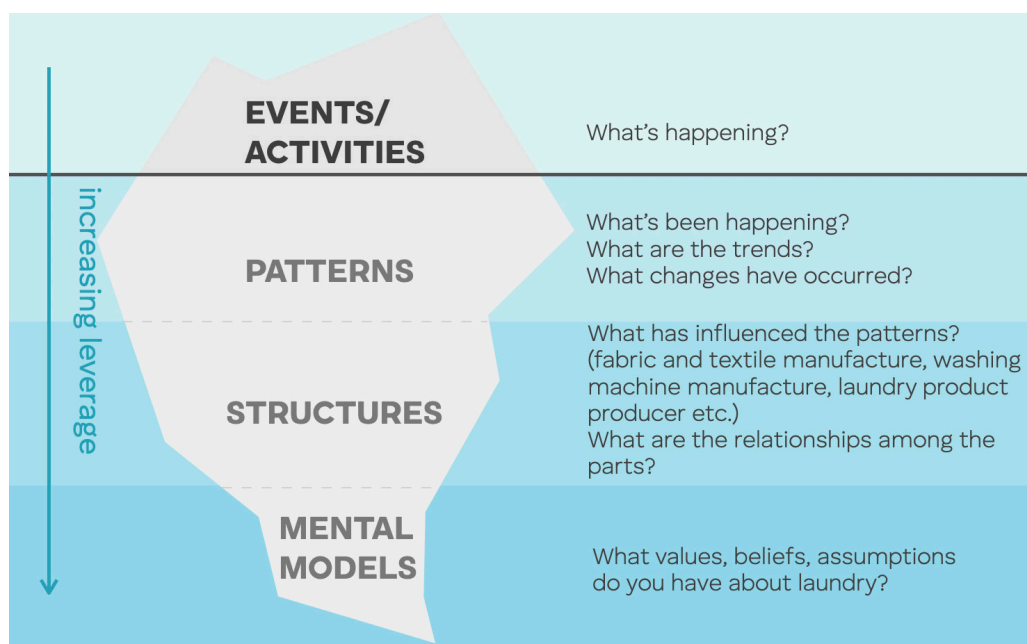


Figure 15: The Iceberg Model for this project

2.2 Systemic view of laundry experience landscape

2.2.1 Understanding laundry as a system

As mentioned earlier, this project took a systemic approach to understand the laundry product experience using the Iceberg Framework. In the previous chapter, the Laundry product experience from the consumer perspective has demonstrated the mental model level of understanding people’s assumptions and laundry activities beliefs. We will further analyze how these mental models lead to the structures and patterns levels. To do this, a literature review on how laundry behaviors have changed over time was performed by system dynamic analysis to see how different actors are organized or interrelated within the system. Besides that, various actors’ current position has been mapped out based on desk research on current innovation offerings from related industries.

2.2.2 From past to present

Elizabeth Shove has pointed out two significant differences in today’s laundry activities in <Comfort, cleanliness and convenience>, one is the decline of boiling, and another is the increasing significance of freshness of the result. To describe the changes and understand how the structures have been shaped, she used the whirlpool model of laundry (figure 16) to illustrate laundry as a system of systems. She considered laundry an emergent “service” derived from the co-evolution of the system’s mutually interdependent components. This model’s implication is not to see the mutual-influence of one or another element within the system but to better understand their combined effect and comprehend the evolution of the complex as a whole. To adopt this approach, a system dynamic view into how the decline of boiling and increasing significance of freshness are discussed below to generate the system dynamic view.

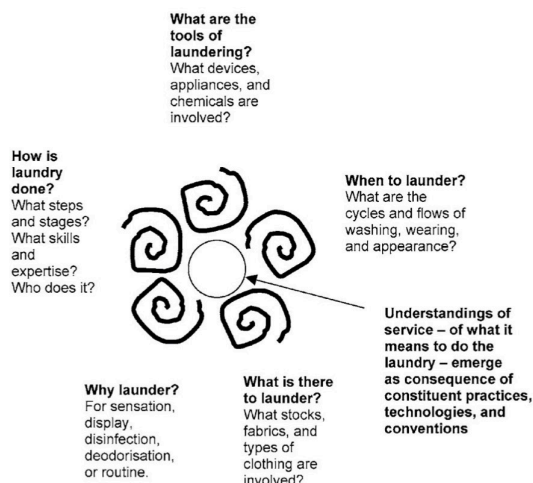


Figure 16: the whirlpool model of laundry

What were the tools for laundry, and how was laundry done?

The washing machine industry has a long history of mimicking human handwashing actions to minimize the conceptual leaps involved until it has become widespread. For example, a "suds-saver" was produced in the early 1950s, which had a separate tub into the not too dirty water from the first wash and pumped for reuse for the second round. This innovation tried to reproduce the cleanliness concepts associated with handwashing by reproducing the users' way of washing. As explained by Loehlin, the washing machine offers a "new way of carrying out an old fashioned practice." (Loehlin, 1999). However, this innovation showed the conflict between washing machine manufacturers' promise to reduce human effort and reassured cleanliness association with hand washing. Another example is the essential boiling process of laundry for getting the wash clean and germ-free in the past (Zmroczek, 1992), only a few were able to heat water to boiling point. The manufacturers had recognized these arduous challenges and redefined cleanliness as the whiteness of the wash results rather than germs' removal. With the help of instruments like the illuminometer, reflectometer, etc. to set the standards of relative whiteness, the washing machines could make. The human naked-eye was not the evaluator of the cleanliness results anymore, but the trust of machine capabilities of producing cleanliness. Washing machine manufacture has kept increasing its capabilities to wash quantities of laundry simultaneously with less user involvement without devoting to reproduce a series of human actions in the past.

What was there for laundry?

The machine had also transformed the typologies of laundry, from by the type of dirt to be removed (sweat, mud, oil, etc.) to by the extent of soiling and the nature of the fabric. For example, hand washing would consider the distinction of individual items being treated, the household linen and dirty socks or underwear were not put in to soak the same washing water. Washing machines had rearranged this classification by offering batches of laundry washed together. The categories of washing have increased, leading to the emergence of cotton and synthetic types of fabric aimed at easy to wash. Together with the sewing machines and mass production of cotton fabric, the consumer was able to have a larger quantity of clothes in circulation, which affected the widespread adoption of the washing machine in return.

How it influenced detergent production?

With the widespread adoption of the washing machine, decreasing washing temperature, and increasing washing categories, the detergent manufacturer has adapted to the mix of fabrics in the wash basket and lowered its recommended temperatures.

To summarize, the widespread adoption of washing machines has transformed the typology by the type of dirt to be removed by the nature of the fabric. The machine-made typology transformed the laundry experience from process-oriented to a series of human actions that ensure cleanliness to result-oriented. The relative whiteness has become criteria, and people gradually trust the machine's ability to produce cleanliness and value the freshness of washing results. The washing machine led this transformat-

ion, followed by textile manufacture and laundry product producers. Please refer to the figure 17 to understand this changing dynamic.

How did people adapt to this change?

Development in washing machine design consequently engendered the loss of boiling, but how has it been revised in practice until now? To understand how people adopt this new meaning of washing, we can further have a clear view of the dynamic of this laundry system.

A Unilever study retrieved from Shove's study shows three archetypes in terms of how people adopt this new washing habit. The diagram below presents these three types. Those who have first-hand experience with boiling are still convinced by the

washing temperature to ensure disinfection. Others who have no boiling habit to lose can quickly adapt to the machined-made habit, reasoning "there' no need to heat the operation." However, the common response is the third group of people who grown up with the habit and tried to find a balance in between: normal purposes washing can be done in the machine in low temperatures, but for specific item (like household linens) or special situation that described below, the boiling or high temperature is required.

We can conclude from the discussion above that the way people do laundry is continuously changing by the opportunities the material offers and their previous experience. The values and purposes of cleaning laundry are actively constructed through practice-based rationals by using results. The collective trends of the industries and personalized strategies are mutually adapting to establish laundry as a system of systems.

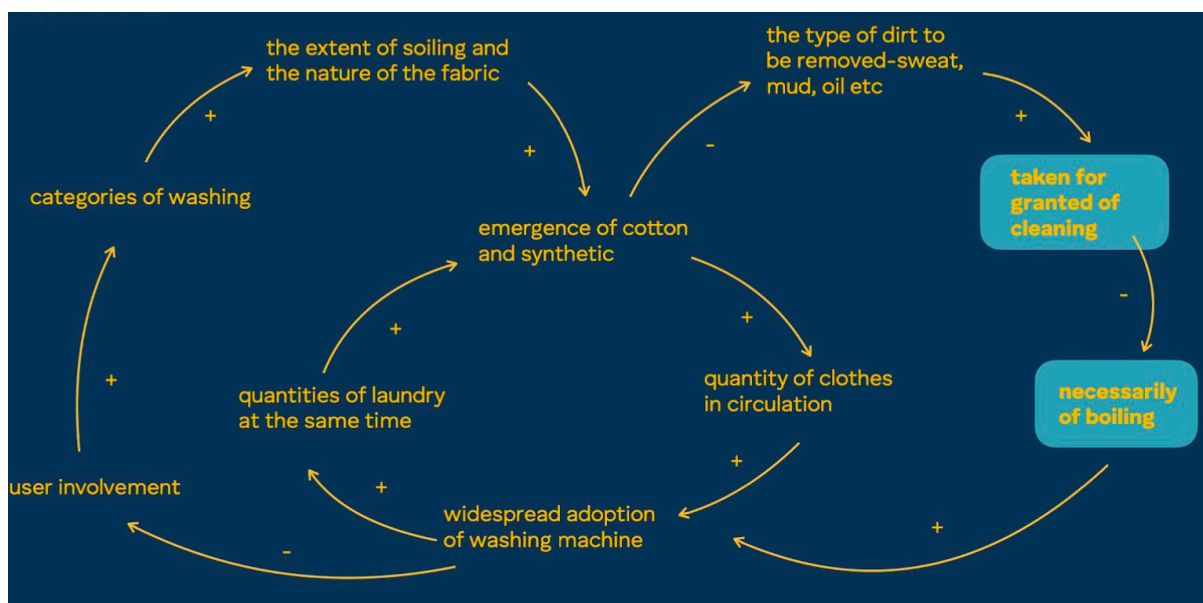


Figure 17: The system dynamic diagram to explain the decreasing of boiling

2.2.3 The changing meanings of people doing laundry

As discussed above, the way people do laundry keeps evolving, and people’s laundry perceptions are changing. Adding the time factor, the meaning pyramid from previous research has been refined and depicted below (Figure 18).

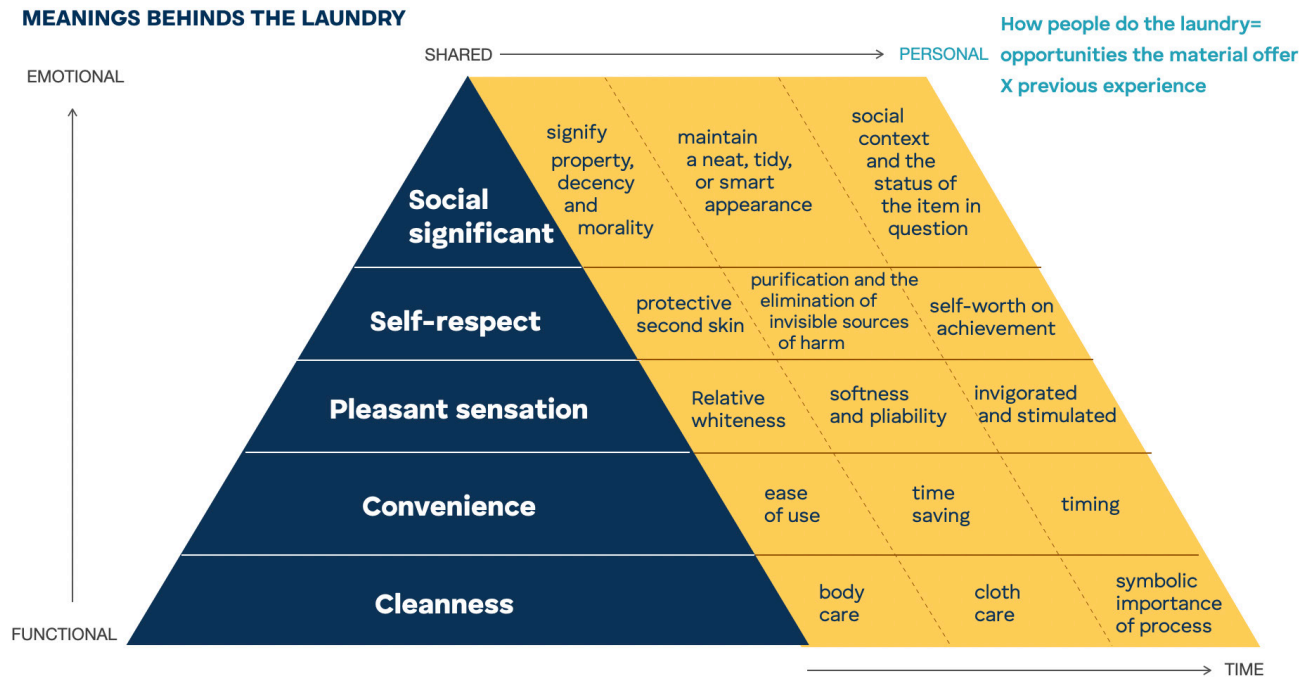


Figure 17: The meanings behind the laundry

2.2.4 The interrelationship of different actors in the system

There are four main actors in this system: detergent, related product manufacture, washing machine manufacture, laundry, related product manufacture, textile, fabric producer, and laundry service provider. To understand their dependency and interrelationship, each actor's current product offerings and key features are explored using desk research and trend analysis. The results from previous research on consumers' needs and perception of laundry activity are served as a reference point here to examine how different actors interpret and provide solutions to laundry activities.

Detergent and related product manufacture

The detergent and related product industry is highly concentrated in nature with global vendors such as Procter & Gamble, Unilever, and Henkel. Their representative brands Tide, Ariel, Robijn, Persil, etc. The review of their current product offerings shows the industry structures the product offerings in two ways: product type and consumer need. The needs are stain removal, bright colors, whiteness, and freshness/scent, which lead to products targeting different soiling levels and fabric types. Besides the claim to ensure optimal washing performance, the producers are also dedicated to providing maximal convenience by innovating product types from powder, liquid, gel to capsules/pods. As a mission statement by Ariel on its website: "By making the laundry process easier and smoother, while delivering the best clean and better stain removal, Ariel wanted to give people back one of the most important things in their lives: time."

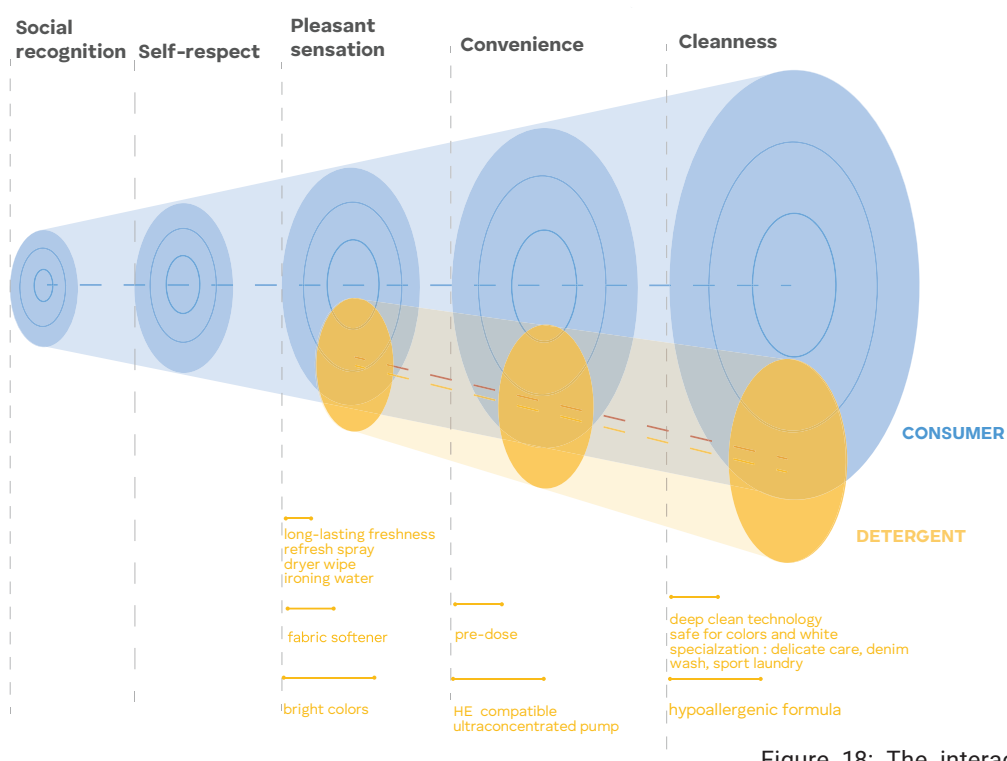


Figure 18: The interrelationship between consumer and the detergent manufacture

Washing machine manufacture

To catch a glimpse of the global commercial washing machine market, we can review established manufacturers in this industry, such as Bosch, Miele, Haier, LG, and Samsung. Numbers of technological advancements have been carried out aiming for higher efficiency in saving water and electricity, like the increasing drum space, intelligent weight recognition technology can calculate the optimum setting and inform energy usage. To take care of the garment and ensure cleanliness, companies like Haier have redesigned the drum surface to ensure the delicate can also remain in perfect condition. It's worth noticing that the washing machine manufacturers have also reimagined their relationship with detergent manufacture. Miele has proposed an automatic dispensing TwinDos system and CapDosing function. The preset dosing system with detergent removes the hassle of calculating the right amount of detergent from consumers. In this detergent related area, some of them innovated to increasing detergent dissolution through multi-directional washing flow movement. However,

Samsung showed its ambition in leading position by offering the AirWashing technology, which claims without detergent or chemicals, you can still remove unpleasant smells, microscopic allergens, harmful bacteria, and microbes through blown hot air.

At the convenience level, besides maximizing the washing capacity, the industry has identified one of the consumer pain points when they sometimes forget to put small pieces into the cycle. Bosch created an Unlock and Reload function for consumers to add garments even in the mid-cycle. Likewise, LG design a separate load allowing tow load spin simultaneously, not only bring flexibility to the consumer but also simplify the sorting process.

The Sensation aspect for the white goods industry means refreshing the clothes and harmonize with the home environment. The steam function and pre-ironing program are now common for most premium washing machines. And as washing machines become an inseparable household piece, the emphasis on stylish design ensures it can be integrated into modern households.

Laundry service provider

Service like laundry delivery service and pay-per-use subscription increase the accessibility of laundry activity. Startups like Homie BV. and supplier Miele are now providing installation and monthly subscription.

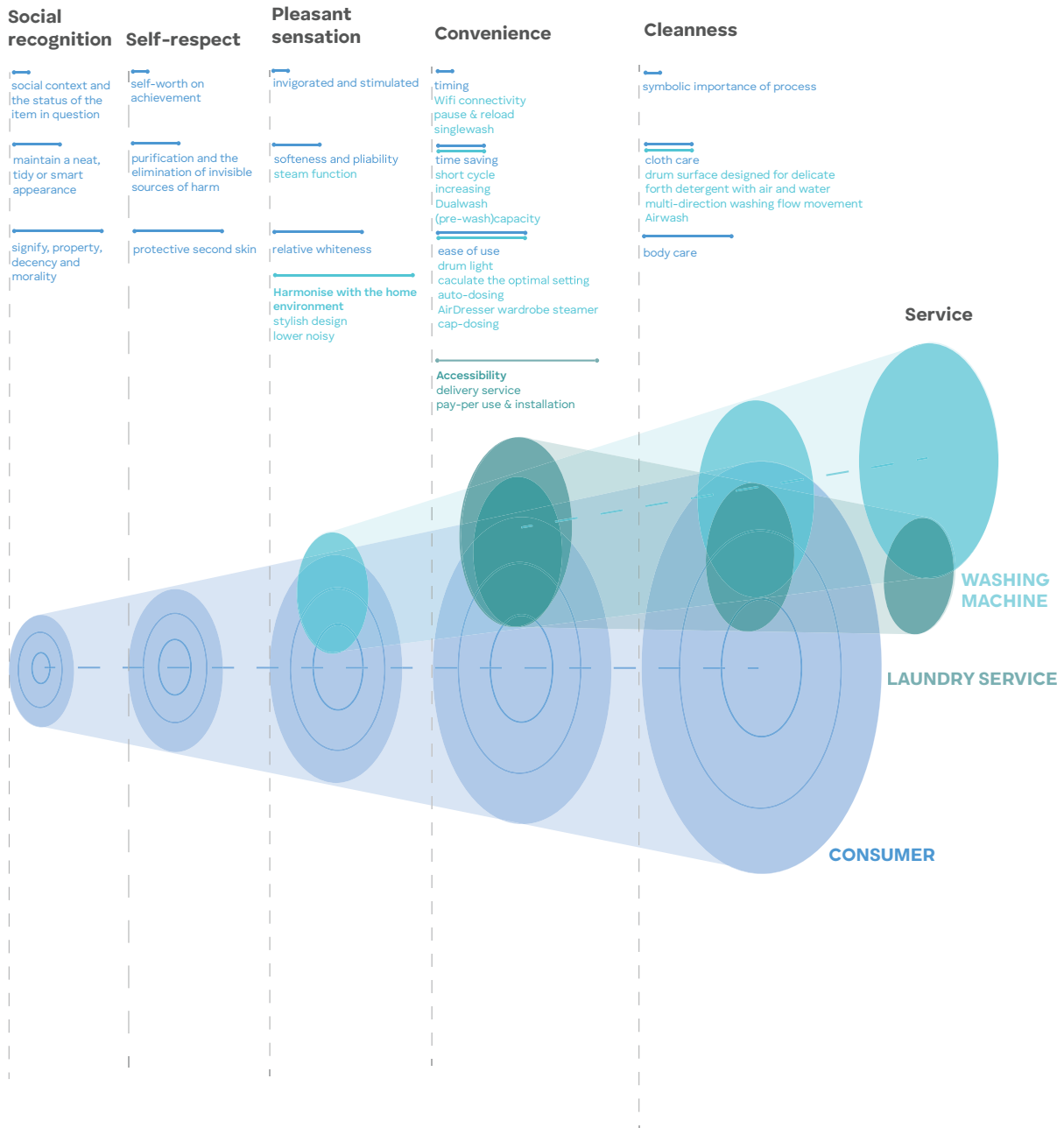


Figure 19: The interactionship between consumer washing machine manufacture and the laundry services

2.3 Discussion and conclusion

This chapter first demonstrated the system thinking approach to understand the holistic way of understanding the laundry product experience. The insights from consumer perspectives are further elaborated by expanding the understanding to the structure level. The system landscape has been defined by visualizing their interrelationships (see Figure 20).

- Consumer
- Washing machine
- Laundry service
- Detergent
- Textile and fabric

Social recognition

- signify property, decency and morality
- maintain a neat, tidy or smart appearance
- ↓
- social context and the status of the item in question

Self-respect

- protective second skin
- purification and the elimination of invisible sources of harm
- ↓
- self-achievement

Pleasant sensation

- relative whiteness
- softness and pliability
- invigorated and stimulated
- ↓
- harmonise with the home environment

Convenience

- ease of use
- time saving
- timing
- ↓
- accessibility

Clean clothes

- body care
- cloth care
- ↓
- symbolic importance of process

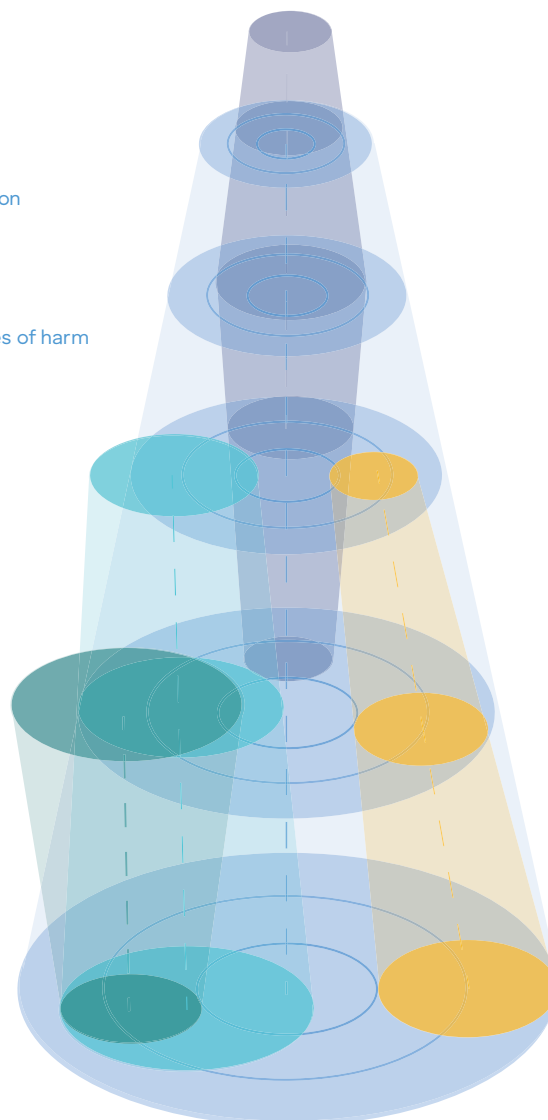


Figure 20: The interactionship between consumer and related actors in the laundry system

03. Creating a holistic definition of laundry product experience

definition
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3.1 Reframing holistic

As described in the project objective, the purpose of creating a holistic understanding of laundry product experience is to help the Henkel innovation team think beyond feasibility, functionality, and usability. However, the first two chapters' research has opened the problem space for this project to create a new narrative of holistic laundry product experience. The current laundry product experience and its landscape have been explored through both consumer and system actors' lens. It implies that holism actually consists of two main facets: people's perception of laundry activity and the approach to understanding the laundry as a system.

3.1.1 people perceive the detergent experience as a whole

Even though design research or other disciplines research product experience in discrete focus and people perform the laundry task following sequential steps, people experience the laundry activity as a whole, not just the detergent itself. The detergent product experience is embedded in the laundry experience, and their interrelationship sometimes conflicts but remain mutually exclusive. In a broader sense, the laundry activity is highly integrated into daily life. People nowadays are trying to fit into their schedule instead of having the "Washing Monday" like in the past. This highlights the importance of context understanding of laundry activity in understanding the detergent experience. Besides, in this context understanding, we can see from the consumer research, the previous experience is highly influential in shaping people's current laundry habits and experience. Since laundry is a repetitive task throughout one's life, laundry activity perception is continually evolving and adapts to life changes. Figure 21 represents the wholeness view of detergent experience as described. Interdependent components. This model's implication is not to see the mutual-influence of one or another element within the system but to better understand their combined effect and comprehend the evolution of the complex as a whole. To adopt this approach, a system dynamic view into how the decline of boiling and increasing significance of freshness are discussed below to generate the system dynamic view.

3.1.2 using design inquiry and system thinking to approach the laundry as a system

To talk about holistic means first acknowledge the complexity to avoid over-simplifying, systemic focus on the connections and relations between people, subjects, and ideas-rather than just things themselves. We can observe that at the event level can be justified in different perspectives (Figure 26). And only by using a different approach to moving between different viewpoints, we will be able to attempt the unified whole.

To understand the holistic requires an analysis approach blending design thinking and system thinking. The design inquiry allows researchers to investigate a fundamental set of narratives about how things work and make sense, values, emotions, ethics, etc. However, demonstrating a problem to fit into the market's desirability would pose a threat to the organization (Martin, 2009). When thinking about future product offerings, it is crucial that while designers should understand the user needs, they must also understand the system in which the service will operate (Calabretta, Kleinsmann, 2017). By combining the design thinking and system thinking approach, designers will ensure the creation of solutions that reflect the particular internal challenges.

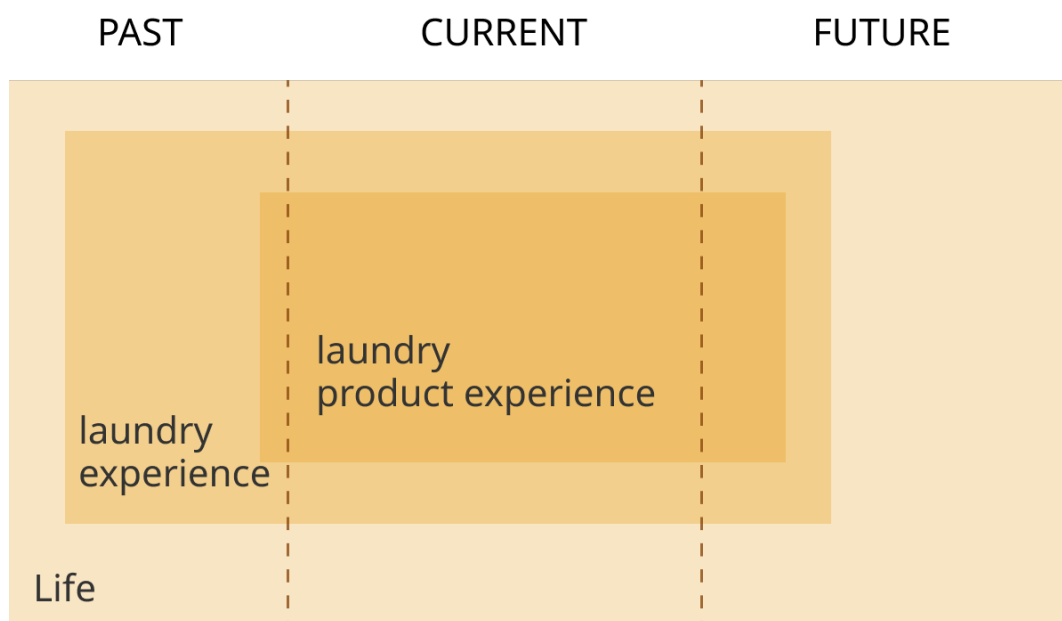


Figure 19: Different perspectives to understand laundry product experience

PART 2. DESIGNING FOR A HIGH PRODUCT EXPERIENCE

4. Understand the organization's product innovation landscape

ORGANIZATIONAL LAUNDRY

Organizational

cape

4.1 Organization & stakeholders

4.1.1 The company

Founded in 1876, Henkel holds a globally leading market position both in the consumer and industrial business with well-known brands. The company is organized into three business units: Adhesive Technologies, Beauty Care, and Laundry & Home Care (Figure 20).

The company is guided by its long-term strategic framework in decision making and facilitate the company to concentrate on its strategic priorities. The overall purpose of Henkel is “to create sustainable value, for customers and our consumers, for people, for shareholders, as well as for the wider society and communities in which Henkel operates.” Henkel aims at serving customers and consumers worldwide as the most trusted partner with leading position in all

relevant markets and categories, as a passionate team united by shared values. Driven by this purpose and mission in mind, Henkel is pursuing the vision of “leading with our innovations, brands, and technologies.” The “leading” is beyond claiming a leading position in the market by share or size. Still, it needs the leadership in value creation, responsiveness to volatile markets, and changing customer and consumer demands as well as in innovation, quality, service, and sustainability (Henkel, 2019).

In coping with the external volatile market environment, the company defined its ambitions to be more customer and consumer-focused and make the company even more innovative, agile, and digital in both the internal and customer-facing activities. Furthermore, the company is further promoting sustainability in all business activities.

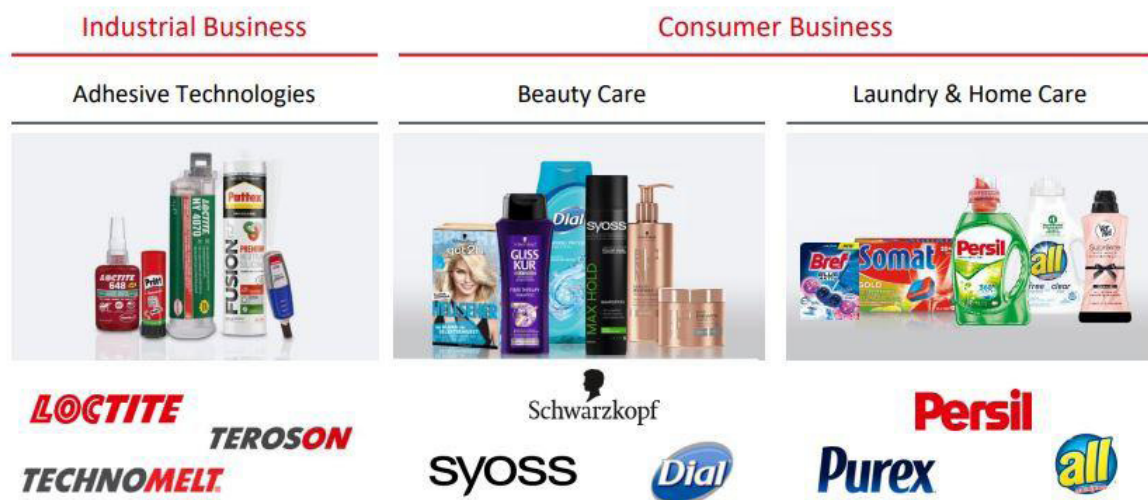


Figure 20. Henkel three business units with its leading brands

In 2016, the company defined its strategic priorities to drive successful execution through 2020 and beyond as “Henkel 2020+”. The strategic priorities are: drive growth, accelerate digitalization, increase agility, and fund growth. Over the past few years, the company has executed a range of projects and initiatives to drive growth in relevant markets worldwide. The closed collaboration and regular in-depth exchanges on strategic projects with customers in industrial and consumer business are key to making this happen. The company continued to improve its innovation process by further accelerating the innovation cycles and reducing innovation lead time to faster address new market trends and customer needs. (Henkel, 2018)

4.1.2 The Home & Care Business unit

This project was conducted under the operation of the Laundry & Home Care business unit, which held leading positions in both Laundry Care and Home Care business areas. While the relevant markets are continued to be characterized by intense price and promotional competition, this Laundry & Home Care business unit was able to generate growth in the past five years (Figure 21). Supported in particular by the introduction of successful innovation such as Persil 4-in-1 Discs, the signature brand Persil and the specialty detergent business were the primary contributors to growth.

In 2019, the business unit focused on sustainable innovation in the fields of raw materials, formulations, packaging concepts, and manufacturing methods. In the Laundry Care business area, the new disc technology for the pre-measured detergent in water-soluble film packages with four separate chambers was rolled out successfully in both the North American and European markets. The Easy D4R software tool devised by the packaging development team made the quickly and reliably determined recyclability of new packaging possible to implement the sustainable packaging strategy. Additionally, a pilot detergent bottle production project has succeeded in using chemically recycled plastic.

In terms of the innovation process, agile methods of collaboration are increasingly used, such as design thinking, lean startup, and scrum. This promotion has improved the cooperation among multi-functional teams from R&D, Marketing Production, and New Business departments.

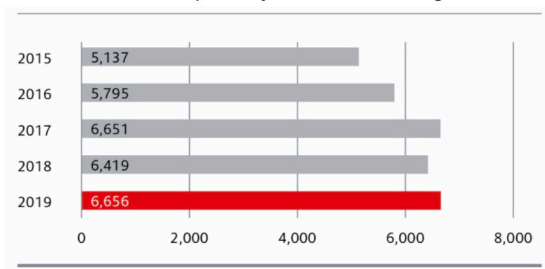


Figure 21. Sales Laundry & Home Care in million euros (Henkel, 2019)

The organizational function structure of the Home & Care Business Unit is depicted below in Figure 22.

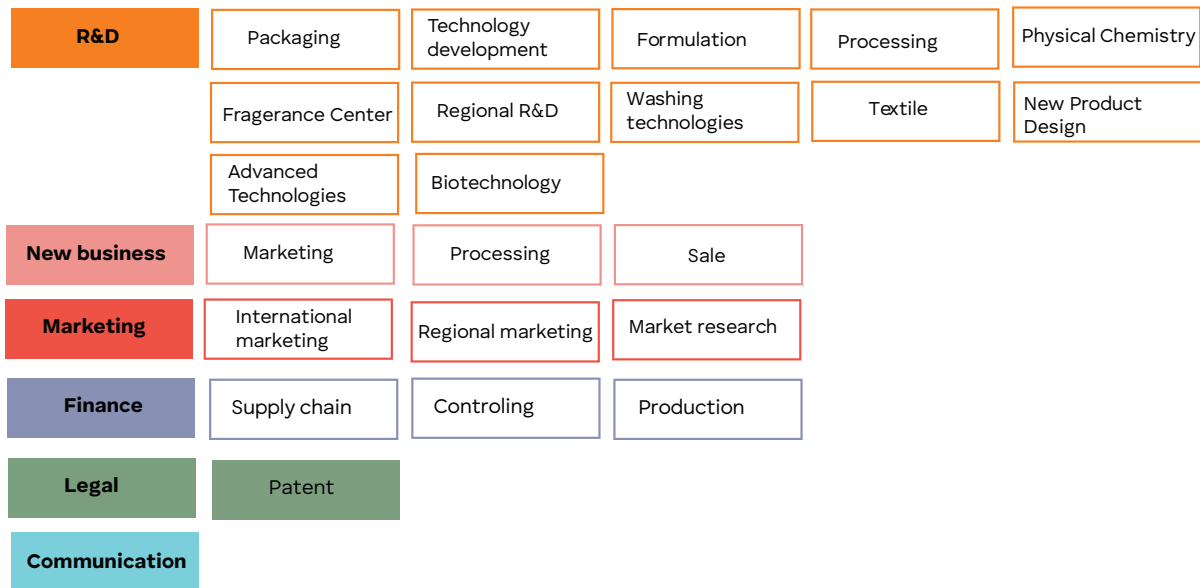


Figure 22. Organizational Structure of Henkel Home & Care Business Unit

4.2 Current approach

To better understand key stakeholders' expectations and how each department/team cooperates, stakeholder interviews were conducted and further validated with the project owner.

4.2.1 Research set up

In-depth interviews were held with eleven stakeholders across Marketing, R&D, and New business functions. The roles and backgrounds of the participants are depicted in Figure 23.

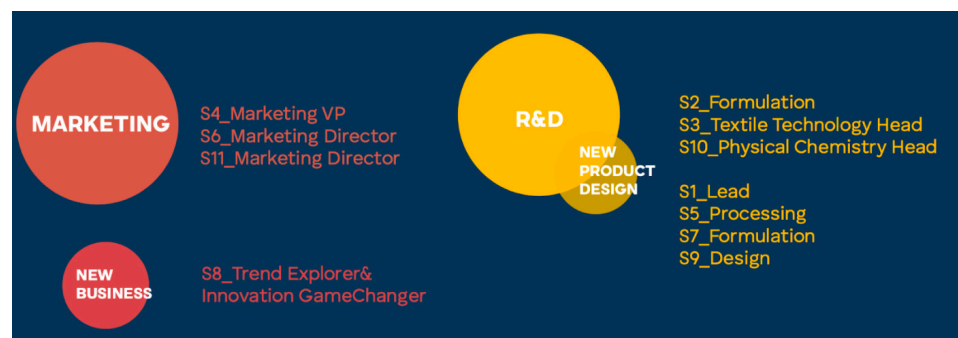


Figure 23. Stakeholders' list

The main research questions are:

Q1: What are the current approach and perceived barriers for Henkel to innovate?

Q2: What is the current consumer understanding, and how it has been applied to work?

Q3: What are the advantages and disadvantages of current Henkel product offerings?

The interviews were performed semi-structured, which leaves free space for the interviewer to use words, spontaneous questions, and order of questions within the predefined topic area (Patton, 2002). Questions started with more general topics such as their job description and current understanding of the consumer, after which step by step went to questions related to more latent knowledge on product innovation. All interviews are voice recorded, and notes were taken simultaneously for further analyses. For a detailed research plan and interview guide, please refer to Appendix B.

4.2.2 Findings: the Stage-Gate process

Henkel's innovation process is based on the principles of the Stage-Gate process. The Stage-Gate process is commonly used within the organization to conceptualize, develop, and commercialize new products and services. It's a value-creating process that starts with identifying insights. Thanks to the collaborative company culture, in this early stage, employees from marketing and R&D will engage each other by having aligned meetings or brainstorming sessions. The upfront pre-development is characterized by marketing concept writing to ensure its brand fit and customer-driven. Later on, the development activities by validating the claims with consumers and justify preliminary feasibility with R&D, the business case is built and delivers the reason to believe for further validation. The Legal department will come in to assess the confidentiality, and the supply chain department will ensure the operation (describe in figure 24).

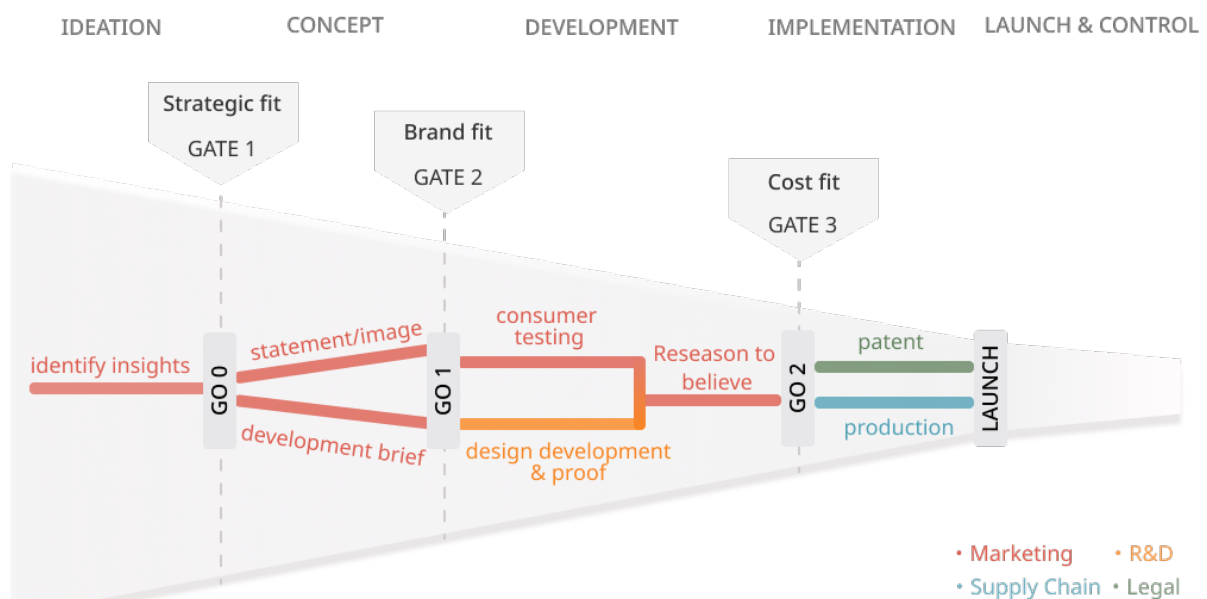


Figure 24. The current process

The key challenge has been identified in the business case building phase. It's the misalignment between consumer interview results and proof of claim from R&D. As described by one of the stakeholders, the gap often happens when marketing people are trying to validate the written statement with the consumer, in parallel, the development brief will transfer to R&D to examine the feasibility from the technologist's point of view.

4.2.3 Findings: the three main barriers in the existing innovation process

Next to gaining an overview of Henkel's existing innovation process, the root cause of the gap we discussed above was explored and deconstructed. It took from marketing and R&D points of the view separately to be sufficiently investigated. The three main barriers that have been identified in the current innovation process were unsupportive structure, lack of competence, and insufficient resources addressed by both R&D and marketing functions.

unsupportive structure

According to the interviewees, the time delay and silos in communication happen at the early stage in the innovation process can pose a threat to deliver the right concepts.

"So we're a pretty big marketing company, we're testing a lot of words and concepts. And that's a risk because, in the end, the written concept may test very well. But in the end, the product is not capable of delivering on the promise. So the product, as such, is not expressing what the verbal concept was expressing. And that's a lo-

ng way to go, and we don't always have the right methods to explore that." -S9

Employees are aware of this challenge and, therefore, actively trying to collaborate with each other as early as possible. For example, the marketing function would initiate some cross-functional brainstorming sessions to get R&D on board earlier.

"There's a really strong exchange of knowledge between the functions. And I've never seen a workshop, only with marketing, this is always cross-functional." -S9

"I think it's all about trying to share as much information as possible among the team members in order to think of everything. Because there are a lot of roadblocks ahead. And it just helps to make the project run as smoothly as possible." -S6

However, such collaboration based on the goodwill to help each other out is not always enough. Without official incentive and facilitation, this type of cross-functional collaboration will soon become a mere formality rather than genuinely engage.

'Okay, I need to read this, and then from someone else is responsible. I don't care anymore like this is my only responsibility.' -S11

Moreover, along the innovation funnel, the lack of early cross-functional collaboration can result in marketing remaining unaware of technology restraints. Hence, the devised development brief transfer to R&D would become deficient.

"What actually can be done better it's the communication between R&D and marketing. Mark-

ting, in many cases, has no sense of technical restraints. And sometimes, marketing does not appreciate technical innovations.” -S9

Another obstacle appearing due to the current structure is the outcome assessment mechanism is restraining the technology development. The cost evaluation at the end of every developing phase represents a hurdle for the nascent technology. According to the interviews, the assessment system does not adapt to underdeveloped technology but for technology improvement.

“But the bottleneck is cost. So we are able to increase the performance, but that means you have to invest in another chemistry. So, we cannot play too much with innovations here, because at the end, whatever we do, each development of such a product, it has to be cost-neutral or cheaper at the end.” -S5

Finally, values can still be found even though the concept doesn't pass through the funnel, but the current structure doesn't really support these lessons learning.

“This mock-up creation is more, let's say when you imagine something, you try to put it on a table, and then you ask people and then, of course, sometimes maybe your imagination is not the right one. Because you thought it's looking nice like that. And the consumer says no. But this doesn't mean that consumers would reject the technology behind.” -S5

“Giving up in a way because sometimes you have a great concept, and it's also too early. For example, Henkel launched, I thought ten years ago, a green brand, it was a complete flop. It was simply too early. It's also worth talking with

colleagues, 'what was tested in the past? Is there something that is now maybe relevant and also to really look into things?’ -S11

Lack of competence

The hurdle of understanding consumers was commonly shared between marketing and R&D. From the marketing perspective, due to the broad spectrum of target, an improvement in identification and consumer languages are needed to address better-understanding consumer needs.

“One is a good identification of the needs; the expectations vary across different generations. They will vary across different geographies. So it's a really good understanding of what is and what the needs remain to be addressed. So it's really going back to what is exactly the need and having the right perception.” -S4

“I think this is also a point that is very important because the consumer's language is different from ours, and they are not speaking that much technically, and neither technically nor a marketing language. And this is maybe the quintessence of everything to find out where's the specific need and how is it described.” -S7

On the other hand, R&D sometimes found consumers' reactions to products offering confusing and hard to predict. They are surprised by the testing results and need further indications to comprehend consumer behaviors.

“I was very surprised. I could not say anything. So I was so astonished. But you see, for me, I learned from this situation that really

scent and color, the first signal we can perceive, this is our five senses. Washing performance we cannot is very abstract.” -S9

“So I would be interested in getting this or that effect. But in many cases, it can happen that the consumer does not appreciate it. So sometimes I’m, let’s say, a little bit disappointed. And sometimes I’m wondering, ‘why are we working on these new technologies? Yeah. If the consumer is satisfied with this product as it is.” -S10

Moreover, to cope with the unstable market, there is a need to establish corporate foresight ability to plan and comprehend external driving forces.

“But it’s easy for us to do that if we would have a better insight and better input in which direction we should develop. Okay, nobody could foresee that corona is coming. So, we would urgently need hygiene, good hygiene performing products, but nobody could see that.” -S2

If we would test now with consumers, a product where we would claim hygiene, they would for sure say ‘yes, we love it, we would buy it.’ And it also takes some time until you know, we launched the product. So the question is, in six months, the relevance is there, or if it drops?” -S11

Insufficient resources

From the R&D side, obstacles can also be found in terms of applying consumer knowledge. Consumer insights are often transferred from marketing at the early stage, but the generalized content for them is hard to resonate with and see what consumers interest and want.

“On the one hand, for market data, we also see what’s happening in the market just from sales figures. On the other hand, we have some research about consumer insights or pipelines driven by marketing, which is more like consumer testing and market research than design research. The insights are sometimes a little bit translated to be more general and then you kind of miss the moment ‘why did the consumer express exactly.” -S9

“For me, it’s not convincing because it has no impact, but it’s at the end we are saving money.” -S2

As mentioned by interviewees, a possible solution is to have more frequent and early feedback from consumers. With early identification of consumer knowledge, the technologies can identify the direction to better envisioning future product offerings.

“And for me, it would be important to have it more frequently or maybe on a smaller basis to have early feedback. And I can directly get good feedback and don’t have to wait for two months until there’s enough progress done to justify a new setup for market research.” -S7

“In some cases, sometimes it happens that the test was done after development, which is bad because you should do the consumer tests in the very early phase that you know, are you developing in the right direction or if the consumer expects something else.” -S2

To conclude, the main barriers are summarized and depicted in figure 25 following the innovation process. The interview analysis shows the successful innovation outcome is tightly associated with the alignment on different levels: approach, cross-functional,

consumer understanding. There is a visible disconnection on the way to apply consumer knowledge between marketing and R&D functions. The marketing research on sales figures or consumer insights can not be fully interpreted by technologists who are seeking an early indication for technology development. Meanwhile, marketing is also on its way to gain a thorough consumer un-

derstanding by developing good identifications and establishing foresight ability. Early cross-functional collaboration initiatives are now tackling the misalignment, but it is hard to make a long-lasting impact without sufficient organizational structure support.

| | R&D | Marketing |
|------------------------|--|--|
| Unsupportive structure | Unaware of technology restraint | Collaboration based on good will is not enough |
| | Cost is the bottleneck for tech development | Give help to get help |
| | Current assessment system doesn't support nascent technology | |
| | Values behind the failure | |
| Lack of competence | Why consumer don't appreciate my effort | Lack of good identification for consumer need |
| | Lack of consistent strategy | Establish a shared language with consumer |
| | | Lack of foresight ability |
| Insufficient resources | Generalized consumer insights doesn't resonate with me | |
| | Lack of early consumer feedback to define direction | |

Figure 25. The main barriers

4.3 Current product offerings

The Laundry & Home Care business unit is the starting point of Henkel's success story. In 1876, Fritz Henkel founded the company Henkel & Cie in Aachen, Germany. The company's first product was a laundry detergent based on sodium silicate, named "Universal-Waschmittel" (universal detergent).

The product portfolio is now ranging from heavy-duty and specialty detergents, laundry additives. In these business areas, this sector enjoys leading positions on a worldwide scale. Since this project focuses on la-

undry product innovation, we will further analyze the detergent product offerings under the leading brand in this sector-Persil.

The value proposition for Persil is "your laundry detergent expert that guarantees fiber-deep clean and shining bright laundry." The product offerings can be categorized by type or by consumer needs (figure 26). There are four different product lines to serve variant consumer needs: Universal, Color, Sensitive, and Combat Odors. The Persil universal heavy-duty detergent highlights the Deep Clean Technology to remo-

ve stubborn stains that can penetrate deep into the fibers to create a flawless result. In contrast to the Persil Universal, the Persil Color detergents contain neither bleach nor brighteners to prevent colored laundry from fading. Persil Sensitive is another specialist detergent which is for skin-friendly washing with natural soap and almond milk. Last but not least, with the odor neutralization technology, Persil Combat Odors is a line that guarantees perfect purity of clothing,

and at the same time, neutralizes odors. In terms of product type, besides the powder and liquid, which can also be found in other detergent brands, Persil Megaperls is highly concentrated to offer maximum washing power at a much lower dosage compared to the powder detergent. To make the dosing hassle-free, the Persil Duo-Caps and 4in1 DISCS are the latest product type innovation in which the file will be dissolved completely when in contact with water.

| NEEDS/TYPES | Powder | Mega pearls | Gels (liquid) | Pre-dosed |
|---------------|---|---|---|---|
| Universal |  |  |  |  |
| Color |  |  |  |  |
| Sensitive | |  |  | |
| Combats odors | | |  |  |

Figure 26. Overview of current product offerings

4.4 Discussion and conclusion

To conclude, Henkel is now following the stage-gate process, aiming to launch ideas effectively and efficiently. However, due to the lack of sufficient cross-functional collaboration in the early stage, misalignment can be found in the business case building process. The key actors involved in this process are marketing and R&D. From the marketing perspective, they still need good methods and identifications to explore the latent consumer needs and understand their language. The foresight ability to actively plan and respond to market changes can also contribute to tackling this challenge. In a way for R&D to apply the consumer knowledge and to be more consumer-centered, they found it hard at the beginning to interpret the over-generalized consumer insights from the market research or simply observe consumer behaviors in the field. The strategy fit gate and

cost assessment in the later stages are also perceived as the bottleneck for technology development. It is not fully adapted to some nascent technologies for disruptive innovation. They also believed in the values behind some concepts even though it did not pass the innovation funnel.

Henkel has provided different types and product lines to serve variant consumer needs regarding the current product offerings. The products emphasize key features like powerful stain removal, radiant luminosity, long-lasting freshness, and fiber care. But how does it fulfill the consumer needs and interests, and how does it fit into the overall laundry system related to other actors? The next chapter will take a look at Henkel's current position in the laundry product experience.

05. From holistic product to future product innovat

t experience

ion

5.1 Current position in holistic product experience

5.1 Current position in holistic product experience

Research in chapter 4 has revealed Henkel's current innovation process to incorporate and facilitate the consumer need's integration. The product portfolio indicates the current organizational understanding of those needs. However, as discussed in the definition of holistic laundry product experience, we identified that to gain a holistic understanding of how people experience the product, we need to think beyond the product itself and zoom out to see the interrelationships between different actors in this system. Hence, we will integrate the current product offerings to see how Henkel, more precisely, represented by its products under the brand Persil has positioned in the system.

Referring to the systemic view of the laundry system in chapter 3, figure 27 has shown the interrelationship between Henkel with the overall laundry detergent manufacture, Henkel with the consumer value perception of laundry, and Henkel with the other actors within the laundry system.

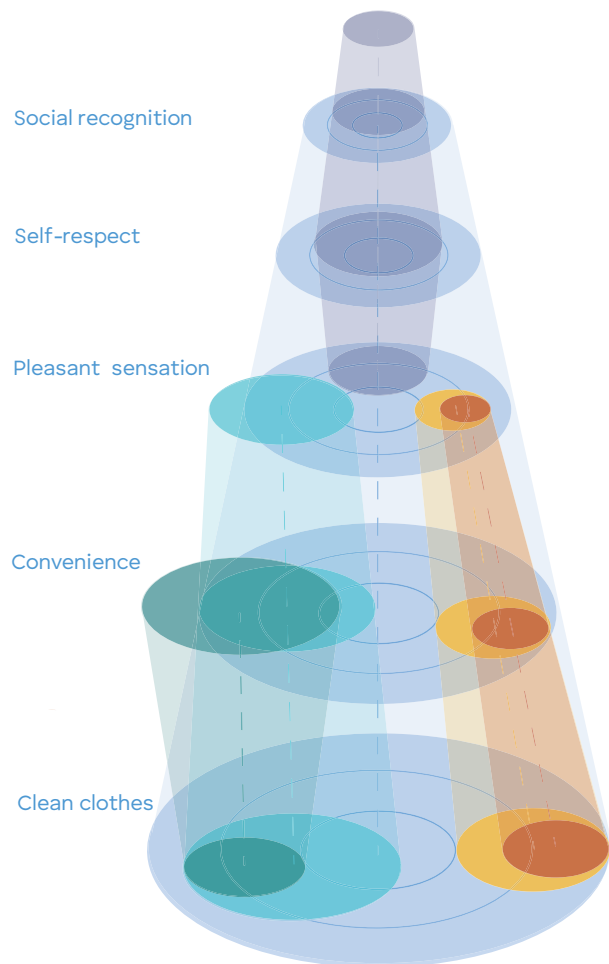


Figure 27. interrelationship between Henkel with the actors

At the functional level, Henkel and other detergent manufacturers have touched upon the need to have clean clothes and clean body by keeping advancing the fiber clean technology while making sure the ingredients are friendly to sensitive skins. The dosing has been perceived as a hurdle for people using the product appropriately. The pre-dose detergent in the form of capsules or chambers provided by Henkel and other leading brands in this market ensures the right amount of use and minimizes the number of steps dosing. For the sensation part, the long-lasting freshness is addressed by Henkel to provide the signature scent longer for people to enjoy. However, other brands have gone one step further in invigorating and stimulating people's sensation pleasure by expanding product offerings to home candles or ironing spray with the same signature scent from detergent (ex. Laundress, Robijn).

In summary, as described in the website, "Persil has put its focus on combining performance with convenience to serve today's consumer." Henkel has fulfilled the consumer needs by providing features and benefits at the functional level to derive emotional benefits as well. This position is overlapped and aligned with other detergent actors in this system to interpret consumer needs.

Regarding its interactions with other actors within the system, all the actors recognize this need as fundamental and continue advancing it in the clean clothes level. However, in terms of convenience, from the detergent manufacture perspective, functions like the auto-dosing system provided by the washing machine industry and nanotech treatments from the textile industry make clothes resistant to water, stains, and wrinkles can pose a threat. The challenge would be for the detergent manufacturer to maintain a position against such "take over."

5.2 Identifying space for intervention

To envision the future product advancement and offerings, a closer look at how different actors intervene in the systems and the potential impact others is needed. Five different approaches have been identified.

5.2.1 To envision from single meaning layer

To see from a specific meaning level, expand and monopoly are two distinguished

ways to envisage position. First of all, expand can simply mean to fulfill a more personal meaning. Pre-dose detergent does offer consumers further convenience by saving the measuring time, and the usage has become intuitive. However, as described by one of the interviewees below, there was a dilemma when he has a fuller load of laundry. The predetermined amount of detergent actually limited his choice. For consumers nowadays, convenience goes

beyond merely increasing the usability to save time and means providing flexibility for consumers to adapt to changes in life. The washing machine manufacturer has already identified this change and redefined its function to allow consumers to decide when the laundry finishes rather than just starting.

“So when I look at it, I’ll think it is rather small. I think probably a little bit bigger would be good. Because I just feel like if I have a lot of laundries, then I would still like to use only one capsule. I don’t have to do two laundries; I can just do, you know, two in one.”

Besides, expansion can create an extra meaning. The 24hr laundry services established by washing machine manufacture, laundry delivery services, and the pay-per-use business model offer consumers accessibility at the convenience level.

On the other hand, the threat from the washing machine industry with the auto-dosing system to try to dominate the position in convenience portrays a different way to see the interrelationship with other actors. Related to the fact that consumers nowadays are trying to find a reference point to decide the amount of dosing, either based on the instruction on the detergent package, customized their way (ex. with heuristic, spoon), or let the machine do the calculation, monopoly is showing the leadership to fulfill consumer needs fully.

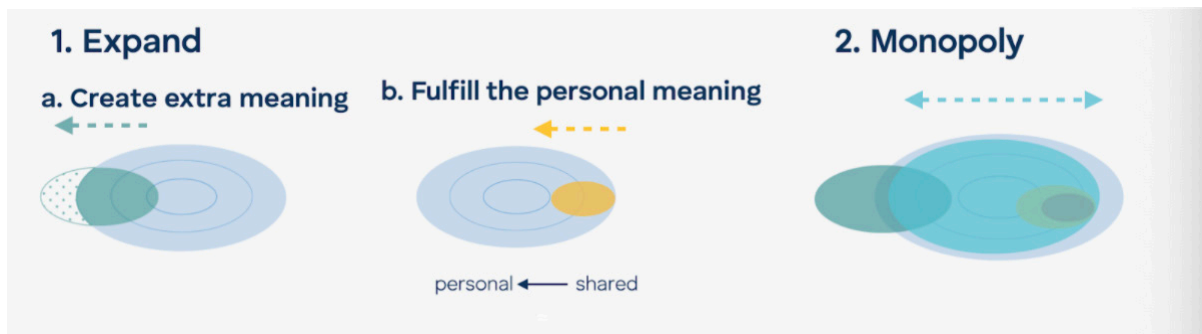


Figure 28. The single layer approach

5.2.2 To envision from multiple meaning layers

The pay-per-use example showing in figure 29 has demonstrated another method to envision the product offering. Like the purpose statement by one of the leading brands in this business sector, “Miele Washing Machines provide quality, top cleaning performance, and maximum convenience.” To provide clean laundry has always been the first value the washing machine manufacturer is striving for; convenience adds value to the consumer. The pay-per-use business model or laundry delivery service reposition itself by thinking from the other way around, amplifying the meaning at the convenience level to create accessibility to consumers, disrupting this system. Similarly, in the detergent industry, brands like Laundress and Robijn emphasize that the color and scent sensation also reposition itself more emotionally.

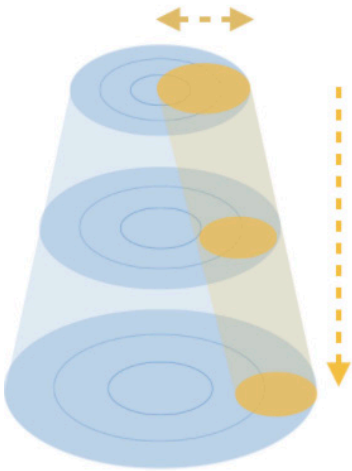
Moreover, the well-being trend emerging from the self-respect and social significant level inspired the brand like Seventh Generation to make products with plant-based ingredients. The whole brand and brand reorganized from the higher emotional level following its mission to “a consumer revolution that nurtures the health of the next seven generations.”

Lastly, we can see from the latest offering from Samsung AirDresser that redefines the cleanness of laundry. It claims with the sanitize cycle and combines powerful steam and air, the wrinkles and odors can be removed.

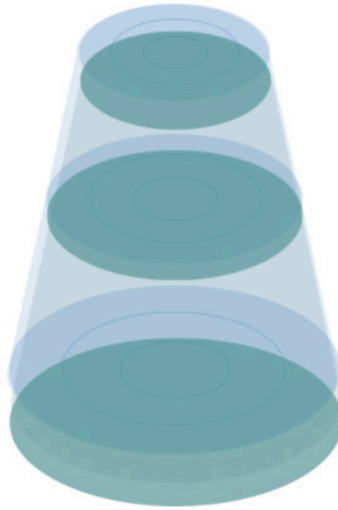
The image displays two promotional posters for pay-per-use washing machines. The left poster is for Miele Washing Classic, featuring a white washing machine and text: "Limited availability", "Miele Washing Classic", "High quality washing machine, perfect for small households", "Max 7KG", "Power Wash 2.0", "including detergent", "TwinDos", "More info", "Pay per use", "€14.95 per month + €0,40 per cycle", and a "Select" button. The right poster is for HOMIE, featuring a white washing machine and text: "less than €2,- per wash!", "HOMIE", "TU Delft Spin-off", "No purchasing costs anymore, just pay per wash!", "• A+++ energy label", "• Free installation", "• Free repairs", "We offer short-term contracts!", "Tel. +31 (0)15 301 0138", "homiepayperuse.com", and social media handles for Facebook (@HOMIEPayPerUse), Twitter (@HOMIEpayperuse), and LinkedIn (HOMIE BV).

Figure 29. Pay-per-use example (Source: Miele, Homie)

3. Reposition



4. Redefine



5. Re-organize

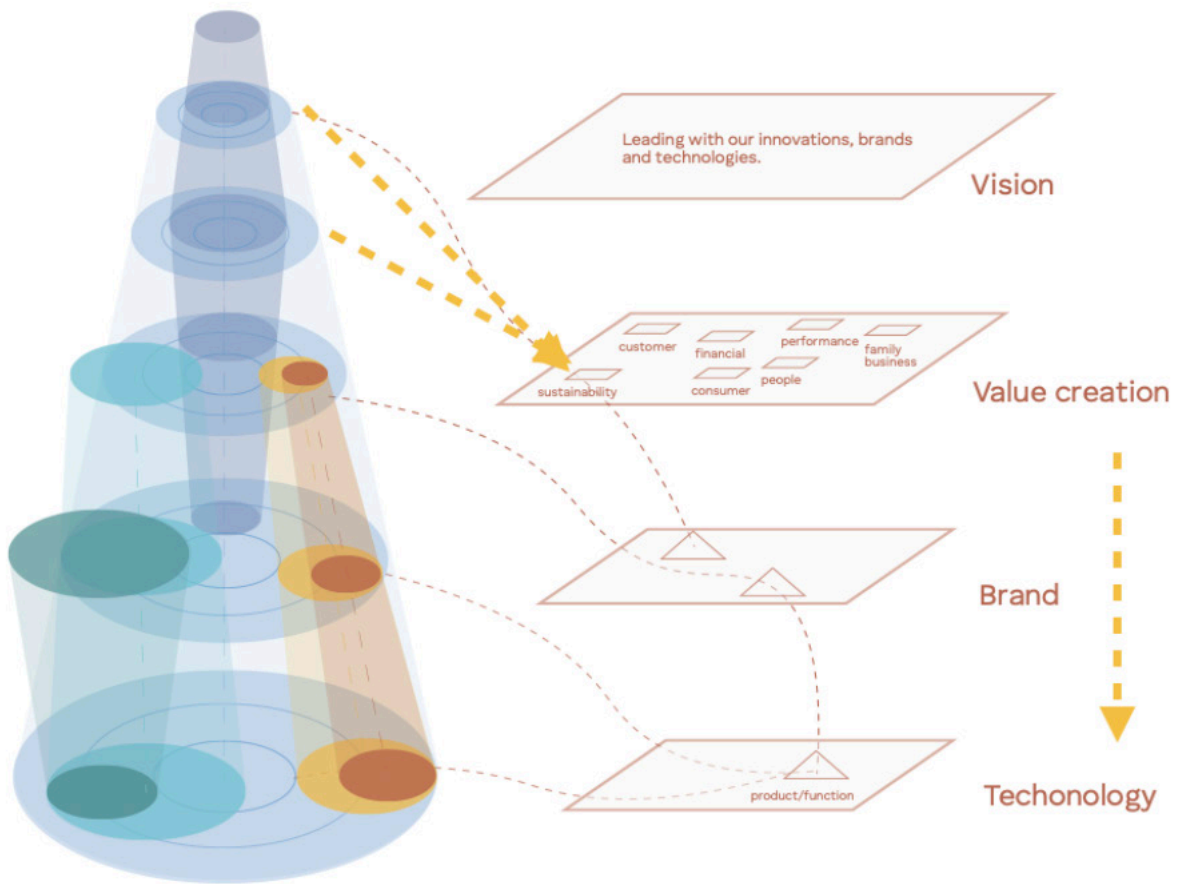


Figure 30. The multiple layers approach

5.3 Discussion and Conclusion

Henkel is looking into new ways to approach the laundry system and to innovate disruptively. Henkel's current status and its brands have a similar position as the other players in the business sector. It addresses the functional aspects like clean clothes and convenience, pleasant sensation on a more emotional level is another level all the producers are trying to amplify. This can lead to results that make Henkel find it hard to distinguish itself from others. What could further make the competition even fiercer is the washing machine industry's movement to provide the auto-dosing system that takes over the detergent position in the convenience level. Dosing could not be a necessary step for consumers anymore. Detergent is losing its direct interaction with consumers at this level.

However, to see how other actors play in this system can create a sense of urgency for us and create opportunities to intervene. Five different approaches could be applied: expand, monopoly, reposition, re-define, and reorganize. This led to the potential intervention for Henkel to envisage future product innovation. Hence, aligned with the organizational resource and capabilities, Henkel's implications and actions will be discussed in the next chapter.

HUMAN-CENTERED PERSPECTIVE

- Consumer
- Washing machine
- Laundry service
- Detergent
- Henkel
- Textile and fabric

Social recognition

signify property, decency and morality
maintain a neat, tidy or smart appearance
social context and the status of the item in question

Self-respect

protective second skin
purification and the elimination of invisible sources of harm
self-achievement

Pleasant sensation

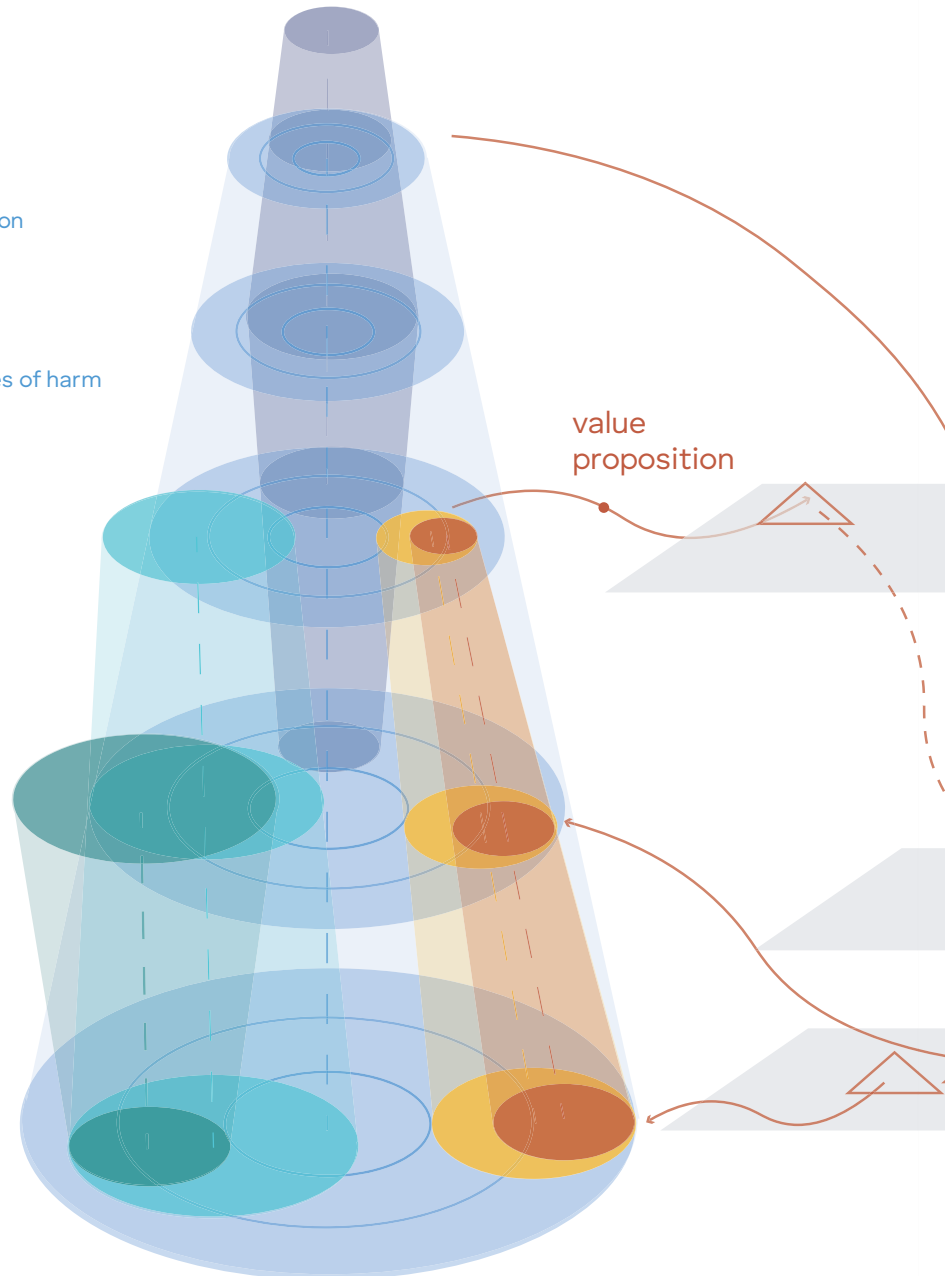
relative whiteness
softness and pliability
invigorated and stimulated
harmonise with the home environment

Convenience

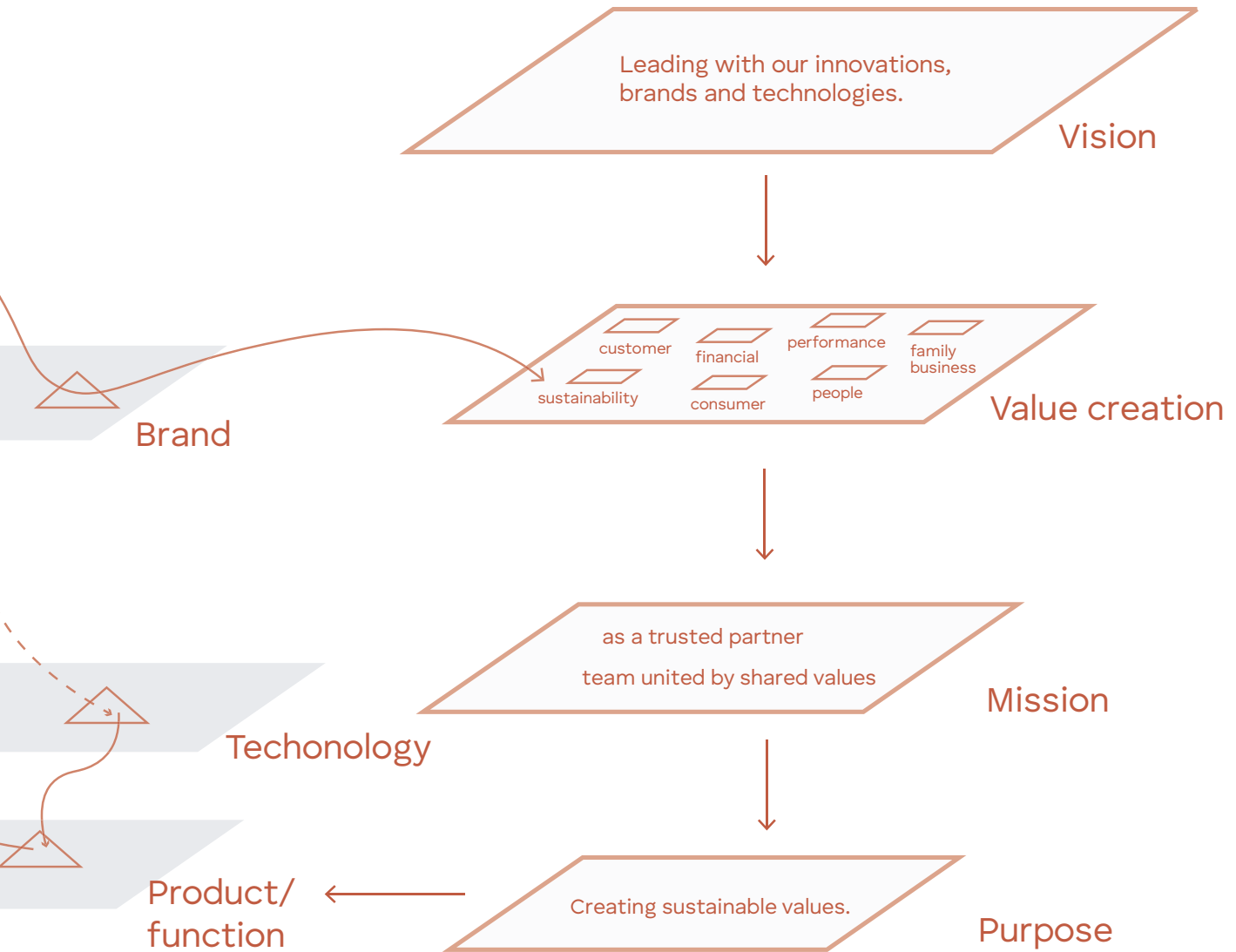
ease of use
time saving
timing
accessibility

Clean clothes

body care
cloth care
symbolic importance of process



ORGANIZATIONAL PERSPECTIVE



06. Envisioning future pr innovation management

product

6.1 Design for implementations

6.1.1.Rethink the stage-gate process

Recognizing the fact that the stage-gate process has been embedded in the organization for years and familiar to the employees, in an attempt to facilitate the holistic understanding of laundry product experience through current roadblocks, we will start by reviewing the current stage-gate process.

The stage-gate approach is recognized as an effective and efficient idea-to-launch system and is widely adopted by many corporations (Cooper, 2005; Griffin, 1997). The process consists of a series of stages complemented by gates to reduce the uncertainty and enhance the speed to market (example Figure 31). In the early stages, activities emphasize discovering opportunit-

ies and generating concepts, while the later stages focus more on business case building, testing, and validating. The process encourages cross-functional collaboration by clearly defining the activities, deliverables, and decision making criteria for each stage. However, in practice, it resonates with what we discovered in chapter 4 from the stakeholder interviews. It also received some critiques of being overly linear, rigid, and planned to cope with dynamic and innovative projects (Cooper 2014). As one of the insights from stakeholder interviews indicated, the structure can become a bottleneck for nascent technology development since the financial criteria oftentimes define the gate. Another downside of this process is that bureaucratic procedures can

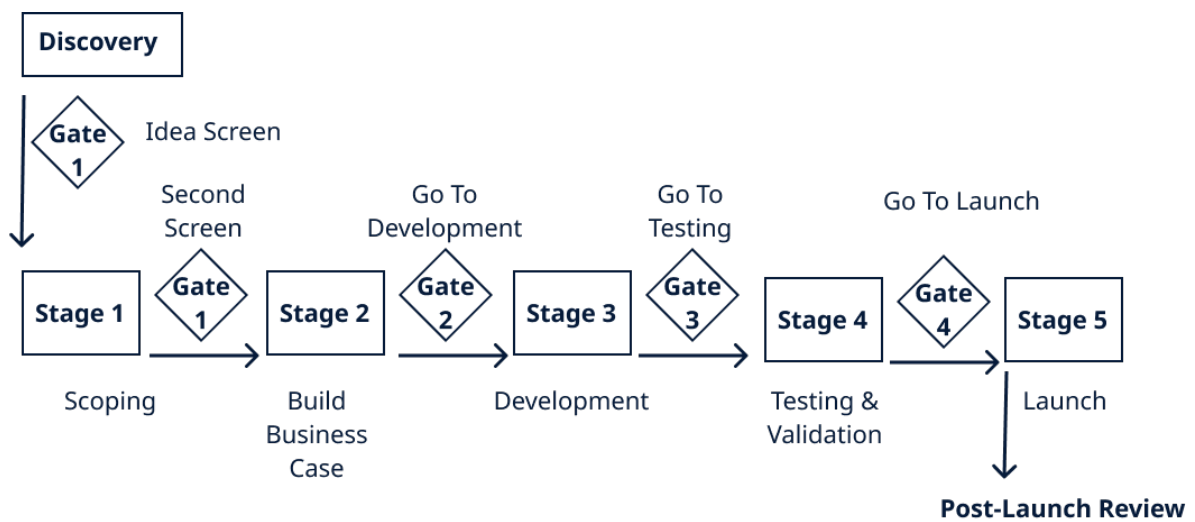


Figure 31. Stage-gate process example

lead to insufficient provision for focus and restrictions of learning opportunities (Sethi and Iqbal, 2008), which is similar to what we found from the interviews that the values behind the concept didn't pass the gate were being negated.

Some leading firms are re-inventing their stage-gate process to accommodate their development needs and system (Cooper, 2014). After Cooper studying how these companies coped with the downside of the traditional stage-gate approach, he structured his findings into three main adjustment directions, called a Triple-A system (Figure 32). The first A is of being Adaptive and Flexible means that the new process should contain a course of "build-test-revise" iterations with customers at the early stage to encourage evolutions and adaptations to further information. It also emphasizes the flexibility that the three critical elements in the stage-gate process: decision criteria, deliverables, and output should be

tailored to the specific context of the market and the need for the development process. The second A, represented by Agile, suggests that the next-generation system integrated key agile development elements to move quickly through milestones. The looping or spiral developments break the development process into incremental steps to allow interactions with customers and stakeholders in a build-test-feedback-vise manner. It promotes development, recognizes team efforts, and process adaptability throughout the entire cycle of the project. The last A, Accelerated, means the projects in this system thrives on maximizing speed to market by staffing with a multi-functional team and allowing overlapping stages and concurrent activities. Thus, the process ensures the early stages to be sharper and less fuzzy by having a dedicated cross-functional team to cope with the opportunities and reduce the unknowns while simultaneously executing the tasks.

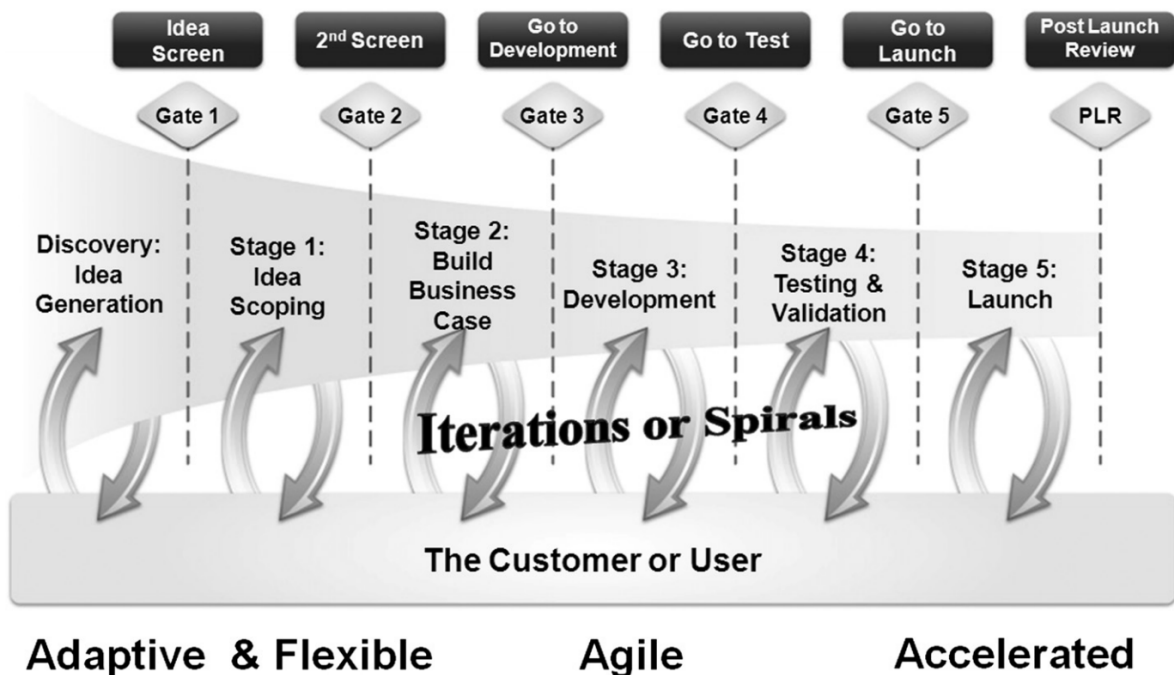


Figure 32. Triple-A system (Cooper, 2014)

In sum, as we can learn from the Triple-A system, the traditional stage-gate process can adapt to change. The potential refinements like spiral development cycles, context-based stage definitions and activities, and flexible decision-making criteria can serve as an essential foundation for our design to envision future product innovation management.

6.1.2. Types of innovation

With its development, the Stage-Gate process shows its capability to handle a more complex and challenging new product development project beyond incremental enhancements. The primary successful products experience continuous improvements to lower the development cost and enhance effectiveness, while another type of innovation called radical innovation can bring paradigm shifts that influence future inventions (Norman and Verganti, 2004). The most established stream of studies on innovation management is developed with-

in technology-driven innovation; however, Eric von Hippel has revealed a study that shows another stream of innovation from users who create improvised versions to serve their own needs. Manufacturers then may discover and continually refine the design described in Figure 33. Likewise, Verganti recognized this type of innovation from the socio-cultural regimes, driven by identifying subtle and unspoken dynamics that can radically shape new meanings and languages of design (Verganti and Öberg, 2013). Those two scholars' findings represent another driving force of innovation, the user, who can reinterpret the product offerings to generate new meaning. Figure 34 shows the space for innovation with three-dimensions (Verganti and Öberg, 2013), demonstrating both incremental and radical innovations with its corresponding driving forces. The changes in technology and meaning can lead to incremental and radical innovations shown in the current or new markets.

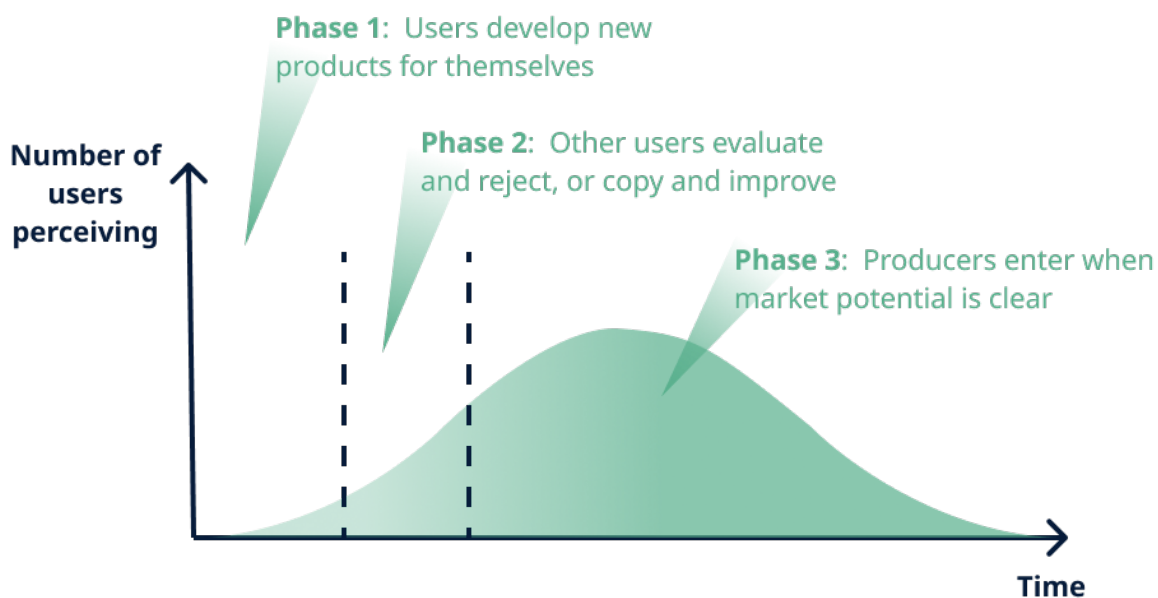


Figure 33. The user innovation (Eric von Hippel, 2011)

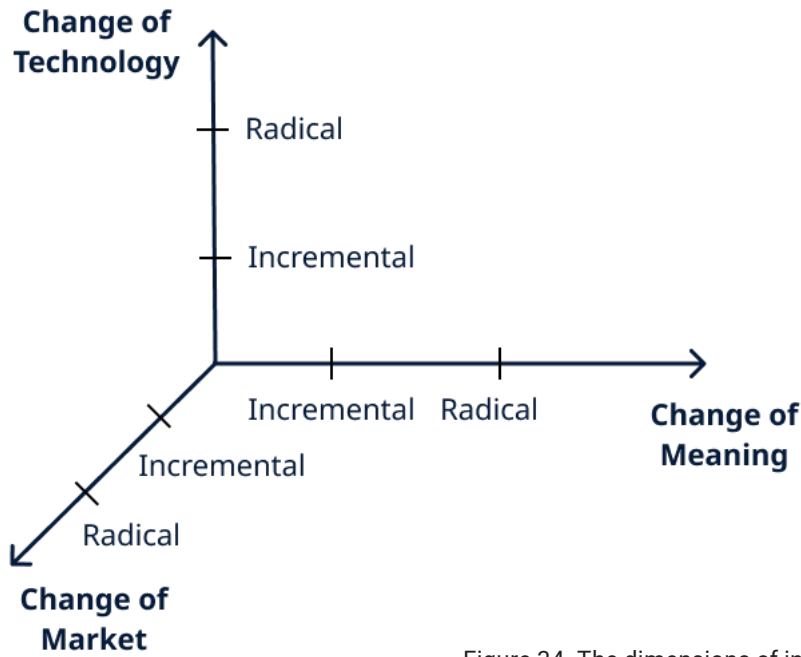


Figure 34. The dimensions of innovation (Verganti and Öberg, 2013)

Current market-pull innovation

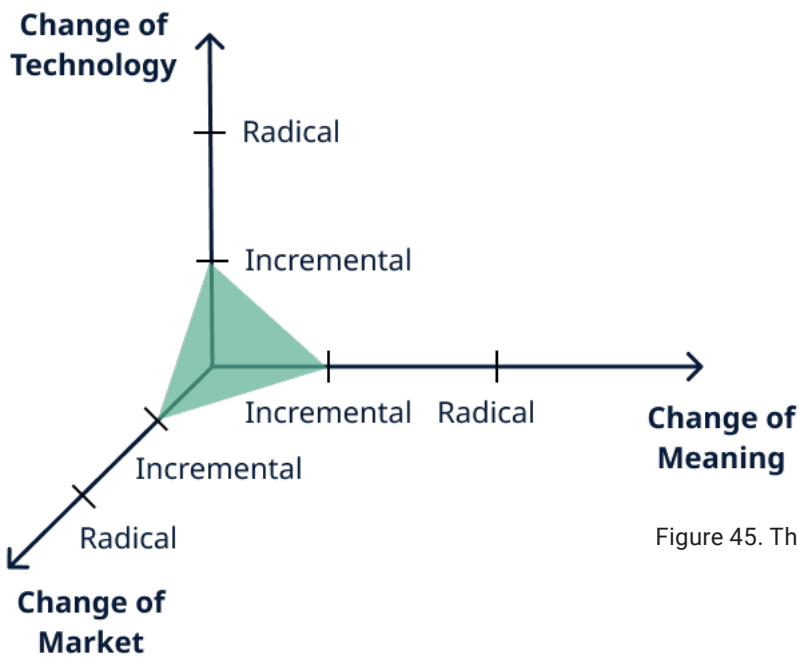


Figure 45. The market-pull incremental innovation

As mentioned in chapter 4.2, Henkel’s current innovation approach is a typical stage-gate process more tailored for incremental innovation (Figure 35). To integrate with meanings identified from the consumer perspective, figure 36 explains how the current stage-gate process develops to create meaningful products for the market. The pleasant sensation meaning identifies first

and communicates by marketing writing concepts that resonate with consumers. In parallel, translates to more functional understandings of clean clothes and convenience that can be discussed with R&D. Once the business case has successfully passed the last two gates, the product will be launched in the market and open for consumers to interpret the more emotional meanings in context.

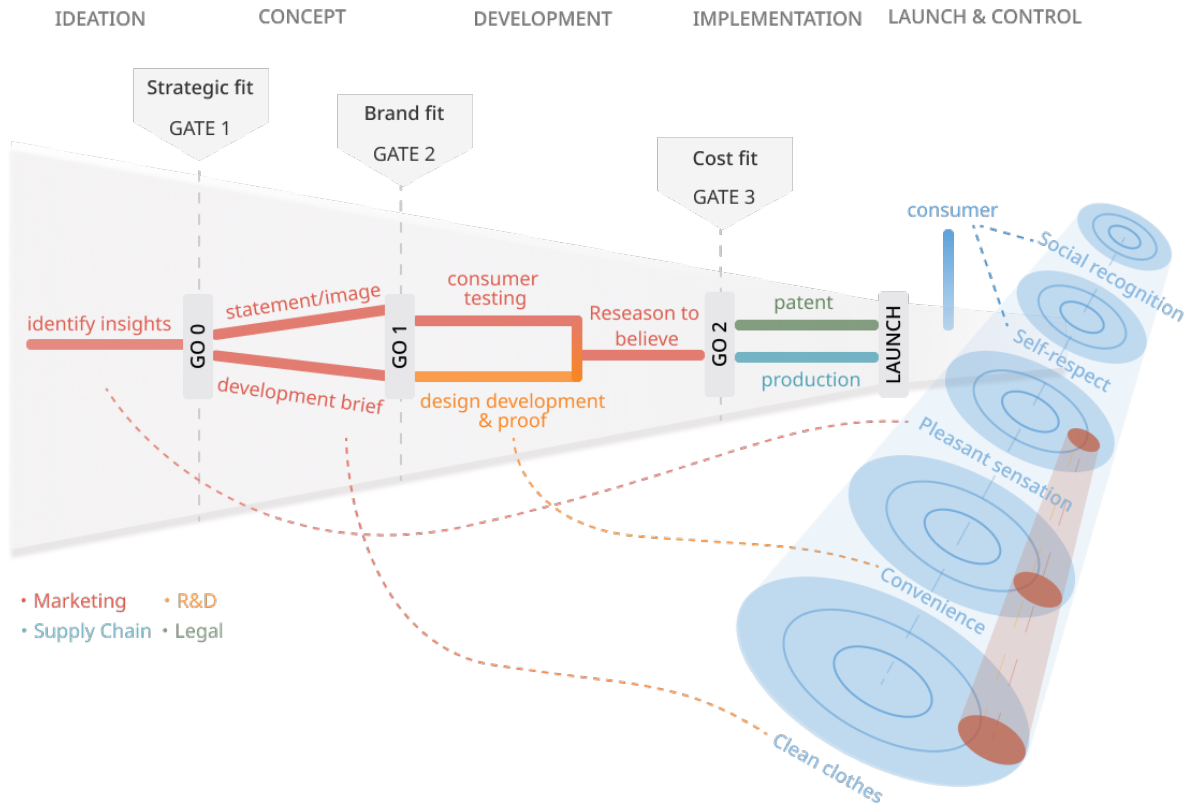


Figure 36. How the current stage-gate process creat meaningful products

The technology-driven innovation

Another type of innovation is the radical innovation (Figure 37.) driven by technology, as Norman described as “Technology First, Needs Last.”. It is worth noticing that many successful this type of innovation has been turned down by marketing research. Exam-

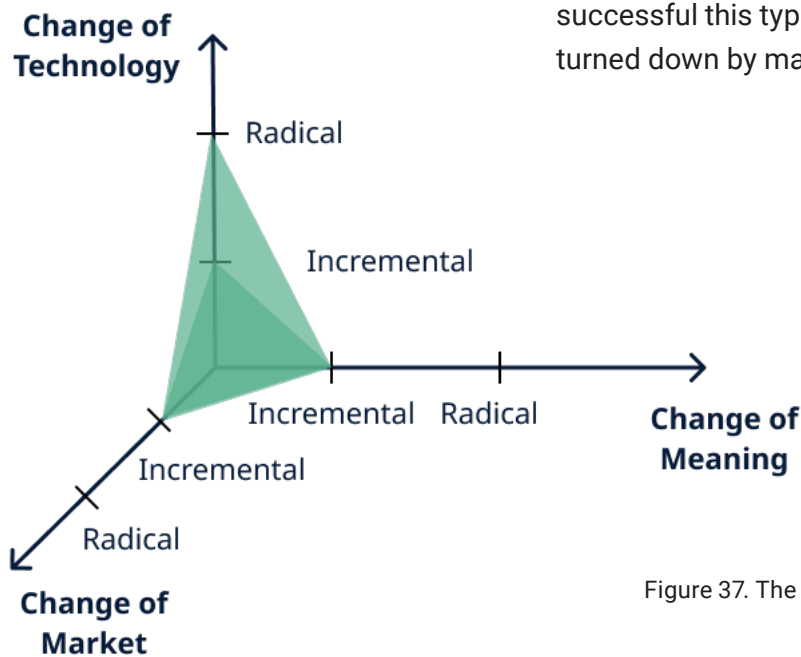


Figure 37. The technology-driven innovation

ples like Chester Carlson invented the Xerographic copier, which was rejected by various companies, and now is known as the Xerox copier. This type of invention often results from the inventors' inner vision. Thus, the technology-driven innovation often got trapped into existing paradigms and hard to pass the financial analytical gate. Thus, the gate's definition in this context should be changed and iterative, therefore with consumers to avoid engineers' tendency to jump to a technical solution before truly understanding consumer needs

The technology-driven innovation

Lastly, radical innovation can also be driven by meaning change through a better understanding of emerging socio-cultural patterns (Figure 38). However, as explained by Verganti and Öberg, distinguish from the technology, the nature of meaning is highly context-dependent and hard to be optimized. They can only make sense through the interpretation process. Thus, the study of deeper conact

consumer insights and radical meaning can not be simply observed from consumers but the other actors playing in the system, such as other firms within the industries, designers, users, and stakeholders both inside and outside the organization. The meaning change is co-generated and can not become real until someone, or a company proposes it to the market and lets the consumer assign meaning to it. The definition of "co" in this context is beyond the combination of organization and consumer, as we discussed in the previous innovation types but is given by users immersed into a socio-cultural context defined by all the system players. This indicates that this type of innovation can be recognized as a process of interpreting and envisioning that the organization must continuously interact with other interpreters.

Hence, this innovation approach emphasizes the insights identified stage that cooperates with different stakeholders rather than finding the right solution. The interpretation

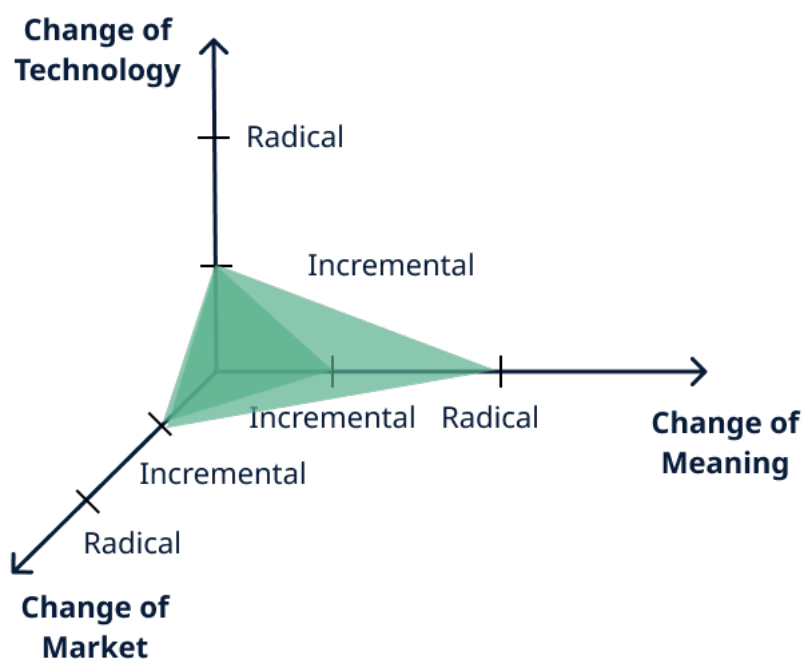


Figure 38. The meaning-driven innovation

between product and its interaction with the consumer and the context as a general whole would not necessarily come out with one ideal solution, but rather multiple alternative scenarios of meaning that can be further investigated in the market. The development of alternative future scenarios can also help the decision-makers become more alert to change signals. Otto Scharmer suggests the organization or individual should make generative listening/interpretation rather than take the leading position through the innovation funnel to connect with the emerging future. Once the highest future possibility has been identified, the organization leader can create a vision that aligns with the current organizational capability and the envisioned future.

To conclude, as opportunities emerge from both technologies and usage meanings, the innovation space becomes fuzzier and less specific. A significant challenge for companies is to identify the innovation scope and refine the stage-gate process accordingly.

6.1.3. Towards a new stage-gate process

Three design goals are formulated to consider the barriers and approaches of current innovation management discussed in the previous chapters.

- A. Enhance the stage-gate process adaptability to support different types of innovations
- B. Facilitate the internal team to distill future-proof consumer insights
- C. Enhance the alignment between marketing and R&D

6.2 Envision the holistic way of working for Henkel

6.1.1. Rethink the stage-gate process

This section will elaborate on the insights and design goals discussed above to propose design strategies. Later on, the final design outcomes based on the analysis will be presented.

Enhance the marketing and R&D integration through resourceful sensemaking

The success of New product development (NPD) depends on the multi-disciplinary contributions and interactions between different actors (Baker and Sinkula, 2007; Sarin, 2009; Seidel, 2007). However, we witnessed the misalignment between marketing and R & D as the vital roadblock for Henkel's current innovation process from the stakeholder interviews. As the organization grows and market-pull innovation becomes dominant, the marketing and R&D functions become specialized and cooperate linearly to respond to markets.

Since the 1970s, the need to manage flows across marketing and R&D boundaries has been acknowledged and discussed. The responsibilities of these two functions are neither independent nor static (Griffin and Hauser, 1996). The level of integration that is needed in an NPD process is situational and depends on the phase of the project (Dwyer et al., 1991; Moenaert et al., 1990) and the inherent information uncertainty (Ruekert et al., 1987).

The earlier product innovation process (insights identification, concept development, and selection) requires the highest level of integration between functions. Even though R&D may need to work closely with other functions (supply chain, legal, etc.) in the later process. It is less critical to the overall outcome success. Besides, the early involvement of different parties increases appreciation and recognition of the contributions of other expertise domains' contribution, enhancing the trust between them and increasing the profits derived from the development (Sounder, 1987). Hence, creating harmony between marketing and R&D groups in the earlier stages becomes critical.

Much research has explored the barriers to achieving harmony between marketing and R&D. On an individual level, inherent personality differences, cultural thought worlds, language, and organizational responsibilities contribute to the communication barriers. The misunderstanding can result in a strong "not invented here" thinking, which leads to these two functions continuing working in silos.

The fact that the interpersonal distance between marketing and R&D is unavoidable, but a recent study also shows that the barriers can lie on the perceptual stereotypes rather than actual personality differences (Saxberg and Slocum, 1968). When the belief of these stereotypes exists, the misunderstanding arises. Thus, what an organization can do is looking for mechanisms to enhance understanding and build trust between functions.

To improve intergroup relations, researchers have found simply enhancing information sharing and communication flow are not as effective as we expected (Homburg and Pflesser, 2000; Kahn, 1996). Because both functions work towards the same goal and mission, the way each function interprets those goals differs. The tensions between functions are not caused simply by differences in language, but the thought worlds which contribute to the difficulty of understanding one another's reasoning, so-

lutions, and tradeoffs (Griffin and Hauser, 1996)

The discussion above explained that the integration solution doesn't rely on narrowing the physical or psychological gap but establishes a different interpretive mechanism that facilitates mutual understanding. As Gioia and Chittipeddi described, the organization needs a "communicative process of influencing the meaning construction of constituents about a preferred organizational reality" first (Gioia and Chittipeddi, 1991) sensemaking process to support the strategic change initiation. The resourceful sensemaking is a process that adopts a "horizon-expanding discourse" to facilitate the engagement to take the perspective of others (Wright et al., 2000). The horizon-expanding discourse facilitates each function's capacity to understand and predict the response of the other, leading to improved cooperation and desired outcome. The theoretical relationships are described in figure 39.

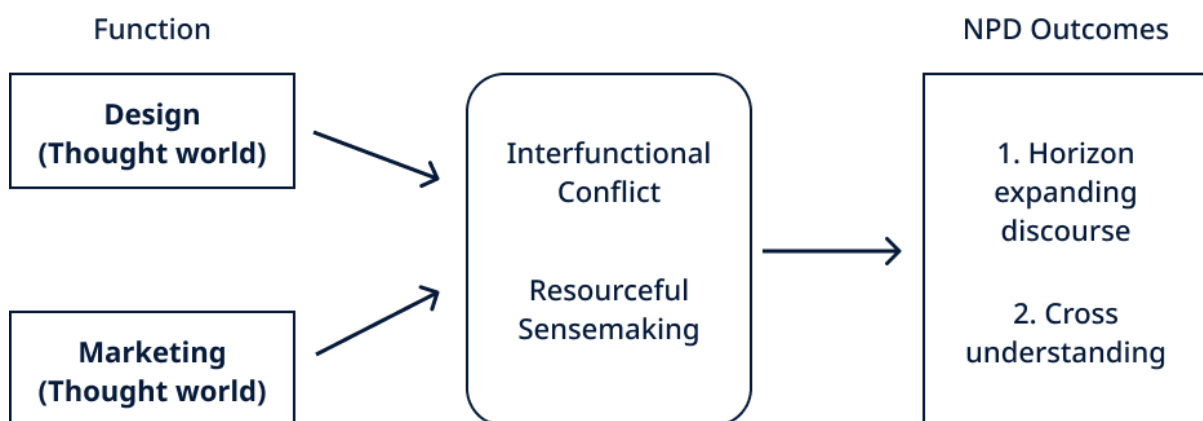


Figure 39. The theoretical framework of horizon-expanding discourse (adapted from Wright et al., 2000)

To cope with the different world view, Beverland has identified three practices of resourceful sensemaking practice- exposing, co-opting, and repurposing (Beverland et al., 2006). The first stage of exposing through consistent discussion emphasizes increasing awareness of one another's contributions from an earlier stage. Exposure is not simply achieved by information exchange mechanism or adjusting physical workspaces, but to reveal R & D's interpretive schemes and marketing to each other. Because the information-sharing mechanism does not necessarily contribute to information utilization (Goldhar et al 1976), only the specific kind of information shared by team members will contribute to the ove-

ral success. In this regard, it's necessary to have interactive sessions in both formal or informal format in the first place to engage with each other's practice.

Following the exposing practice, the co-opting approach aims at deliberately co-opting the tools, ideas, and language in the use of each other to establish the credibility of their stance. This kind of sensegiving is an attempt to recognize another actor's effort to influence the outcome. In practice, the sensegiving actions can be both functions, reframing their insights in each other's language to ensure their expectation at the same level. It is much related to the consumer understanding in the insight identification

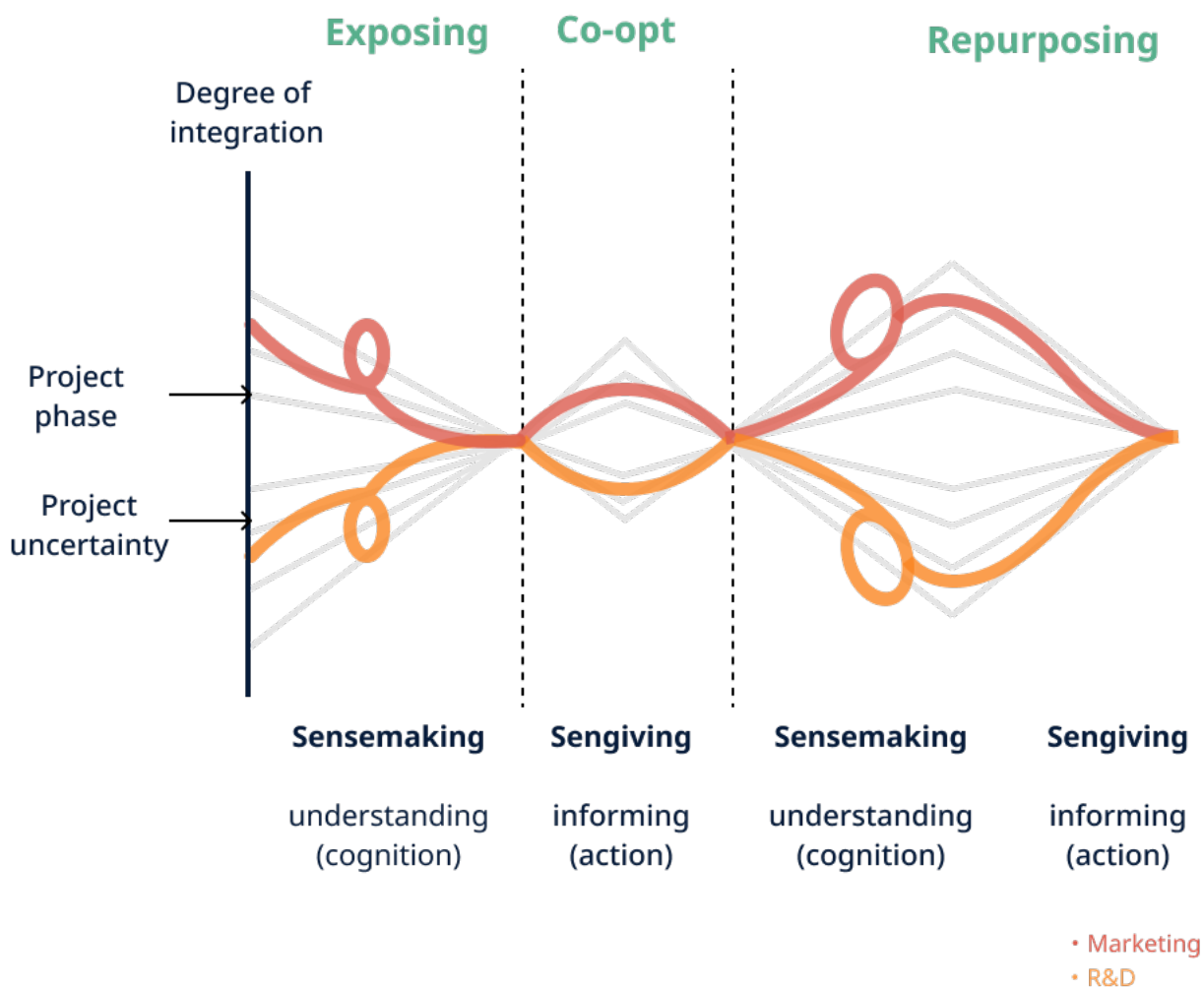


Figure 40. The resourceful sensemaking for Henkel

stage; the informant will need to actively reorganize their findings in terms of that digestible by their counterparts.

Lastly, the repurposing implies using their practice to demonstrate others' information hoping that they will come to akin conclusions. Still, in a manner they can be trustworthy with each other. The repurposing effort provides the foundation for a deeper level of sensegiving since it recognizes that knowledge is embedded in functions (Carlisle, 2002). It cultivates the culture to use another group's tools to co-create knowledge development.

To conclude, the gap between R&D and marketing misalignment in early stages can be diminishing by enacting cross-functional resourceful sensemaking. The tensions between these two functions are often generated by their different thought worlds, not information flow, thus can only be resolved by establishing an active interpretation scheme. The three actions Henkel can undertake are exposing, co-opt, and repurpose, as depicted in figure 40. In the ideation phase, the primary functions- marketing and R&D, start by exposing one another to practice to agree over the project expectations. This attempt allows them to reflect critically on their assumptions and perceived challenge, to provide the raw material for a further sensemaking collaboration. After aligning on the expectation, co-optation is an attempt to ensure information later can be presented in a credible way. It requires both parties to take another's point of view into account and deploy insights to influence it. Lastly, after consci-

ously reframing one's own insights into the form can be digestible by the receiver, repurposing utilizes the established awareness and empathy to open the development space to involve another function, adopt using other tools to create the knowledge needed for innovation.

Establish scenario-building and vision-creating stages

In exploring the definition of holistic product experience, we conclude that a significant characteristic of meaning is its context-dependency. Consumers make sense of a product or service offerings by their cognitive responses and social context in where the interaction happens. Thus the radical innovations are driven by technology and meaning require the organization to work on a higher level and with a broader scope to reinterpret the concept connections to the context.

The idea of establishing multiple alternative scenarios is rooted in the scenario's connotation as "a sequence of events, especially when imagined" (Merriam Webster, 2011). When searching for the scenario, the context, overall, consists of user experience and envisioned actions, which is highly integrated. The scenarios are approachable in both detailed level(product focus) and holistic level (experience).

After the scenario-building stage, vision creation is a process for the teams to ensure the values in the scenario fit into the organizational pursuit and belief. The vision creation process also fulfills the need for

for radical innovation through enriching heuristic thinking. As stated by Vergragt and Brown, the vision creates a cognitive map of “possibility space,” a useful device for inspiring organizations to investigate possible problem space, to test alternative strategies, and to feel at ease to envision future product offerings.

However, it’s worth noting that the vision creation process can lead to more than one promising outcome; thus, it can also provide a starting point for another concept development process.

In summary, the scenario-building stage can more comprehensively facilitate the innovation process, enabling the integrative perspective to think of the product and its context simultaneously. It also creates mental space for the organization to imagine futures, develop and test their visions, and fulfill the innovation needs.

Revise the brand-fit gate

One of the criticisms of the current stage-gate process is not adaptive enough and does not encourage innovation experimentation. We can also find this from the stake-

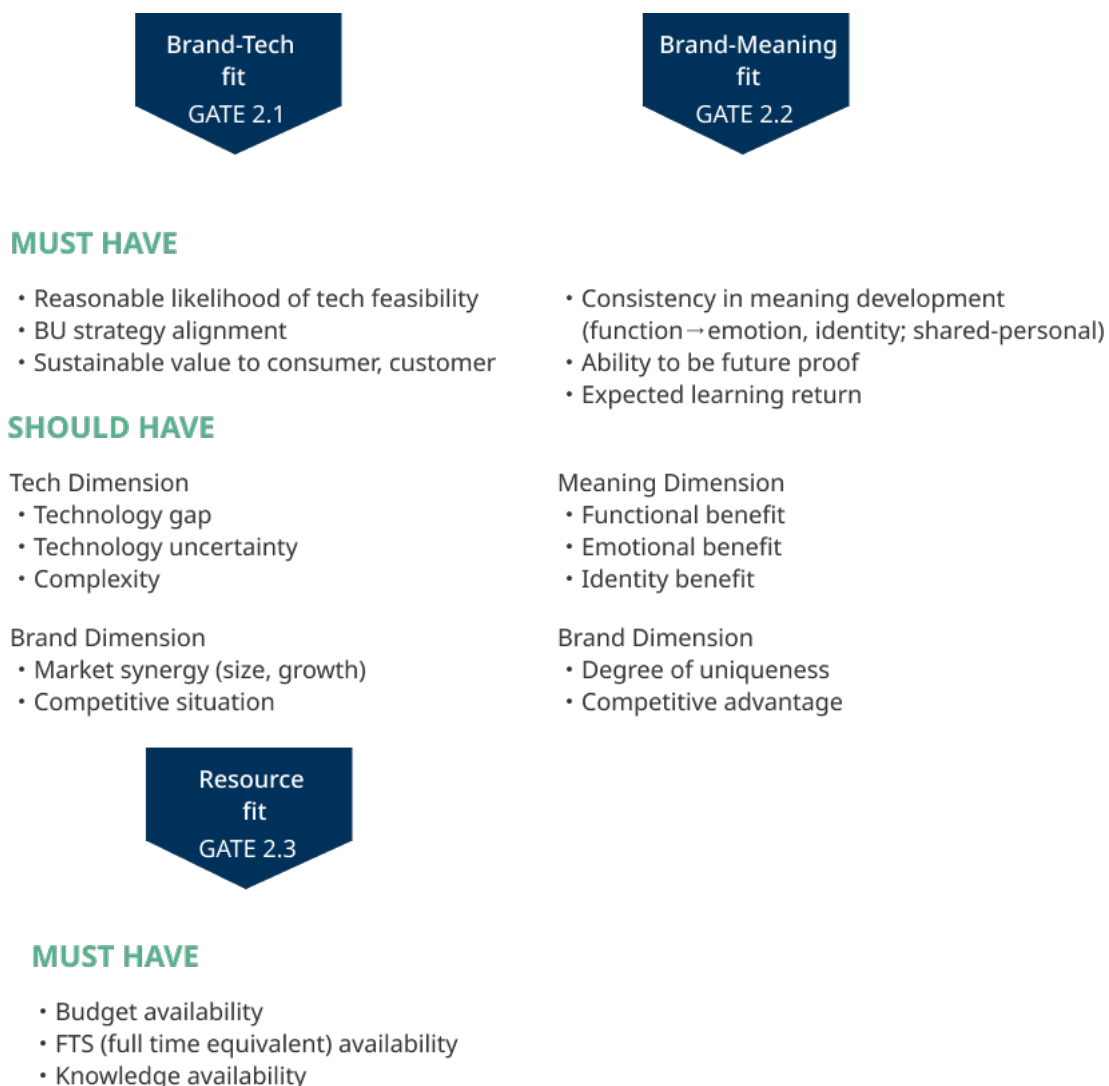


Figure 41. The revised brand-fit gate

stakeholder interview as the financial focus became cumbersome for the engineer's innovative pursuit. In this respect, the gates need to have clear and visible criteria to integrate financial and non-financial criteria. The degree of strategic fit may be hard to measure. Still, since the organization can also benefit from the innovation process to achieve strategic leverage beyond production offering (e.g., knowledge creation, impact on society, etc.), the gate definition should be revised.

The original brand-fit gate in the development phase is the first gate in which ideas will be decided to go or kill. It is based on the marketing concept and claims to be transferred to R&D. The shopper sales equation, the country scope, and business potential are already being explored, which doesn't leave space for further technical or meaning exploration. Besides, as we discussed in chapter 5, the meaning changes can lead to a new brand proposition or product success, which indicates that the innovation concept does not necessarily fit into a specific existing brand in the first place.

Thus, the design proposes to replace the current brand-fit gate with three flexible and "light-weighted" new gates. Each gate consists of "must-meet" (knock-out criteria designed to kill the misfit or poor project) and "should meet" criteria (desirable and scorable criteria), represented in figure 41.

The first brand-technology fit gate uses business unit strategy alignment and sustainable value to replace the original market financial priority. The likelihood of technical feasibility is also considered earlier to ens-

ure the R&D fully engage and provide reasonable technology restriction arguments. Besides, the market characteristics still exist to support the desirable innovation, marketing synergy in terms of size and segment growth, and the competitive situation can still formulate strong reasoning for the concept to pass the first screening phase.

Once the team recognizes the technical and market uncertainty, the brand-meaning fit will further ensure innovation concepts' desirability. The consistency in meaning development is crucial in incremental and radical innovation, demonstrated in this project's meaning pyramid. It means that the product creation needs to fulfill the functional and shared meaning first and successfully convey to the end-user to achieve a more emotional and personal dimension. Hence, this stage will evaluate the meaning benefit from a more fundamental functional level in the should-have categories and move to emotional and identity level. Brand here will measure its degree of uniqueness and the competition environment, making sure the meaning creation can also have competitive advantages from the organizational perspective.

Finally, since the previous two revised gates don't concentrate on the organizational innovation capability and financial consequence, after the vision creation and translation phase, the secure resource fit analysis will enforce the resource gap will be captured and discussed. The resource here considers the financial investment and evaluates human capital, availability, and knowledge creation capability. In this way, the vision creation will be guaranteed to fit into organizational capability and long-term strategy.

Interactions with consumer

Lastly, since the past-paced consumer world becomes fuzzier and hard to predict, the iterations with consumers in the early stage are essential for organizations to have a quick response to the changes in the outside world. As the second A in the Triple-A system indicates, the agile element in the stage-gate process can bridge the gap between the need for early problem definition before concept development versus the need to be flexible and adjust the design to new information fluid market conditions. The spiral development demonstrates a series of “build-test-feedback-and-revise” iterations with consumers from the very beginning. The refined successional version of the product offers, thus, getting closer to the outcome and, at the same time, closer to the customer’s desire (Cooper and Edgett, 2005).

6.1.1. Establish its research capability ranging from the consumer insight identification to a broader sense of social-cultural context understanding, and actively interact with the internal stakeholders and external interpreters

Following the discussion above in terms of early consumer need identification, and reflect one of the current innovation process barriers as resource and competence deficient to support the consumer understanding, there is a need to strengthen the research capabilities to support innovation.

On the one hand, as the laundry product experience is context-dependent, it requires

the organization to adopt a human-centered design (HCD) and the research approach to understand better how people interact with the product. This research explores the consumer’s current meaning assigned to the specific product and aims to investigate existing understanding and needs to design products that fit those meanings and needs (Norman and Verganti, 2014). It starts by analyzing unmet user needs and then searches for solutions that can better satisfy them or redefine the product language to respond to existing trends. Compared with current market research adopted by Henkel, which goes wide to understand and report the “who” and “what,” the design research emphasis is more on the “how” and “why” in situ.

On the other hand, as Christensen argued in his book, *The Innovator’s Dilemma*, listening to consumers may be more suitable for sustaining technology than disruption. The interactions with consumers would indeed lead to incremental enhancements of the product, to be usable and understandable, but not necessarily a radical or meaningful one. As we explain, the higher level of meanings in an emotional and identity level is not defined by individuals or small groups of people, but the change in socio-cultural regimes. After studying successful design companies for over ten years, in a context where everyone uses their creativity and an overcrowded world with ideas, Roberto Verganti unveils a design strategy and a process in which the organization acts as an interpreter. They work with other firm outsiders, share the same question, or shape social culture. As described in figure 42, this approach values interactions with inte-

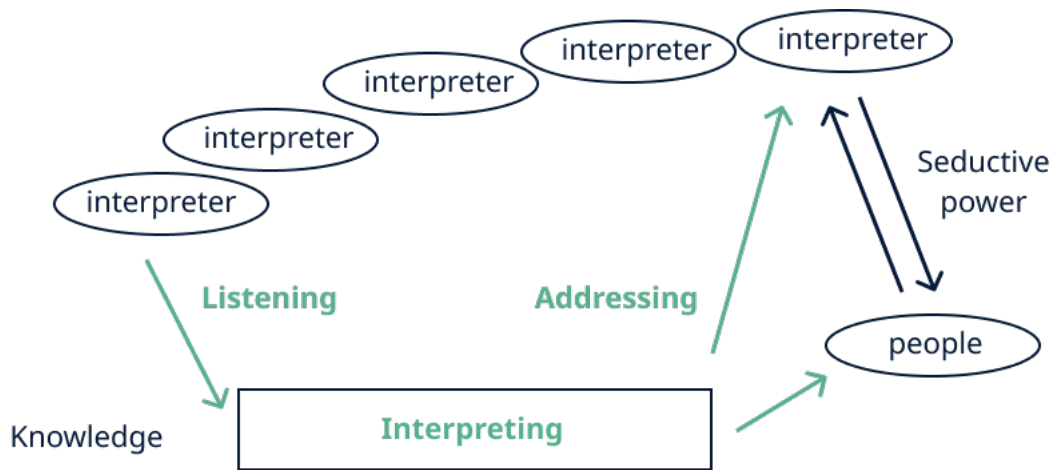


Figure 42. The interpreters' network

interpreters' networks. The firm can benefit from immersion in the collective research laboratory. They can test the robustness of their assumptions and share their visions. The definition of those interpreters is the people who belong to the world of cultural production. They are directly involved in the production and investigation of social meaning. For instance, interpreters can be artists, cultural organizations, sociologists, and designers, etc. This implies that establishing a holistic understanding of product experience requires the research activity to be actively connected with external interpreters. Moreover, taking a closer look at the outside world can create a greater sense of urgency for internal groups to act on the external changing dynamic. Since the organization is getting more sensitive to the external signals, the innovative culture is also cultivated from the "outside-in."

6.2.2. Shift the innovation mindset from a technical solution-finding process to a consumer-oriented problem-finding or meaning generating process

Lastly, an essential final comment is, the innovation mindset shifting from a technical solution-finding process to a consumer-oriented problem-finding or meaning-generating approach is critical for the organization to adopt and start implementing the actions proposed above. Scholars find that to overcome the potential overcoming resistance to embrace a change, employees need a reconstruction meaning they assign to the adjustment (Ford et al., 2008). Hence, to successfully instill the adjustment we propose above, we need a new narrative of what innovation means to Henkel.

6.3 Discussion and conclusion

To conclude, the current stage-gate process can adapt to changes to be more flexible and adaptive, agile, and accelerated. Henkel can move beyond current incremental product enhancement focus to radical innovation by revising its innovation process. To fulfill a more radical innovation need but keep the core of the current process, four actions are proposed. The early cross-function engagement will contribute to overall outcome success, thus to enhance the marketing and R&D integration, a resourceful sensemaking process is crafted. Establish scenario-building and vision-creating stages are also considered for the organization to adopt long-term vision thinking. The revised stage-gate process can be seen from Figure 43.

Besides, towards a more holistic way of understanding, as the result of chapter 3, a holistic understanding of product experience recognizes that the consumers experience the product as a unified whole, not merely from the product itself. The meanings consumers attach to a product can derive from the usage context and social interactions, and individual reflections about usage purposes. Thus, the organization should establish its research capability ranging from the consumer insight identification to a broader sense of social-cultural context understanding and actively interact with the internal stakeholders and external interpreters. Moreover, the innovation process is not solely a solution-finding process but can be recognized to create a whole new vision that facilitates invention and exploration in the business context.

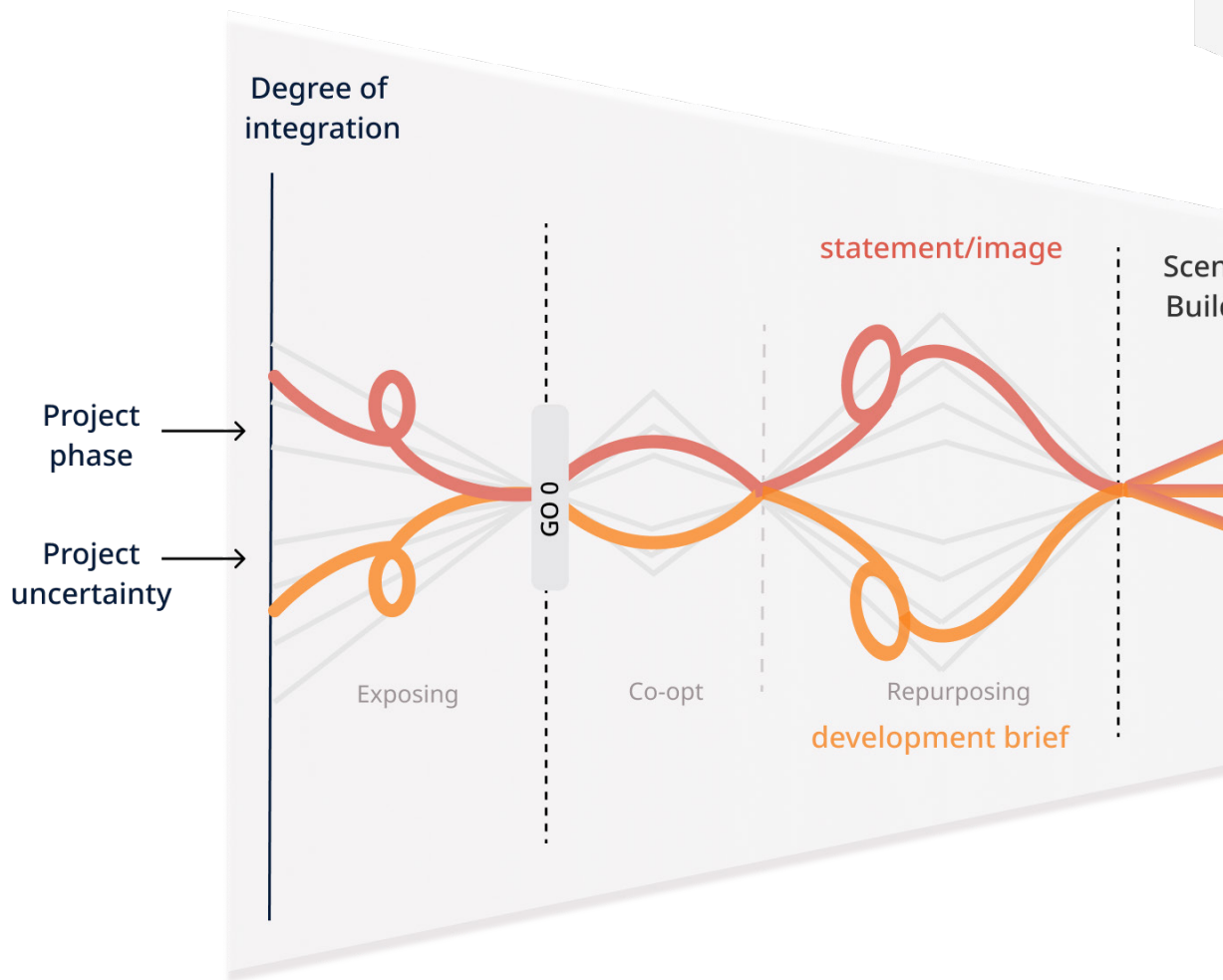
IDEATION

CONCEPT

DE

Strategic fit
GATE 1

Brand-Tech
fit
GATE 2.1



DEVELOPMENT

IMPLEMENTATION

LAUNCH & CONTROL

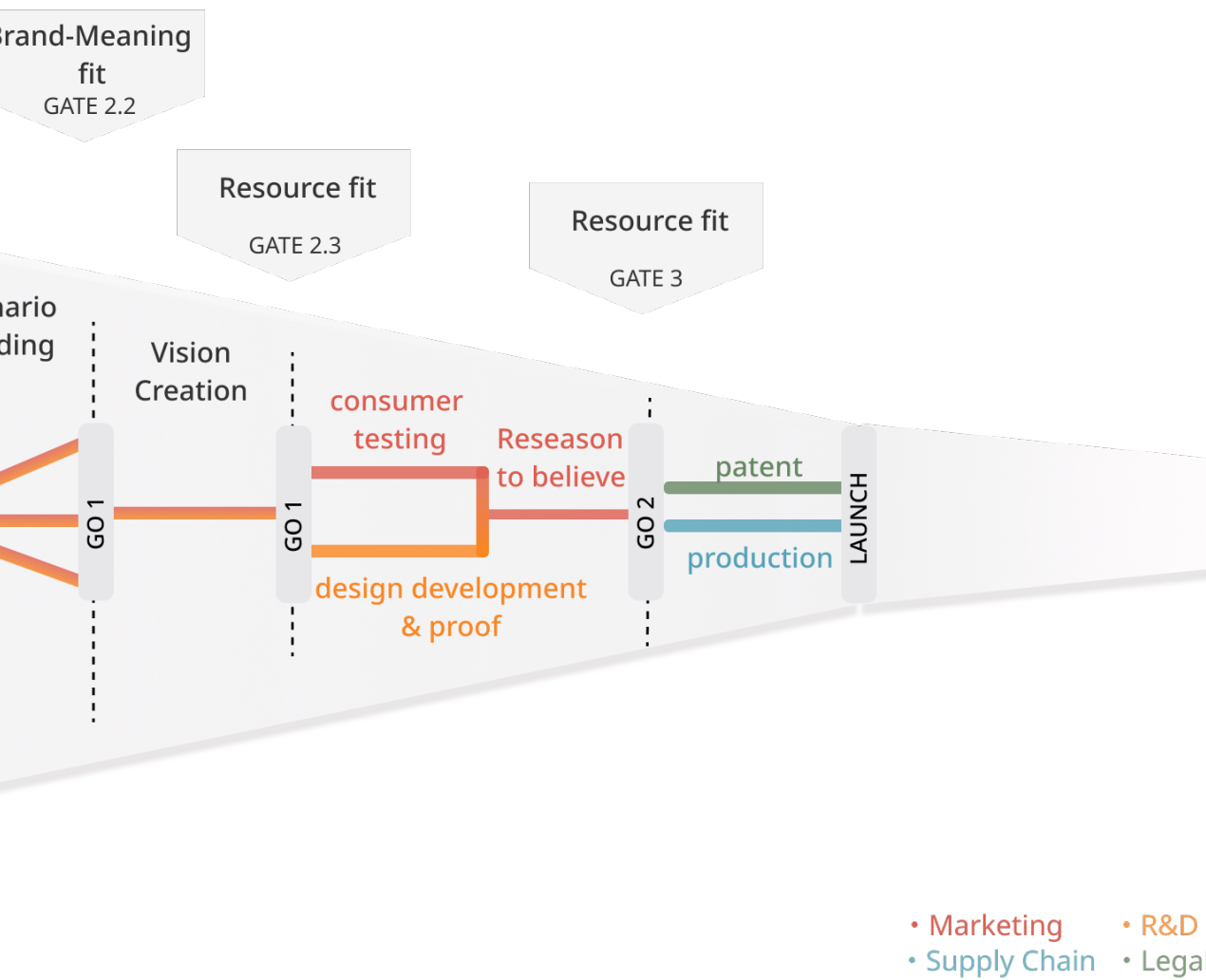


Figure 43. The revised stage-gate process

**07. Discussing for future
laundry product experie**

**the holistic
science**

7.1 Limitation

The research defined the holistic laundry product experience and proposed actions that can help the organization leverage holistic understanding and envision future product innovation. However, it is acknowledged that there are some limitations to be considered.

Limitations in the literature research

This project’s literature research studied the domain of product experience design, system thinking, marketing and R&D interface, sensemaking, and stage-gate. Each domain has an overwhelming amount of literature. In the given project time, only the tip of the iceberg has been explored. This study aims to define the holistic product experience, which product experience design and system thinking provide a fundamental theoretic background. But how the experience design can be implemented at an organizational level beyond the designer’s perspective is remain unexplored.

Limitations in the consumer research

The consumer study was planned to adopt a design-ethnographic approach that allows the researcher to observe in situ. Due to the coronavirus situation, only three out of ten were able to conduct in the field. For online interviews, the observations were done by the same guide-tour activity but from the participant’s perspective, which indicates that they controlled what to be observed, instead of the research immerse in the field. To compensate for user data’s potential deficiency, insights from sociology and ethnography discussion around cleanliness perception were extracted. Thus, the consumer study results were actually the

7.2 Implications and recommendations

Prople & Problem

Today’s consumer is savvier than ever, which means functional one-off interactions cannot loner satisfy them at a single touch-point. As the definition of holistic product experience revealed, people experience the product as a unifying whole. The factors that can influence and contribute to how people perceive a product are beyond usability. It consists of elements embedded

in their current everyday life, past experience, and desire for the future. In the book <Making Meaning>, the authors described the term experience simply as “the sensation of change”. Consumer experience is the integration of various touchpoints, to evoke or convey a consistent of sense.

From the interviews, we can find that the mismatch between people’s expectations, brand claims, perceived value, and usage

context leads people to be less cautious about laundry, even frustrated, and tried to avoid it. The goal of experience design in this category is to increase the sensation and express it in every connection with consumers.

Process

Following the discussion about the design for experience requires the organization to create a consistent sense of change. The research results and approach highlighted the importance of not only learn from current situations but also look back to the past and see forward to the near future.

People's behavior change follows a specific pattern that can be better understood by taking a retrospective view, carefully analyzing the signals, and explaining how it has been evolved. In this respect, sociology and anthropology studies have significant resources worth exploring. System thinking is a way that we can demonstrate how the signals really influence the situations. By depicted the dynamic changes, the structure behind the event is explicable.

Besides learning from the current and past, the future element is critical in innovation, especially the radical one. It consists of a lot of uncertainty and doubts, people can easily get into analysis paralysis because of that. But once we look into the patterns, understanding that any futures are actually derived from the ordinary past, we will feel more confident in preparing for the future. Scenario building or any other future-thinking approach is a way to manifest possibilities. Establish this ability can help the organization better prepare in shaping the future.

Moreover, this project design based on the current stage-gate process, but in terms of how the organization can leverage the holistic laundry product experience, experience design in practice is worth exploring. To combine with the current stage-gate process, even a minor adjustment requires process training and process superstructure to maintain the process (Griffin and Hauser, 1996). These tasks are not covered by the stage-gate approach itself but must be provided by some other mechanism within the organization.

Appendix

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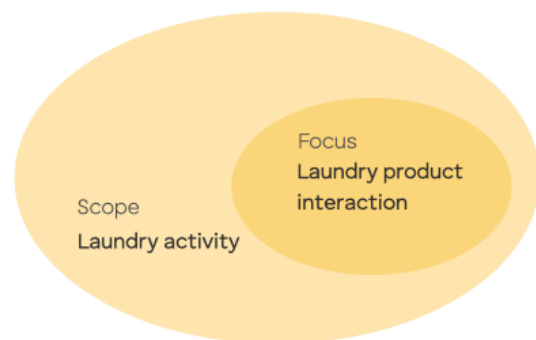
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Appendix A.

Consumer research plan

Consumer Research Objective

- To explore how the consumers manage and perceive laundry activity (their value, assumption and belief)
- Understand the habits, routines and perceptions around laundry activity



| | | | |
|----------|---------|--------------------------|-------------|
| HOMEWORK | WARM UP | SEMI-STRUCTURE INTERVIEW | GUIDED TOUR |
|----------|---------|--------------------------|-------------|

STILL-PHOTO SURVEY

[LEARNING GOALS]

- Let respondents start to notice their behavior and emotion in the laundry experience
- Obtain visual evidence to **uncover patterns** of behavior and perceptions related to laundry product experience
- **Identify key moments** related user cases in advance, to ensure that relevant information can be obtained during the interview.

[HOW]

Ask respondent to capture 7 pictures of previous laundry experience, including key moments, specific objects, activities, etc.

1. In what situations did you consider you **start and finish** the laundry experience? (capture at least two moments) How did you **feel** about it and why?
2. In what situations did you consider are the **key moments** of your laundry experience? (capture at least five moments) Why you think it's important? How did you **feel** about it?



STILL-PHOTO SURVEY

Hello!

Welcome to the project Decoding a holistic laundry experience, your views needed!

Before the interview, I'd like to understand your experience by some pictures you capture during the process.

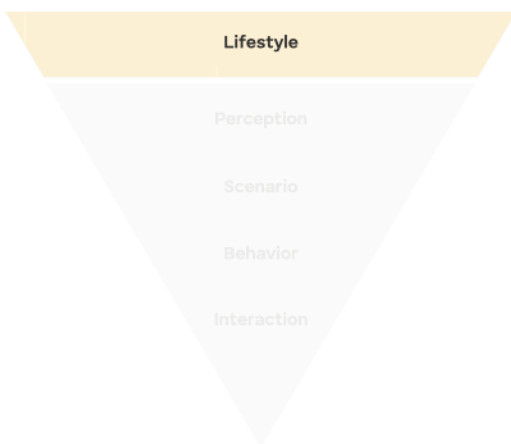
1. In what situations did you consider you **start** the laundry experience? How did you **feel** about it and why?
2. Thank you for the first picture you took. I know that laundry activity is a long process, but if you can identify **five key moments**, what would them be? Why these moment is important for you?
1. Finally we come the end of laundry. In what situations did you consider you **finish** laundry experience? How did you **feel** about it and why?

[HOW]

Ask respondent to capture 7 pictures of previous laundry experience, including key moments, specific objects, activities, etc.

1. In what situations did you consider you **start and finish** the laundry experience? (capture at least two moments) How did you **feel** about it and why?
2. In what situations did you consider are the **key moments** of your laundry experience? (capture at least five moments) Why you think it's important? How did you **feel** about it?

Interview structure



[GOALS]

Build rapport and understand the background of respondents.

[OPENING]

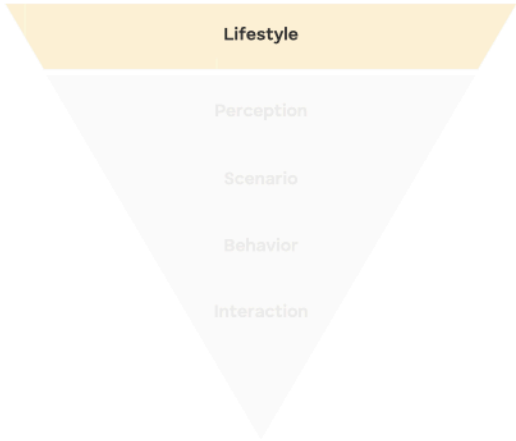
Introduce today's goal and myself

First of all, thank you for your time. I'm a design student from TUD and I'm working on the thesis that help businesses understand their users to design a future laundry product experience.

In the following interview, we will talk about your life, your choice of product, your emotion during the laundry process and hope at the end I can have a chance to visit the place you do laundry. Here you are the expert, so there are no right or wrong answers, is your real thoughts and opinions that matters. All of theses valuable tips can help design a product or experience, and perhaps turn it into an actual product that can be sold in the market.

Also, during the interview, I will continuously ask for the reasons. Please be patient and try to be as detailed as possible when expressing your ideas. You can also grab a drink during the process if it make you feel more comfortable.

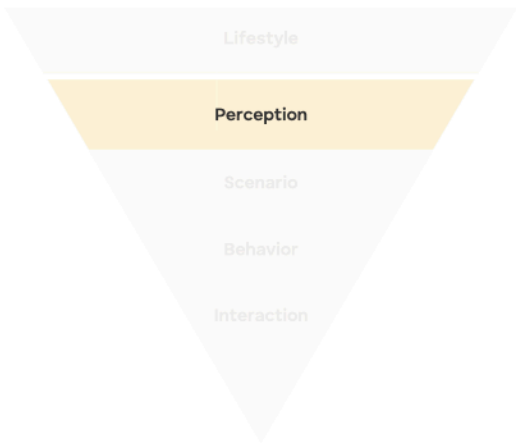
Interview structure



[GOALS]
Build rapport and understand the background of respondents.

[EXAMPLE QUESTIONS]
 1. Self-Intro
 -Introduce yourself, name, age, and occupation
 -Describe yourself and the living condition briefly
 2. About Life
 -What's your typical day or weekend? Can you describe yesterday for me?
 -What's your current life stage? What's important to you at this stage?

Interview structure



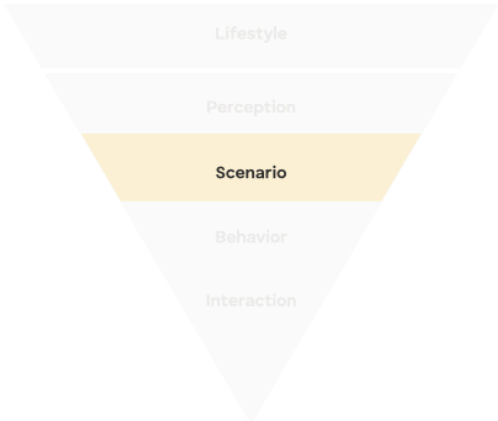
[GOALS]
Mainly understand their functional/emotional needs around laundry activity.

[EXAMPLE QUESTIONS]
 1. What kind of house chore/duties you usually do? How do you see they fit into your life?
 2. When talking about laundry? What's your general idea around it?
 3. What's your laundry machine? Why did you decide to buy this machine? Do you and your family have different opinions on this machine?
 4. What's your laundry detergent? Why did you decide to buy this detergent?

[ACTIVITY] Sort Card
 "Here are some qualities around the laundry activity. Please take a look and rank 5 qualities according to their importance for you. If there are other factors do not show up, please write on a blank card separately."

| | | | | |
|------------|-------------|-------------|----------|-------------|
| Supporting | Predictable | Trustworthy | Familiar | Interesting |
| Exciting | Impressive | Pleasant | Inviting | Desirable |

Interview structure



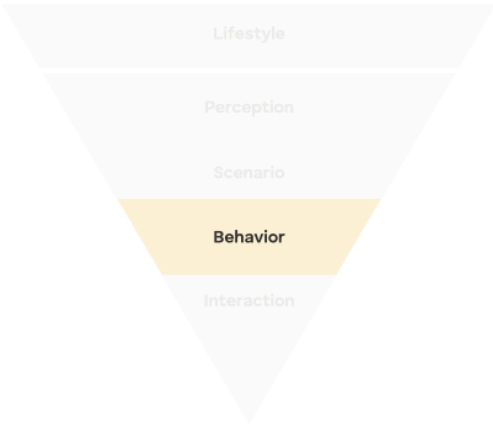
[GOALS]
 Understand respondents existing laundry journey and moments (user cases)
[ACTIVITY] Depict Laundry Journey
 -To help respondents to recall the journey as completely as possible.
 "This is a blank journey map, please complete it base on the pictures you captured."

Please complete your Laundry Journey

| | prepare | start | waiting | finish | after |
|------|---------|-------|---------|--------|-------|
| mood | | | | | |

[EXAMPLE QUESTIONS]
 -How do you plan your laundry activity? When & frequency?
 -Before you start to introduce this journey, can you tell me that the ideal mood of this journey? And why?
 -Can you tell me the reason why this moment is important to you?

Interview structure



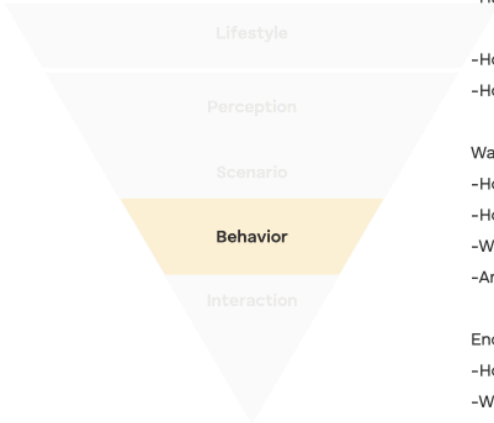
[GOALS]
 To identify their functional & emotional needs for the laundry product

Please complete your Laundry Journey

| | prepare | start | waiting | finish | after |
|------|---------|-------|---------|--------|-------|
| mood | | | | | |

[EXAMPLE QUESTIONS]
 -Introduce this journey and related user cases
 -When moods appear under which moments?
 -What causes this mood and how you deal with it?

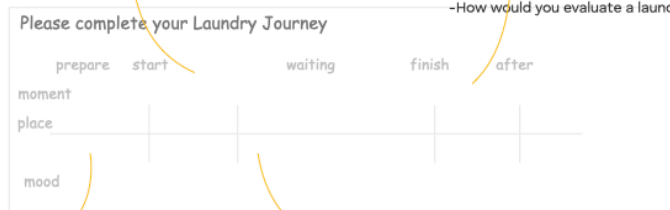
Interview structure



- Preparation
- How do you sort the clothes before laundry?
 - Has anything ever change the preparation of you laundry activity?
- Lifestyle
- How do you decide which washing program to use?
 - How do you decide the amount of detergent in use?
- Perception
- Scenario
- Behavior
- Washing progress
- How do you kill the waiting time?
 - How do you aware the start/finish of your laundry?
 - What kind of the mood appears in this period of time?
 - And how do you deal with it?
- Interaction
- End of washing progress
- How do you evaluate if the laundry is finished?
 - What do you do with the finished laundry? (eg.hang, dry)
 - Have you ever been in a situation where the laundry experience is beyond/lower your expectation? How do you do with it?

Interview structure

- How do you decide which washing program to use?
- How do you decide the amount of detergent in use?

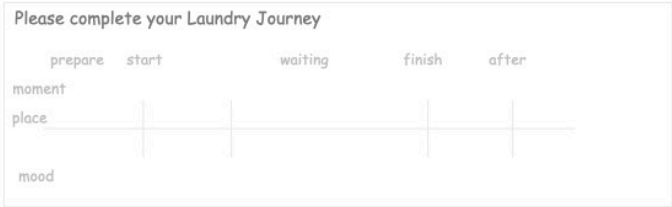


- How do you sort the clothes before laundry?
- Do you always do it like this? Has anything ever change the preparation of you laundry activity?
- What kind of mood should be set before starting the laundry? How do you currently do to set this mood?

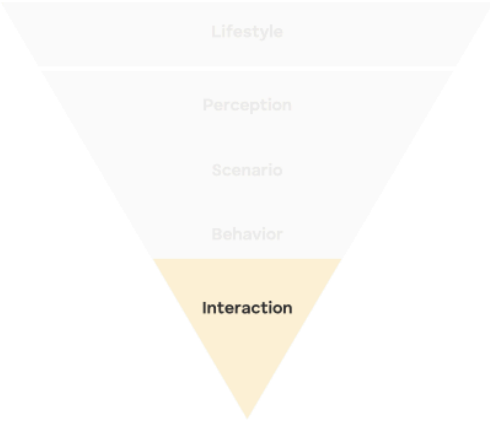
- How do you aware the start/finish of your laundry?
- How do you kill the waiting time?
- What kind of the mood appears in this period of time? And how do you deal with it?
- Is this waiting moment adjust the your mood?

- When you take the clothes out of the drum, what would you pay attention to?
- When and How will you evaluate if the laundry is finished?
- Is there any difference between the mood when you do the washing and drying? What cause the difference and why?
- Have you ever been in a situation where the laundry experience is beyond/lower your expectation? How do you do with it?
- How would you evaluate a laundry experience?

Interview structure



Interview structure



[GOALS]
To identify their functional & emotional needs for the laundry product

- [EXAMPLE QUESTIONS]
- In addition to detergent, did you buy or plan to buy any other laundry related product? (ex.fabric softener, disinfectant, scent booster, color catcher etc.)
 - What role does the laundry detergent play for you on this journey?
 - Can you identify the pleased points vs. pain points in use?
 - How and what do you evaluate if the detergent finish its work?
 - Have you ever bought a detergent that beyond or lower your expectation? What difference do you perceive?

HOMEWORK

WARM
UP

SEMI-STRUCTURE INTERVIEW

GUIDED TOUR

STILL-PHOTO SURVEY

[LEARNING GOALS]

Explore product and actions in situation to help people recall their intentions and value

[HOW]

Follow respondents on a guided tour of the laundry activity-relevant spaces and activities they experience



Appendix B.

Consumer interview guide

Fieldwork checklist

- ☒ Discussion Guide
- ☒ Stimuli (cards, journey paper)
- ☒ NDA (+copy)
- ☒ Pens (black+colour)
- ☒ Post-it, tap, scissors
- ☒ Blank Papers (A4+A3)
- ☒ Camera (battery)
- ☒ Sample product

PART 0 – INTRODUCTION

[GOAL] Set interview goals and expectations. Get the paperwork out of the way.

[0-1] INTRODUCE YOURSELF AND PURPOSE OF STUDY

First of all, thank you for your time today. My name is Lin. I'm a master student from TUD and I'm working on my thesis which is about decoding a holistic laundry product experience. The purpose for that is to help design better and more desirable laundry products and services.

Today's session is to understand your laundry experience. I'd like to know your opinion on topics including lifestyle, how you perceive and manage laundry activity, and the interaction with laundry product.

[0-2] SET EXPECTATIONS FOR THE INTERVIEW

So here you are the expert, so there are no right or wrong answers, it's your real thoughts and opinions that matter. All of these valuable tips can help design a product or experience, and perhaps turn it into an actual product that can be sold in the market.

Also, during the interview, I will continuously ask for the reasons. Please be patient and try to be as detailed as possible when expressing your ideas.

[0-3] PHOTOGRAPHY AND VIDEO RECORD (CONFIRMED VERBALLY)

During the interview, I will make a recording. Everything you say to us is confidential and we will not disclose your information. The purpose of our video is to capture every word you say. Is that ok with you?

Please feel free to drink water or make yourself comfortable during the interview.

Do you have any questions before we begin?

CHECK

recording

material & pen

[1-1] WARM UP LIFESTYLE (10min)

[GOAL] Build rapport and understand the background of respondents.

Self-Intro

-Introduce yourself, name, age, and occupation

-Describe yourself and the living condition briefly (house, kid, pet)

About Life

-What's your current life stage? What's important to you at this moment?

-When was the last time you did laundry? Can you describe what did you do on that day to me?

[1-2] PERCEPTION (20 MIN)

[GOAL] Building context and understanding functional/emotional needs around laundry activity.

What kind of house chore/duties you usually do?

When we talking about laundry, can you tell me about one that really stands out in your mind?

What kind of differences, if any, have you noticed between your laundry activity and other house duties you mentioned before?

How do you see laundry activity fits into your life?

[ACTIVITY] SORT CARD

1-"Here are some qualities around the laundry activity. Please take a look and select 5 that you think are important to you. If there are other factors do not show up, please write on a blank card separately.

2-"And please rank according to their importance for you. "

[1-3] SCENARIO (10 MIN)

[GOAL] Understand respondents existing laundry journey and moments (user cases)

[ACTIVITY] DEPICT LAUNDRY JOURNEY

"This is a blank journey map, please complete it base on the pictures you captured. I already put the starting point and the pictures you took here."

Before we start to introduce this journey, can you tell me

How do you plan your laundry activity? When & frequency?

Can you tell me that the ideal mood of this journey? And why?

Next, please help me to go through the whole journey. In the process, we will focus on the changes moods. Please recall and suppose I was there, what would I see going on?

[1-4] BEHAVIOUR (20 MIN)

[GOAL] To identify their functional & emotional needs for the laundry product

Can you tell me the reason why this moment is important to you?

(also pay attention to environment change)

/Prepare/

How do you sort the clothes before laundry?

Do you always do it like this? Has anything ever change the preparation of you laundry activity?

What kind of mood should be set before starting the laundry? How do you currently do to set this mood?

/Start/

How do you decide which washing program to use?

How do you decide the amount of detergent in use?

What's your laundry detergent?

How do you feel about this detergent?

Have you ever change the detergent? What, if anything, do you do now that you didn't do before when you use this detergent?

Where did you buy the detergent? Have you ever consider buy it online? What's the difference and Why?

What's your laundry machine? Why did you decide to buy this machine?

/Waiting/

How do you aware the start/finish of your laundry?

How do you kill the waiting time?

What kind of the mood appears in this period of time? And how do you deal with it?

Is this waiting moment adjust the your mood?

/Finish/

When you take the clothes out of the drum, what would you pay attention to?

When and How will you evaluate if the laundry is finished?

Is there any difference between the mood when you do the washing and drying? What cause the difference and why?

Have you ever been in a situation where the laundry experience is beyond/lower your expectation? How do you do with it?

How would you evaluate a laundry experience? How was desirable the experience like for you?

[1-5] INTERACTION (20 MIN)

Evaluate how long does detergent work?

What other type laundry product you have been use? (powder, liquid etc.) pros & cons

In addition to detergent, did you buy or plan to buy any other laundry related product? (ex. fabric softener, disinfectant, scent booster, color catcher etc.)

Where did you buy this detergent?

Can you identify the pleased points vs. pain points in use?

Have you ever bought a detergent that beyond or lower your expectation? What difference do you perceive?

SUB-QUESTIONS based on respondent profile

/live with partner/

I notice that you live with you partner, may I know if you live alone, would it change the way how you do the laundry?

How did you do it differently?

/live with kids/

How would you do if you wash your kids clothes? Why?

Do they involve in the process

/live with pets/

1. How would you do differently if you wash your pets clothes? Why?

2. Did you change how you do the laundry after you have the pets?

/live with pets/

1. compare living difference

/current + future visions/

How desirable do you think the current expereince?

/desire mood/

/back to ranking/

/picture/

Appendix C. Stakeholder interview guide

[Objective]

The purpose is to gain a better all-around understanding of Henkel key stakeholders' expectations and how each department/team cooperates, in order to help inspire the realistic concept for implementing holistic laundry product experience and cover as many opportunities as possible.

[Introduction]

- Thank you for participating.
- Check: Recording
- Explain the purpose of the graduation project

To succeed in the highly competitive consumer goods environment, it is essential to shifting from price and product superiority to privileged insights and customer experience. It is the overall consumer behavioural, experiential, and emotional responses formulate the outcome of a commodity. But the current product development is mainly performance-driven. A holistic and well-defined product experience can help Henkel innovation teams to broaden their development goals to think beyond feasibility, functionality, and usability.

I'm currently working on how to define the holistic laundry product experience which I think based on your expertise and experience, this interview will helpful for me to cover as many opportunities as possible.

- Explain the purpose of this interview

Gain a better all-around understanding of Henkel key stakeholders' expectations and how each department/team cooperates, in order to help inspire the realistic concept for implementing holistic laundry product experience and cover as many opportunities as possible. So I hope you can feel free to share your thoughts and there is no right or wrong here, is all about how you think or feel about it.

[Warm-up]

Self-introduction

- a. Can you briefly tell me your role? What do you do for Henkel?
- b. What are the biggest goals you are focused on right now? Or we say what's your first priority?
- c. What triggered/motivated you to join the New Product Team? How do you see the difference here?

In your own words, what do you think this project is about? How do you see this project fit amongst them?

In which stage you will involve people from a different function? How does a collaborative look like for you, especially in the early stage?

[Current product understanding]

What are the pros and cons of current Henkel products? What do you consider is the value for consumer based on current product offering? Probe: Is the value will still be relevant? How? And how do you see it will develop?

What do you think about the competitor product? What are the best and worst examples in the market?

[Consumer Understanding]

Can you give me a brief description of your current understanding of the target consumers? or do you have any idea how they look like?

- a. Who are they?
- b. What's your knowledge on their behaviours, motivations, lifestyle and future development?

How do you apply consumer knowledge into your work?

What are the constrains, and obstacles in the current R&D process?

[Follow up questions based on expertise]

/For marketing/

Future market and keywords

Who is the target consumer?

- a. Demographically, Lifestyle, Taste...
- b. If you collect your real buying consumer data in the last year. Do you think they match your target? Different? How?

Briefly segment review

- a. Who is competition brand?
- b. How does the consumer of these competitors look like?
- c. What's Henkel's competitive advantage in this category?

How do you think Henkel will position in the future? The different value positioning compared to the competitor. Who will be the competitor?

current process

Insight+RTB, can you tell me what happen in this process?

When it comes to define the brand experience & value propositions or write brand claim/storyline, how do you see the R&D role here? What's the benefit to involve R&D?

How and when you decide to share the consumer information with R&D?

Expectations for consumer interview

What assumptions, thoughts do you want to prove

Do you have any scenarios, ideas...for the laundry product experience in the future?

/For R&D/

current process

What are the constraints, and obstacles in the current R&D process? What are some key challenges/problems which you see arising?

Information about the future-does project (who initiative? how and why?)

Tech specific

The overall view of tech development in the industry

How does the user respond to the tech?

How do you think Henkel would respond to the change? The feasibility

/For Trend Explore/

Did you work with the third party? How do you see the benefit of bringing in another view to the organization? (any internal & external challenge for that?)

What's the general process for you to identify the trend?

Usually, how do you communicate these results with others?

Who are the people that show interest in the things you are doing and what is their feedback?

Trends would change over time, how do you define/evaluate if it's still relevant? Is there any criteria here that you would pay attention to?

How did you do the backcasting?

[View of the future]

In your point of view, which value of the product needs to offer in the future?

What do you consider is the job need to be done here? (test assumption)

As a professional, what's your vision on that in the future? What's your passion for the future?

What's your ultimate vision for innovation in Henkel? How you envision your way of working?

The biggest challenge for you to bring people into the future?

Project Goal

For you, what would you like to get out of this project?

- a. Are there any other goals you think are important?
- b. What are you most curious to find out? Why?

What success for this project look like for you?

What are the elements/moments that are most important to get right for this project to go well?

How do you envision this project will help Henkel current business and to help with your daily work?

Wrap-up

Is there any other information that you could provide that would be helpful for this project?

If you could provide one piece of advice, what would it be?

Is there something that I didn't ask that you really think is important?

Appendix D.

The original project brief

Procedural Checks - IDE Master Graduation

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Frido Smulders date 25 - 04 - 2020 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: 44 EC
 Of which, taking the conditional requirements into account, can be part of the exam programme 30 EC

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

YES all 1st year master courses passed

NO missing 1st year master courses are:

name _____ date - - 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: APPROVED NOT APPROVED

Procedure: APPROVED NOT APPROVED

- also approved for entrepreneurship

comments

name Monique von Morgen date 26 - 05 - 2020 signature _____

Decoding a holistic laundry product experience 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 15 - 04 - 2020 31 - 08 - 2020 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, ...).

The graduation project will be conducted in collaboration with Henkel Laundry & Home Care business unit, a consumer goods business which has grown into a globally active unit with a broad product portfolio. The project is initiated by the senior new product design manager of Henkel Laundry & Home Care, together with his team consisting part of the marketing and R&D departments as stakeholders (Figure 1).

To succeed in the highly competitive consumer-goods environment, it is essential to shifting from price and product superiority to privileged insights and customer experience. Going toe-to-toe with competitors is not the top priority in formulating strategy anymore, but attention to the needs of customers and a close analysis of a company's capabilities in responding to those needs. (Golub et al.2000)

The current product development is mainly performance-driven. And when it comes to new product development, the added value for the consumer is hard to assess and address. As explained by Bill Buxton, the consumption is now shifting its focus from object-centered to experience-centered. It is the overall consumer behavioral, experiential, and emotional responses formulate the outcome of a commodity. Therefore, a holistic and well-defined product experience can help Henkel innovation teams to broaden its development goals to think beyond feasibility, functionality and usability.

References

- Harvey Golub et al. (2000 June). The new model for consumer goods. Retrieved from <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/delivering-value-to-customers#>
- Bill Buxton (2007) Sketching User Experiences: Getting the Design Right and the Right Design (1st Edition, pp 9-15) San Francisco, United States: Morgan Kaufmann Publishers Inc.

space available for images / figures on next page

Personal Project Brief - IDE Master Graduation

introduction (continued): space for images



image / figure 1: The project team structure

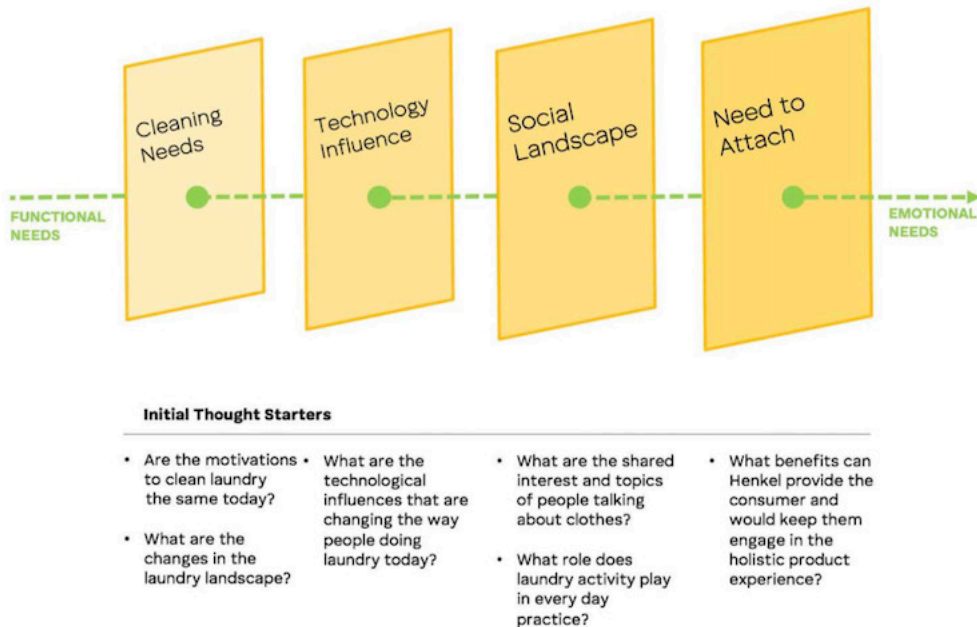


image / figure 2: The building blocks of a holistic laundry product experience

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.

As mentioned earlier, in need of understanding more in-depth and specialized consumer insights to keep in pace with the current competition, Henkel is interested in how a holistic product experience can be defined and applied. This project will focus on the laundry product category mainly, as is a very complex and multifaceted product experience consisting of multiple smaller experiences.

A product experience is an understanding of people's subjective experiences that results from interacting with products. It results from the degree to which all our senses are stimulated, the meanings and values we attach to the product and the feelings and emotions. (Desmet & Hekkert, 2007). But laundry product is now in a low-interest category, and the laundry product experience is related to other experiences within the whole laundry experience.

Therefore, to understand the laundry product experience in a holistic manner, we need to understand how different parts are interconnected and reference the whole to make it explicable. So when it comes to building a holistic product experience, there are different levels that need to be considered. Each step moving from functionality to emotionally building on one another to establish in a holistic manner. (Figure 2)

Besides, from the corporate perspective, there are several aspects that can hinder the internal use of 'holistic experience', such as the current product development approach, distributed tasks and silos among departments etc. The general guidance for Henkel to implement the holistic experience should be conceptualized and adapted to the current organizational structure.

References

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.

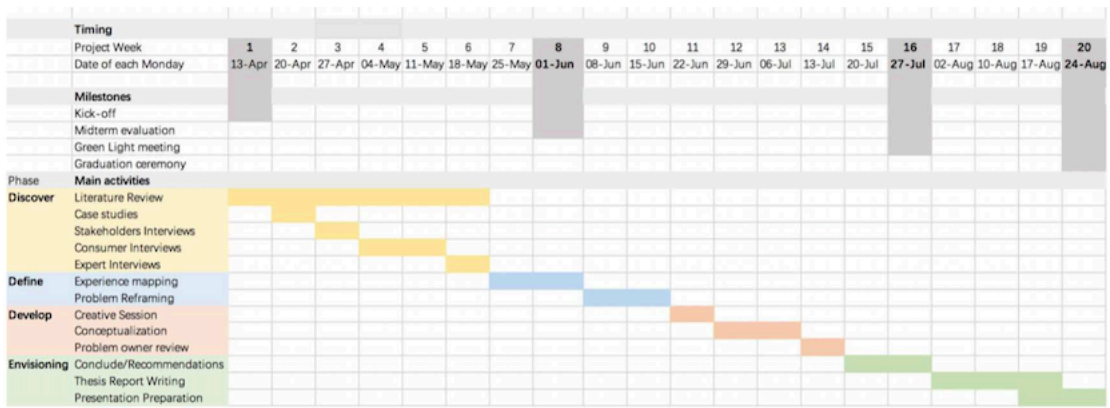
This assignment, therefore, reflects the coming together of a holistic experience and its narrative, and a new approach to product development. With those mutually supporting ends in mind, I structure the assignment around two key phases of work:

- Develop the user context, define holistic product experience together with its narrative which is differentiated with the product experience for functionality, usability.
- Conceptualize the implementation for Henkel Laundry & Home Care R&D department to leverage for the holistic product experience.

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 15 - 4 - 2020 31 - 8 - 2020 end date



01 Discover

- Goal: To ensure a comprehensive understanding of the holistic laundry product experience, this phase is aimed to establish a strong foundation for the first sketch of experience.
- Outcome: detailed knowledge of the context, variables or elements in laundry product experience, understanding of stakeholder's capability, constraints and concerns

02 Define

- Goal: Synthesis the learnings from the field and experts, together with organizational context understanding, define the boundary and key elements of the holistic product experience.
- Outcome: initial rough sketch of product experience, identify key areas for further investigation to improve the consumer value and business value

03 Develop

- Goal: Based on learnings and key elements, develop and define the holistic product experience, key experience highlights, and the potential application in Henkel.
- Outcome: perceptual / experiential feedbacks and preferences to adopt the holistic product experience, concept of holistic product experience

04 Deliver

- Goal: Modify from learnings and design refinement
- Outcome: Validation of concept & recommendations for implementing

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.

During this project, it is my goal to adopt an 'analytical frame of mind' to tackle this complex strategic design challenge. The process will move from user-based to technology-enabled and business-driven to ensure the outcome would be right for both consumers and the organization. The synthesis of all those three aspects is always the thing that triggers and excites me. I hope through this graduation project I will gain further knowledge and valuable experience around it.

Besides, another challenge yet opportunity for me in this project is to communicate with the 'intermediate user', who will act as the downstream actors to receive and implement the design contents. From school projects and my internship experiences with both start-up and design consultancy, I have witnessed the valley of death kept occurring because of designer missing how to smooth hand-over of the design content and concept will be not usable. Therefore I would like to take this risk into account and apply a variety of tools and methods that I learned from both SPD and DFI to bridge the gap.

Last but not least, this graduation project will in collaboration with Henkel AG & Co. KGaA, which I would consider as an entrepreneurship project that enhances design collaboration within the industry. I believe the extensive knowledge from the corporate side and real scenarios I deal with will provide me valuable learnings and trigger me to think and reflect my own design capabilities and position within the business context.

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

