



Play-infused innovation

A PLAYFUL DESIGN TO ENLARGE INNOVATIVE CAPACITY AT VONK

MICKEY VANYA SANJAY LINSKENS – MASTER THESIS STRATEGIC PRODUCT DESIGN

Master Thesis

Shaping an innovative play space
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Abstract

Purpose - In my Master Thesis titled "Shaping an innovative play space," I was inspired by the realm of playground design, particularly the concept of 'adventure playgrounds' and their profound influence on creativity. I embarked on this journey to harness the power of play and apply it to the office context of VONK, the innovation center of the city of Rotterdam.

Design/methodology/approach - I adopted a comprehensive approach that delved deep into the intertwined concepts of play and innovation. Through literature reviews, hands-on observations, and user interviews, I aimed to uncover the nuances of these concepts, especially focusing on the overlapping themes of making and creativity.

Findings - My research illuminated the indispensable role of play in fostering attributes like confidence, creativity, problem-solving skills, a sense of belonging, cultural growth, and overall well-being. These findings underscored the potential of integrating play into professional settings to spur innovation. The research resulted in a theoretical framework of the interaction between the creative process and the environment. On this framework the insights from user and expert interviews were plotted, which lead to multifaceted opportunity and threat zones for VONK within this context. Based on these zones a possible roadmap was developed for the coming 10 years, including 5 horizons and playful idea suggestions tailored to the team of VONK to act according to these horizons.

Research limitations/implications - While the research provides valuable insights into the role of play in fostering innovation in office contexts, it is primarily based on the specific context of VONK. The findings might need adaptation when applied to different organizational settings. Also I have struggled with my personal process, as described in the personal reflection, which led to a suboptimal documentation of my findings.

Practical Implications - My insights suggest significant implications for VONK, the innovation hub of Rotterdam. By integrating the principles unearthed in my research, VONK has the potential to transform its space into a vibrant ecosystem that champions learning, experimentation, and innovation. For VONK, the research suggests a focus on co-creation, connecting actors, and project management. Organizing events, such as festivals or business fairs, can also serve as an effective strategy for showcasing achievements and expanding the network.

Value - This research offers a unique perspective on enhancing innovation in office contexts by leveraging the concept of play. It provides actionable insights for organizations like VONK, aiming to foster a more interconnected, innovative, and vibrant environment. The crux of my research lies in its potential to revolutionize the innovation landscape of VONK. By weaving in the principles of play, I believe we can usher in a new era of creativity and innovation, making VONK a beacon for innovators and pioneers.

Keywords - Play, Innovation, VONK, Adventure Playgrounds, Creativity, Making.

Document type - Master Thesis, strategic product design, TU Delft

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1. INTRODUCTION: FOUNDATIONS AND PROJECT APPROACH

1.1. Initial inspiration

In the realm of playground design, Carl Theodor Sørensen, an architect in Denmark once faced a perplexing challenge. Despite his best efforts, the playgrounds he designed remained empty and devoid of play. However, he stumbled upon a brilliant idea: he transformed a vacant space into a playground (Figure 1) filled with discarded items like broken cars, tools, and dirt (Kozlovsky, 2007). Surprisingly, children swarmed to this unconventional playground, naturally immersing themselves in creative play and building their own imaginative worlds. These so-called 'adventure playgrounds' allowed children to build, dig holes, make fires, climb, and do all kinds of other things they are not allowed to do in conventional playgrounds (Shier, 1984). According to these sources adventure playgrounds strongly influence creativity and according to Matthews (1985), traditional playgrounds even do the contrary, stifling imagination and creativity. Inspired by this story, I wondered about the realm of play, how it influences adult behavior, and if offices suffer from consequences like dysfunctional traditional playgrounds. Thus for this project I am trying to utilize the concept of play to improve a certain office context. That context became, VONK, the innovation center of the city of Rotterdam. VONK is more than just a concept; it's a physical meeting place inside 'het Timmerhuis' designed to foster innovation by connecting a het Innovatienetwerk Rotterdam consisting of over 2,500 pioneers and innovators in- and outside the municipality, meant as a catalyst for groundbreaking ideas.



Figure 1. Türrck S 1915-1954, Børn på byggelegeplads (Children on construction playground) from Digitale samlinger by Sven Türrck, Danmark, accessed 20 jul. 23, <http://www5.kb.dk/images/billed/2010/okt/billeder/object64174/da>

1.2. Introduction to VONK

VONK is an initiative, under the Strategy and Advisory Department of the Municipality of Rotterdam, to "To create and manage a space for innovators, early adopters, and early majority to meet and collaboratively discover, conceive, and design new technologies that will make Rotterdam even better, more sustainable, and more beautiful!" (Appendix 2: VONK Brochure).

VONK is operating both physically and digitally, with the goal of enhancing the city's inhabitant's innovative capacity. Its target audience is defined through a community-oriented quadruple helix approach (Figure 2), targeting four groups of users:

1. **Knowledge:** This helix represents educational institutions, research centers, and universities. They contribute by generating new knowledge, conducting research, and providing training and education.
2. **Private:** This helix consists of businesses, industries, and economic players. They are responsible for translating academic research into marketable products and services, fostering innovation, and driving economic growth.
3. **Public:** This helix encompasses local, regional, and national governmental bodies. They play a role in setting policies, providing funding, establishing regulations, and creating a conducive environment for innovation.
4. **Societal:** This helix represents the general public, consumers, media, and non-profit organizations. They contribute by voicing societal needs, fostering a culture of innovation, and facilitating the diffusion of innovations in society.

Together, these four helices collaborate to foster a holistic and inclusive innovation ecosystem.

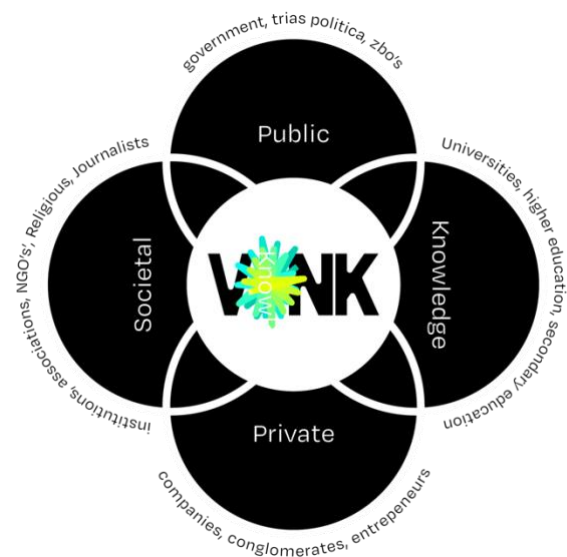


Figure 2. VONK's audience, consisting of four groups VONK calls: the quadruple helix

VONK's goal is, through their programming, to explore, ideate, and design new technologies in an environment that promotes learning and experimentation. As such, VONK serves as a networking and co-creation platform, primarily focusing on the process of exploration and experimentation rather than merely producing reports" (Appendix 2: VONK brochure). To achieve this VONK's team, consisting of approximately 7 people, organize talks, workshops, brainstorm sessions, space for experiments and any other event to fuel the network. But VONK doesn't consider themselves an "innovation factory" in their brochure they mention they want to act as a "tourist information center for innovation", an innovation guide in and around the city, referring individuals to various maker spaces, innovation hubs, and knowledge workplaces.

own physical facility in a dedicated space in the first floor of "Het Timmerhuis" in Rotterdam (Figure 3). It's a typical space in 'het Timmerhuis', which is a municipal office, however it is adapted to VONK's mission of stimulating innovation. For that cause, their space is divided into 6 dedicated rooms: One extended reality room with VR headsets, one data room with very powerful computers, one graphic room, one workshop room, a living room, and a big empty space with a ping-pong table and a calling booth. To utilize these spaces for their intended purposes they have resources like 3D printers, holo lenses, projectors, powertools, cameras, robots and a WiFi network independent from organizational restrictions. Additionally, a large space at the ground floor of the building can be programmed by VONK for public exhibitions, events and presentations.

The platform, which originated as an innovation network in Rotterdam in 2014, has since evolved to having an



Figure 3. Pictures of VONK's location in 'het Timmerhuis' before I started my graduation, looking quite similar to regular municipal office spaces.

In general, VONK commits to fostering a network capable of generating unique and impactful ideas, aspiring to significantly influence major transitions in the city, including digitalization, sustainability, inclusivity, economy and services (Figure 4). This is part of their 'focus raster' (Appendix 2: VONK Brochure), which describes their ambition to simultaneously keep three influential factors in mind in everything they and their audience do: technology, transitions, and criteria. For each factor they've defined five or six relevant elements which lead their current decision making.

For example: VONK has collaborated with art collective 'Mona Lisa's' to organize a series of events for their audience (MonaLisa's, 2022). Participants are invited to think critically about the wider implications of meme culture, digitalization, and the evolving Internet landscape.

In terms of transition, the installation is focused on digitalization, with the theme being meme culture – a

mostly digital phenomenon. The goal is to evoke thought on the (dark) regions of the internet, and how resulting images and texts eventually rise to more popular platforms and media.

From a conditions perspective, the installation touches on privacy. This is particularly evident in discussions about the darker regions of the internet, where privacy concerns are often at the forefront.

Regarding technology, the installation explores the "Internet of Everything" concept. Memes, as an integral part of internet culture, travel across various platforms and communities, reflecting the interconnectedness characteristic of the Internet of Everything. Furthermore, the workshops allow participants to actively engage with this culture in a physical and sensory manner, which involves creating and reacting to memes, thus providing a physical manifestation of this typically digital phenomenon.

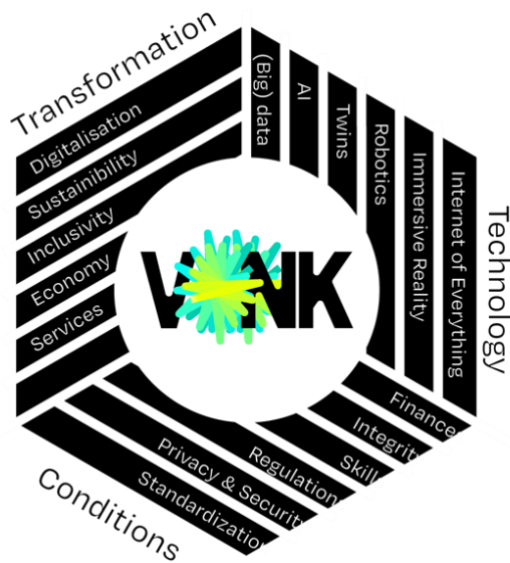


Figure 4. VONK's scope. This model describes VONK's ambition to simultaneously keep three influential factors in mind in everything they and their audience do: technology, transitions, and criteria.

Although VONK calls itself an innovation center, it shows similar characteristics to a startup, albeit in the organizational context of a municipality. Similar to a startup, as defined by Cockayne (2019), VONK is focused on innovation and has the ambition to disrupt and transform. Their goal is to enhance their network members' innovative capacity. Enlarging innovative capacity is about fostering a mindset and skillset that allows individuals to approach problems in novel ways, generate unique solutions, and possibly even contribute to technological advancements or social improvements. VONK also tries to implement a more startup-like attitude, which they describe as a flat hierarchy which operates more agile, where they openly embrace risks, failure and exploration of new territories. However, in contrast with a typical startup, VONK still operates within the municipal structure, which does expose them to policies, regulations and bureaucracy. VONK's goals are ultimately aligned with public service and societal benefit: VONK's operations could potentially result in proposing innovative solutions to the political decision-makers of Rotterdam. Therefore aligning with the broader governmental objectives. Although the municipal context is different from that of a normal startup, VONK does benefit from the stability in both funding and support that a municipal structure brings.

The most striking example I encountered showcasing the drive of VONK to foster change within the rigid municipal context is the fact that they have a personal network, without any restrictions, installed in their space. Which in a large organisation like the municipality, which strongly values cyber security and strict formats, is quite an impressive achievement.

1.3. Problem statement

Despite boasting an established innovation network and a strong desire to implement knowledge about innovation, VONK faces challenges related to active participation in innovative processes. To uncover these problems I had two intake conversations and informal 'coffee' chats with 6 teammembers of VONK.

Initial Conversations:

I began my inquiry with two intake sessions involving guides from France who would assist me throughout my graduation.

- The first session saw me presenting my idea in a relatively unstructured manner to three phone members.
- In the second meeting, I shifted my focus to understanding the team's challenges. While it remained predominantly unstructured, I came equipped with some questions to dig deeper into the team's struggles.

Coffee Chats with Team Members:

- I arranged coffee chats with six distinct members from VONK. These sessions weren't held at VONK's official premises but in more relaxed venues like coffee shops. In one instance, the setting was so casual that I played pool with a member.
- Why coffee chats? Since I was unfamiliar with VONK's members, these coffee chats presented an optimal way for me to get acquainted with them. I believed that the informal nature of a coffee chat would foster more open and honest discussions.
- Each chat lasted about an hour. While the content of our discussions wasn't formally recorded, I meticulously documented the insights and opinions shared to ensure I captured the essence of their views and concerns.
- In these conversations, I began by exploring their respective roles at VONK and understanding their aspirations. I shared details about my graduation, its structure, and my research intentions. I wrapped up by seeking their feedback on VONK, especially their perceptions of any internal challenges or struggles.

Through these structured and unstructured sessions, I was able to collate and formulate the primary issues and concerns related to VONK.

Problem 1: No Active Participation:

Despite having a strong innovation network, VONK struggles with fostering active participation in the innovation process. Furthermore, Spaces are more frequently used for meetings rather than engaging in creativity and innovation. Despite having genuine intentions and occasionally demonstrating successful innovative processes (as shown in Figure 5), there remains a gap between the aspiration for vibrant discourse and the actual activation to perform innovative actions. This results in more discussions and analysis about innovation rather than tangible, creative engagement. For instance, during one of my initial visits to VONK, I observed a group of students. After a brief discussion and a tour of the facility, the students quickly

returned to working privately on their laptops rather than engaging with the available technology.

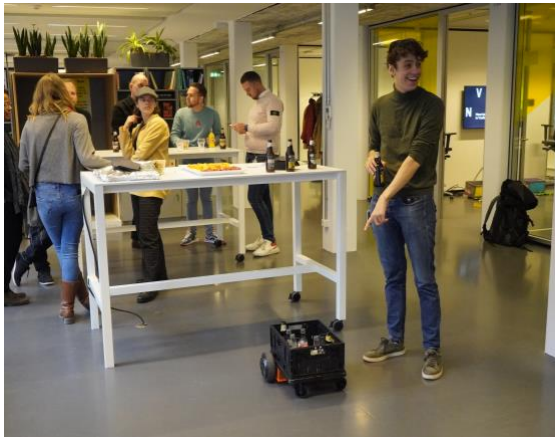


Figure 5. VONK's success, people are already coming to VONK, as to this network drink, and at such events are often innovative interactive activities, like this robot riding around.

Problem 2: Community Versus Team Initiative:

The current state of VONK involves the team taking the majority of initiatives and organizing events. However, the team's aspiration is for VONK to become a self-sustaining community, where the community members themselves take the initiative and organize events. This struggle reflects a transition phase for VONK, moving from a team-led approach to a community-driven one. The goal is for the team to transition to a facilitating and strategic role, allowing for a more organic and autonomous community engagement.

Problem 3: Complex Struggle with Professional Growth, Creativity, and Perception:

VONK faces an intricate challenge where the desire for open and divergent thinking clashes with the need for structure, professional growth, and the perception of the government's role. This struggle manifests in the tension between creativity and analytical thinking, the need for quality management systems, and the desire to change negative perceptions of the government's role. It represents a multifaceted conflict where nurturing creativity must align with organizational maturity and a nuanced understanding of VONK's relationship with the broader political landscape.

1.4. Hypothesis

Combining my initial inspiration on the concept of play and the goal to stimulate innovation in the context of VONK the core of my study consists of two assumptions:

First, when a space is designed to exude playfulness and excitement, it has the power to ignite people's imaginations and drive them to interact, experiment, and bring their ideas to life, thus enlarging their innovative capacity. I envision a space akin to a playground, where individuals engage in making, experimenting, and prototyping. This vision is illustrated in (Figure 6) I firmly believe that play, as a profoundly creative process, fuels the generation of exceptional

ideas. Touching and manipulating materials, along with the freedom to explore, are crucial elements of this experience.



Figure 6. Generated image by Midjourney software to visualize how I envision my main assumption. Prompt: "/imagine Close up over the shoulder shot of two people fiddling with scrap materials while making a prototype of a product invention which 'gary gearloose' could make, in a clean and minimal, but makerlab-ish space combining these spaces: <https://s.mj.run/yqiCk62xSU>, <https://s.mj.run/Y0IVVH3EWWc> and <https://s.mj.run/AC5zchOOMvA>"

Secondly, I observed during my time at university that very few of my co-students were actually engaging I would call experimental or playful behaviour with the available resources at university, but they gravitate towards their laptops, structures, planning and other activities which revolve around productivity instead of play. This makes me think about the constation of Matthews (1985) that traditional playgrounds dull creativity and Bregman (2019) as well as state that the freedom of children to play and follow their own curiosity has dropped at an alarming rate, leaving a big dent in motivation, creativity and mental health.

These assumptions and VONK's struggles lead me to the hypothesis that in this challenging environment where creative- and analytical thinking overlap, the lack of playful activities of VONK's users results in a deficiency of active participation and community initiative towards innovative processes. I believe this lack of innovative capacity can be overcome by fostering a playful atmosphere that promotes interaction and creation. Resulting in the formulation of viable and impactful ideas.

Reformulated in the leading research question: Considering VONK's context where creative and analytical thinking intersect, what strategies can be implemented, that incorporate playful activities, to help overcome VONK's deficiency in active participation and community initiative in innovative processes, to eventually help VONK's users to create impactful ideas?

To summarize, the goal of this thesis is to suggest strategic interventions, that address three of VONK's

struggles by incorporating playful activities into VONK's activities.

1.5. Novelty

The novelty of this research lies at the overlap of creativity, play, and innovation, particularly within the realm of governmental organizations like VONK. While the significance of play in fostering creativity is well-recognized in children (Cohn, 2013), its application in adult contexts, except for in therapeutic contexts, remains largely unexplored (van Leeuwen & Westwood, 2008). Van Leeuwen & Westwood also mention that play among adults has been seen in contrast with work and productivity. They argue this perception should change.

Existing examples, such as IDEO, who created a whole university course on achieving innovation through play, primarily focus on design professionals (T. Brown, 2008), leaving a gap in understanding how playful strategies can be harnessed to stimulate innovation in broader professional and organizational contexts.

In the case of VONK, the need for this research becomes particularly salient as the organization strives to enhance innovative capacity within Rotterdam, grappling with challenges like digitalization, sustainability, and major transitions (Appendix 2: VONK Brochure). VONK's struggle to actively engage individuals in innovation reflects a broader deficiency in current approaches. There is a need for practical, playful interaction to foster hands-on participation (Bandura, 1977; Berkun, 2010; T. L. Kelley, Jonathan, 2007).

This study aims to bridge that gap. By exploring the intersection of playful behavior and innovation, it introduces a novel perspective on how innovation processes are designed and managed. The hypothesis that playful activities can increase innovative capacity among adults, particularly in a governmental context, offers fresh insights with implications for industrial design engineering, innovation management, and public participation in urban settings.

Lastly, this hypothesis addresses urgent global issues of stimulating sustainable innovation, presenting a novel, participatory method that could reshape how creativity and problem-solving are facilitated (Eisenbart et al., 2022; Thoring, 2019). If proven correct, this research suggests new strategies in innovation practices, not only for VONK but for governmental organizations and communities in general.

1.6. Approach: Inverted double diamond

This thesis primarily follows a research through design process. Research through Design (RtD) emphasizes knowledge generation via the design process. Instead of seeing design merely as artifact creation, RtD positions the act of designing as central to inquiry, enabling a hands-on exploration of intricate problems. Through iterative cycles of prototyping and reflection, it offers a

tangible means to articulate issues and derive theoretical insights. Zimmerman, Forlizzi, and Evenson (2007) assert the value of this method in interaction design, while Stappers and Giaccardi (2017) stress its role in deepening the understanding of design's multifaceted contexts. This makes it a relevant method for this project to be used.

During this project, I observed a struggle that affects both VONK and the execution of my work. Specifically, "the desire for open and divergent thinking clashes with the need for structure," leading to tension between creativity and analytical thinking. I often find myself thinking divergently within a 'solution space' without connecting to a specific problem. However, both academic and municipal cultures necessitate a structured approach to understand a problem before analyzing the best-fitted solution. In essence, I start with finding solutions, but my audience needs to understand the problem first. To bridge this gap, I have adapted my documentation to translate my unconventional process, aligning it with the well-known Double Diamond model, as popularized by the British Design Council (Ball, 2019).

I call this personalized model: the Inverted Double Diamond (Figure 7). Instead of starting with problem identification followed by solution discovery, this approach began with a potential solution, 'play', followed by exploratory research to investigate its applicability in various contexts and uncover the real problem. Below I'll describe my personal approach to design.

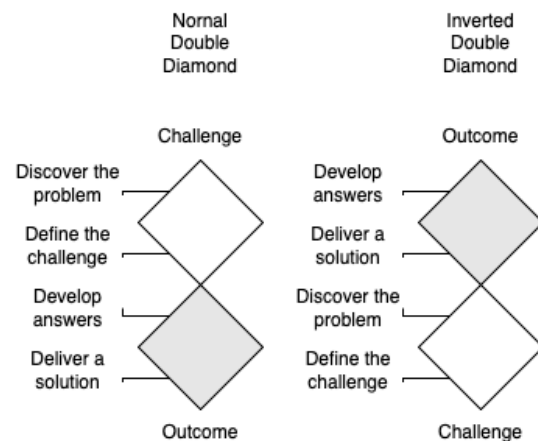


Figure 7. On the left the original double diamond as proposed and copyrighted by the design council (Ball, 2019). On the right my adaptation to this model used in this project

In this model, the usual starting point at the top 'challenge' was replaced by my initial assumption that play can stimulate creativity which is an 'outcome'. Post-assumption, I embarked on *developing answers*, which signified the start of the second diamond of the original model. Adhering to the recommendations of the Design Council, I sought inspiration from diverse sources and designed various ideas. This process entailed visiting different locations that sparked my creative thinking. Nonetheless, it's crucial to note that these initial phases

were not based on a certain problem, as is customary in the standard double diamond model, but on an assumed solution that could serve a yet undefined problem. After developing some answers, which was part of an additional small diverging phase before the presented model (see Figure 8), I quickly delivered a prototype which I considered to be a potential outcome that could benefit VONK.

Only after my initial explorations and prototype development, did I start to comprehend the underlying problem. I began conversations with potential users, the team members of VONK, and strategists within the municipality. Ultimately, this led to the definition of the actual problem and the emergence of the challenge. And only then I created the framework based on my initial exploration to plot my user insights upon.

Two significant divergences from the traditional approach characterize my model. Firstly, I did not begin with a well-defined problem or clear research questions; these elements materialized only in the second stage of my model. The second distinctive aspect of my model is that my research led me to see if my initial solution could be applied to certain problems of the research context, instead of analyzing the context and finding a suitable solution.

I tried to overcome this difference by in the end merging the two phases to a strategy, in the form of a roadmap, which connected my set of answers, found in the first stage to identified challenges found in the last phase. This roadmap then formed the basis of a set of suggestions of conceptual actions, based on my initial ideas, VONK can undertake to address actual challenges they and their users experience.

Concluding, the two models are not distinctly different in outcome, but they are in procedural order and timing of certain design processes. By analysing it with peers I tried to overcome the differences with the initial model, and I will continue developing my personal Inverted Double Diamond model in the future. For now, I hope this analysis makes my process easier to understand for people who are used to start with problem-statements.

1.7. Approach: Research through design

This thesis primarily follows a research through design process, where design and research activities intertwine and mutually support each other. Most design activities were also accompanied with reflective practice.

Research through Design (RtD) emphasizes knowledge generation via the design process. Instead of seeing design merely as artifact creation, RtD positions the act of designing as central to inquiry, enabling a hands-on exploration of intricate problems. Through iterative cycles of prototyping and reflection, it offers a tangible means to articulate issues and derive theoretical insights. Zimmerman et al. (2007) assert the value of this method in interaction design, while Stappers and

Giaccardi (2017) stress its role in deepening the understanding of design's multifaceted contexts. This makes it a relevant method for this project to be used.

In my research journey, I've adopted an approach that intertwines design and research activities, a hallmark of the Research through Design methodology. Central to my approach is the emphasis on prototyping and the act of "making," which are fundamental to my research process. Reflective practice, a pivotal aspect of RtD, has played a significant role throughout my investigation. Furthermore, I've harnessed the design process as a primary avenue for exploration, notably evident in my application of the VIP method and my commitment to iterative design cycles. While the core of my research aligns with the RtD approach, I enriched this approach with several other methodologies, later described in this chapter.

1. **Reflective Practice:** Reflective practice is a continuous process where individuals critically analyze and reflect upon their actions and experiences, leading to a deeper understanding and improved practices (Schon, 1983). This approach was interwoven throughout my research, ensuring continuous learning and improvement. Besides my research it also helped a lot in fine tuning the general approach, structure and processes foundational to my research.
2. **Semi-Structured Interviews:** I conducted interviews with some pre-determined questions, yet allowing for open-ended responses (Dicicco-Bloom & Crabtree, 2006). I implemented this technique in my interviews with users, municipal experts and field experts during my visits.
3. **Qualitative Data Analysis (DQICA):** I utilized Directed Qualitative Content Analysis (DQICA) as described by Ho and Limpaecher (2020c) in analysis the coding of the conducted user interviews. DQICA focuses on testing or corroborating existing theories or research by analyzing qualitative content. I derived my codes 'theory-driven' by analysing my own assumptions preceding the user research at the end of the prototyping phase.
4. **VIP Method:** The Vision in Product (VIP) method, developed by Paul Hekkert and Matthijs van Dijk, offers a structured approach to product innovation. This method focuses on formulating a vision for the intended user-product interaction, considering user needs, societal trends, and technological possibilities (Hekkert & van Dijk, 2016). I crafted a framework based on the VIP methodology, particularly emphasizing the step of structuring context. This step consists of clustering your data and structuring these clusters into an overarching framework of some sort. I didn't use the other steps of the VIP methodology. Furthermore, I analysed the coding resulting from the interviews and co-creation sessions using the data clustering step of the VIP method.
5. **Literature Review:** I undertook a review of existing literature on the themes of play, innovation and creativity, as seen in the next chapter. This literature

review formed the foundation of my theoretical framework.

6. **Prototyping:** Prototyping entails creating preliminary versions of a product or system to visualize and test its functionality. This method is invaluable in design as it facilitates iterative testing and refinement. In my project, I prototyped a space akin to a playground or makerspace, as described in the prototyping chapter. Furthermore, the act of "making," similar to prototyping, was a recurrent theme in the whole report.
7. **Co-Creation Sessions:** Co-creation sessions are participatory design activities where stakeholders, often including users, collaborate with researchers or designers to co-create solutions, products, or strategies. These sessions foster collective creativity and allow for the direct incorporation of user insights and experiences into the design process (Visser, Stappers, van der Lugt, & Sanders, 2005). In my research I followed Visser and colleagues method to organise two co-creation sessions with the team of VONK to engage them in several stages of my design process.
8. **Ideation:** In several stages of this project I utilized techniques from the Delft Design Guide (van Boeijen,

Daalhuizen, van der Schoor, & Zijlstra, 2014), like brainstorming, analogies how to's, itemized response and PMI. These methods supported my idea creation and section in the prototyping chapter and strategy chapter.

9. **Roadmapping:** In line with Lianne Simons's "Design roadmapping: guidebook for future foresight techniques" (2018), I developed a roadmap for my research in the strategy section of this report. Roadmapping is a strategic planning technique that outlines the trajectory of a product, service, or solution over time. It visualizes the alignment of market, product, and technology perspectives, and helps in setting short-term and long-term goals and milestones. By creating a roadmap, I was able to systematically connect the insights obtained in the early stages to the challenges identified later on.

The several stages of this report, including research methods, section outcomes and the positioning in the inverted double diamond of distinctive sections can be found in Figure 8.

REPORT CHAPTER	REPORT NARATIVE	SECTION OUTCOME	Inv. Double Diamond
INTRODUCTION: FOUNDATIONS AND METHODOLOGY	Why I am researching	Initial inspiration	
	Who I am researching	Introduction to VONK	
	What their struggle is	Problem statement	
	What I am researching	Hypothesis	
	Why this research is relevant	Novelty	
	How I am researching	Inverted double diamond	
THEORETICAL FRAMEWORK AND POSITIONING OF VONK	Exploration of relevant theoretical context	Theoretical framework	
	How VONK's team relates to my hypothesis	VONK's vision	
	Where this vision could theoretically lead them	Positioning on framework	
	What theoretically obstructs this vision	Assumed barriers	
DESIGN AND RESEARCH TO FIND AND TEST BARRIERS	How to test found barriers	Barrier testing prototype	
	What behaviour the prototype does(n't) elicit	Unconfirmed assumptions	
	Understanding VONK's users	semi-structured interviews	
	Understanding municipal processes within this context	expert interviews	
STRATEGIES AND IMPLEMENTATION FOR ACHIEVING VONK'S VISION	How to achieve VONK's vision in this context	Roadmap Horizons	
	Which actions help VONK to move towards this vision	Ideas/concepts	
CONCLUSIONS, DISCUSSION AND REFLECTION	What I have learned	Answer to Research question	
	What claims made sense	Evaluation of assumptions	
	What knowledge is still missing	Recommendations	
	How my process went	Personal reflection	

Figure 8. Schematic overview of this project. On the right you can see how my inverted double diamond model connects to the chapters, notice that in this project I did have a short converging research phase before and a small diverging design phase after the inverted double diamond.

STAGE 1

In this first stage first the theoretical context is defined with an initial diverging phase. Thereafter the first process of the first diamond is described. This first diamond follows a linear approach in which a prototype is created which test the hypothetical solution of VONK's three struggles. This prototype sets the stage for the next diamond and fuels assumptions foundational for discovering the problem in diamond 2.

The framework depicts the interplay of play and innovation, using creativity. Of that framework I've created a prototype to test playful making, what I learned from that prototype fuels the interviews, which are the beginning of stage 2.

2. THEORETICAL FRAMEWORK AND POSITIONING OF VONK

2.1. Introduction

First, we look at foundational definitions. Then we move on to creating a solid theoretical framework. It's one that's built around VONK's aspirations, while also being rooted in academic research. I've gone through 21 research papers to increase the reliability of this framework. Based on that literature research I'll also determine the scope of this project, including the necessary definitions to know.

The second part of this chapter shifts gears towards the goals of VONK, which I discerned through a co-creation session with VONK's team. This session provided insights into the project's objectives and helped shape the project's direction. It provides a glance into what they really want and their perspective on my hypothesis.

The chapter wraps up with determining the most apparent barriers towards our goal of incorporating playful activities in VONK, within the defined scope.

2.2. Defining playful making, innovation, and creativity

Play is by some academia directly linked to innovation, by being an activity that revels in exploration, enjoyment, curiosity, and safety, often acting as a driver for creativity and innovation (Berkun, 2010; S. Brown, 2009; T. Brown, 2008; Huizinga, 1955; Piaget, Gattegno, Gattegno, & Hodgson, 1962). This striking correlation between play and innovation gives rise to the central hypothesis of this thesis: that the concept of play could potentially expand the innovative capacity of the users of VONK. This hypothesis hinges on two primary assumptions: first, that play can spur the genesis of worthwhile ideas; and second, that playfulness, though largely unobserved in my immediate environment preceding this research, is a potentially untapped resource in fostering innovation. Therefore, in this chapter I will first describe how to recognize play, how I define innovation, how these are connected by 'making'

and finally how creativity is used to both explain play and innovation to people unfamiliar with their process.

Defining Play

Play enhances skill development, confidence, creativity, problem-solving, belonging, cultural growth, and overall well-being, drawing from insights by academics (Brower, 2019; Falling-Tree-Productions, 2021; Ginsburg, American Academy of Pediatrics Committee on, American Academy of Pediatrics Committee on Psychosocial Aspects of, & Family, 2007; Holman & Vasarhelyi, 2019; Huizinga, 1955; Kochanowski & Carr, 2014) But what is the fundament of play and how can you stimulate it?

To summarize, in this research I consider four different types of play: Body play (dancing), social play (role-play), cognitive play (pure imagination) and constructive play (manipulating materials). Whatever the type, playful behavior is often repeated. In essence all forms of play are about creating a world where the tangible and imagination are dynamically balanced, which can turn a tangible box into an imagined rocket and back. In that sense the experience is entirely adapted to the players 'desires'.

Play at its core doesn't need any purpose, it is voluntary, intuitive and valued for its own sake. The intuitiveness and imagination of play can be reinforced by ambiguous materials and spaces, which increase a feeling of freedom and an "I can do it" mentality.

However, depending on the person or environment in which is played external rules or fear (of judgement for example) can hinder this feeling of freedom and safety (feeling of stress block play). Therefore, You can delicately implement some guidance, structure or rules, which can steer play to be more productive and secure. But ideally play is completely untouched by external control.

For example, games add external boundaries to the reality-imagination world, which make it more performance-oriented. In a game play is experienced in a confined world which makes for more stable, safe and productive play, but less personal, dynamic and compelling play.

Therefore, balancing freedom and guidance is essential to get as close as possible to the core of the different types of play, which enlarges the benefits drawn from play. Below I will elaborate on the six important sections of play I determined.

The Multifaceted Nature of Play and Its Internal Dimension

Play is a multifaceted experience, embodying diverse forms. The various play forms I identified are:

- **Physical/Motor (Body) Play:** Encompassing bodily movements ranging from jumping to dancing. This perspective is aligned with both Vasarhelyi (2019) and S. Brown (2009) who underscore the significance of bodily movement in play.

- **Social/Dramatic Play:** Rooted in interactions with peers, often infused with elements of make-believe or role-playing.
- **Cognitive Play:** As described by Wardle (2000), this form involves activities that stimulate logical thinking and reasoning. Additionally, *Solitary Mind Play*, a concept highlighted by Winnicott (2017), suggests that play is as much about the internal processes and mindsets as it is about external activities. Such playful mental states cultivated in infancy can persist throughout life.
- **Constructive (Object) Play:** Wardle (2000) delves into this type where children manipulate materials to craft something novel. This fusion of tactile and creative experience aligns with S. Brown's (2009) exploration of object play.

Note that these types of play differ throughout academic mentions, like the 12 types of Burghardt (2011), but I think these 12 types can be generally fitted into these categories, which are more commonly discussed by academics. Burghardt does mention in one of his 5 criteria to recognize play, playful behavior, despite of the type, is often a repeated action. For example, throwing a ball at a target until the target is hit. If a activity which would fall under one of the types of play is only executed rarely don't firmly demonstrate play.

Play's Interplay Between Reality and Imagination

Play intriguingly straddles the boundary between the tangible world and the domain of imagination. Winnicott (Winnicott, 2017) delves into this concept, depicting play as occurring within a transitional space that bridges inner and outer realities. Within this space, attributes of the objective world intertwine with imaginative elements, giving birth to a 'transitional reality'. This unique realm offers individuals an arena to creatively experiment with varying ways of interacting and relating to their external surroundings.

To illustrate this, consider a child playing with a cardboard box. In the tangible world, it's just a box. However, in the child's imaginative play, it can transform into a spaceship, a cave, or a magical castle. Here, the tangible (the box) and the imaginative (the spaceship/cave/castle) meld together. The child recognizes the physical limitations of the box but uses imagination to overlay a new reality onto it.

Schneiderman (2011) highlights the adaptive nature of such play, where objects and experiences are repurposed based on the player's desires. Huizinga further posits that play crafts its distinct universe, separate from daily routines. This 'play world' has its own rules and ethos, often contrasting with the norms of ordinary life.

Play as an End in Itself

Play is an experience valued for its own sake, not necessitating an external goal. Holman and Vasarhelyi (2019) asserts the intuitive nature of play, while (Wardle, 2000) characterizes it as "a free-choice, non-literal, self-

motivated, enjoyable, and process-oriented activity." This underscores the inherent joy and autonomy of play.

Huizinga (1955) further emphasizes play's voluntary nature. He posits that play is a self-chosen endeavor, distinct from daily obligations, where individuals set their own rules and boundaries, showcasing its intrinsic value and freedom. Burghardt (2011) confirms this point clearly in three (of five) criteria recognizing play, applicable to all animals (including humans) is that play is "done for its own sake, spontaneous, voluntary, intentional, pleasurable, rewarding, reinforcing or autotelic", "the performance of the behavior is not fully functional (not of immediate use for the player)" and is even strictly differs from functional behavior, for example when cats playfully fight they often don't use their nails, in contrast to actual fighting and children mimicking their parents' vacuum cleaning, don't actually use a vacuum.

The Enchantment of Undefined Objects in Play

Undefined objects, reminiscent of a cat's attraction to a cardboard box, offer a unique allure in the world of play. Holman and Vasarhelyi (2019) note that while traditional toys with defined outcomes can sometimes curtail the sheer joy of discovery, objects that are ambiguous fuel cognitive curiosity. Such objects challenge the player, compelling them to delve deeper and stave off boredom.

Wardle (2000) elucidates this dynamic nature of children's play, emphasizing how children adapt their surroundings to align with their current learning trajectory. This adaptability is particularly evident in constructive play, where children manipulate diverse materials, such as sand, water, or woodwork, creating new objects and experiences. The true charm lies in the loose parts like blocks, old tires, or natural materials. These undefined items invite myriad interpretations and are the preferred elements in constructive play.

Ginsburg (2007) describes play as a youthful endeavor, looking at the world not as a structured entity but as an expanse ripe for imagination and exploration. Echoing this sentiment, Rosen and Trounce (2019) highlight the value of a flexible space, abundant with loose parts, where play evolves organically. Such an environment is not just about the tangible objects but the space's essence, promoting creativity and fostering a profound appreciation of the myriad potentialities in the material world.

In essence, undefined objects are pivotal in the realm of play. Their inherent ambiguity serves as a canvas for imagination, prompting players to craft their narratives and assign multifaceted roles to them.

Balancing Freedom and Guidance in Play

Play naturally offers freedom and self-assurance, removing traditional boundaries of right or wrong. This openness cultivates a "I can do it" attitude, especially in children, accelerating their learning process (Holman & Vasarhelyi, 2019). Realness in play, like using authentic

materials or aiming for large creations, adds depth to this experience.

The environment plays a critical role. Creative, stress-free spaces amplify the impact of play, with constructive activities flourishing in such atmospheres (Wardle, 2000) and Burghardt (2011) even mentions in one of his 5 criteria to recognize play, that playful behavior is only initiated than the animal (including humans) is not under any stress. However, a hint of guidance, like suggesting a broader task rather than a specific one (e.g. "design a way to transport water" instead of "design a mug"), can gently steer creativity without restricting it (Holman & Vasarhelyi, 2019).

There are challenges, though. External rules or fear of risks can hinder the spirit of exploration (Vasarhelyi, 2019). For play to be truly beneficial, it should remain untouched by external control (Ginsburg et al., 2007; Witherspoon & Manning, 2012)

Interestingly, some structure can help. T. Brown (2008) suggests that rules can enhance play, making it productive and secure. This security, tied to creativity, can alleviate our fear of being judged. Friendships can further reinforce this sense of security.

Conclusively, for play to truly resonate, individuals need spaces of belonging, where they can influence their surroundings (Falling-Tree-Productions, 2021). Thus, striking the right balance between freedom and guidance is key to a fulfilling play experience.

Play is not exactly the same as gaming

Play and games, while often conflated possess distinct nuances. I elaborate on this topic because during my project people often considered of being the same, but they are not, in this thesis I focus on play, ludic behavior, which is present in all animals including humans. I consider games to be a distinctly different behavior, utilizing elements of play.

In play the boundary between the play-world and the non-play-world in ludic behaviour is constantly reinforced by the player. This active balancing act engenders a deep fascination, compelling participants to maintain the sanctity of the play-world and avoid an inadvertent lapse back into reality (Kampmann Walther, 2003; van Leeuwen & Westwood, 2008).

Contrastingly, games introduce structured boundaries. While they operate within the domain of play, they are not identical to it. Games encapsulate the play experience within a confined space, emphasizing the optimization of rules and tactics. This results in a gameplay experience that is performance-oriented, underscored by objectives, tactical capabilities, and progression through levels. The clear boundaries in games ensure that the play-world remains distinct and contained, safeguarding its structure and ensuring participants always recognize its separation from the real world (Kampmann Walther, 2003; van Leeuwen & Westwood, 2008).

In sum, while games and play intersect and share characteristics, their foundational boundary dynamics and purposes distinctly set them apart.

Defining 'Innovation'

Innovation is defined by OECD and Eurostat in their Oslo manual: guidelines for collecting, reporting and using data on innovation (OECD & Eurostat, 2018).

The Organisation for Economic Co-operation and Development (OECD) is organisation where 38 countries collaborate to stimulate economic progress. Eurostat Eurostat is the European Commission's statistical office responsible for providing data to EU institutions and promoting standardized statistical methods among member states, accession candidates, EFTA countries, and within the European Statistical System. According to them innovation involves the implementation of new or significantly improved goods, services, or processes, or the introduction of novel marketing or organizational methods. It relies on the cumulative process of learning, exploring, and searching (Neely & Hii, 2014). For a firm to be innovative, it must utilize creative problem-solving techniques, leveraging its resources, such as its network, to exploit market opportunities effectively (Berkun, 2010; Neely & Hii, 2014).

The environment where innovation occurs plays a significant role in the process. It should be one that encourages the free flow of ideas, fostering conversations, demos, and prototypes, with the leadership nurturing and promoting creativity (Berkun, 2010).

In a nutshell, innovation involves creating novel ideas, developing a supportive environment, and effectively implementing these ideas, facilitated by a diverse network, ideation strategies, and an open culture.

Making: An Intersection of Play and Innovation

The act of "making" – encompassing tinkering, DIY-ing, and prototyping – stands at the crossroads of play and innovation. This process resonates with the playful behaviors of experimentation and construction (Vasarhelyi, 2019; Wardle, 2000), while simultaneously aligning with innovation's core tenets: creation and realization of fresh ideas, resource optimization, and a strategic approach (Berkun, 2010; Neely & Hii, 2014).

Berkun's "The Myths of Innovation" (2010) offers illuminating insights to this confluence. He encourages individuals to see everyday objects not just as functional items but as fuel for the mind, aligning with the playful perspective. His emphasis on stopping reading and starting doing underscores the essence of making: a hands-on approach where actions translate to innovative outcomes. Such sentiments echo the spirit of play while emphasizing the necessity for tangible realization seen in innovation.

Further, the advocacy of using improvised or even 'crappy' materials, as suggested by both Berkun and Kawasaki (2014) demonstrates a convergence of playful experimentation with innovative thinking.

Stanford's "From Play to Innovation" course, steered by Stuart Brown and David Kelly, exemplifies recognition of this overlap, melding play's explorative essence with innovation's structured drive (S. Brown, 2009; D. Kelley, 2012).

In this report, "making" is seen a harmonious blend of playful exploration and disciplined innovation. Drawing from both realms, it captures the spirit of curiosity-driven creation within an objective-driven framework.

The role of creativity in both play and innovation

Creativity plays an influential role in both the realms of play and innovation. In the context of play, Berretta and Privette (1990) provide evidence that flexible play can enhance creative thinking skills in children. T. Brown (2008) further emphasizes the relationship between creativity and play, noting that a sense of security and structured play can foster creativity. Methods like 'thinking with your hands' and roleplay, as practiced at IDEO, Brown's company, echo this connection, drawing parallels to children's imaginative activities. Cohn (2013) suggests that a playful or childlike approach can potentially increase creativity by up to 30%.

When it comes to innovation, creativity is undeniably significant. Berkun (2010) highlights the benefits of adopting a childlike lens for innovative thinking, suggesting a shift in perception of common objects as potential sources of creative inspiration. The nexus between creative problem-solving and ideation is a cornerstone in the innovation process (Neely & Hii, 2014). The role of culture is noteworthy here: Brower (2019) posits that companies that embrace play tend to access deeper levels of creativity, leading to fresh ideas and viewpoints.

However, creativity isn't without its challenges. Kelley (2012) (drawing from research on self-efficacy from Bandura (1977) and Eisenbart et al. (2022) shed light on creative barriers in the context of innovation such as fear of judgment, a risk-averse mindset, and reluctance to embrace novelty. Recognizing and understanding cognitive tendencies that might affect the ideation process is crucial, as it paves the way to formulate strategies to address potential ideation constraints (Gonçalves & Cash, 2021). Berkun (2010) stresses the importance of a conducive environment for nurturing creativity and facilitating innovation.

Thoring (2019) emphasizes that the right environment, coupled with individuals having the appropriate creative mindset, is vital to enhancing creativity. This necessitates spaces where individuals are encouraged to share diverse perspectives without the fear of making mistakes, as highlighted by Robinson (2006).

In conclusion, given its significant influence on both play and innovation, in exploring the relationship between those two concepts, creativity will serve as a communicative tool to explain playful or innovative processes, because I expect creativity to be a wider understood concept. In the next chapter creativity will therefore have a central role in the creation of the framework, representing both elements of play and innovation at the same time. Also, during interviews and documentation in this report it can be used to explain elements of both play and innovation.

2.3. Method: Framework

Now I know the foundational definitions, I can continue to the creation of the framework. This framework is needed to connect the separate elements of my literature research into a unified whole. I can then use this structure as a template to compare subsequent user and expert research from chapter 3 and connect the resulting strategies and ideas to sections of my literature research. I've created this framework based on the VIP methodology (Hekkert & van Dijk, 2016), specifically step 3: structuring the context.

Keyword Search: A set of relevant keywords was established to find pertinent literature. I based these on the main themes of the desired framework, namely 'creativity', 'innovation', 'space design', 'municipal space', and 'play'. The keywords were then used to conduct searches across multiple academic databases (For the exact keywords used, refer to Appendix 1: Literature research keywords 1). Some sources were suggested by coaches, experts or fellow designers.

Literature Review: The articles identified through the keyword search were reviewed to understand the current academic consensus on each theme. Key findings, theoretical frameworks, and relevant insights from each article were noted.

Structuring: The insights captured into notes were grouped based on themes which stimulate innovation or creativity, the key dimensions of the framework. Then I tried to define the extremes of each continuum in a way that accurately represented the phenomena described in the literature, but also surpassed them to create a broader spectrum to compare my future research on.

2.4. Method: VONK's positioning

I organized a co-creation session to see how the team of VONK was relating to my hypothesis of boosting innovation through playful making and how their vision was related to what I learned from my literature research.

The co-creation session was devised following the structure proposed by (Visser et al., 2005) entailing various stages: a warm-up, make phase, safe phase, discussion face, and a concluding informal conversation phase. One person was present online, he participated

normally except he couldn't see what the others were writing down, his personal notes were also analysed. The session took 30 minutes. 8 of VONK's team members were present, only one was missing.

The data collection methods utilized during the session included audio recording and photography, ensuring comprehensive documentation of the participants' interaction. Furthermore, participants were asked at intervals of 5 minutes to jot down their ideas on Post-it notes, which were later affixed to sheets of paper and photographed for subsequent analysis. The photographs of the session were not used in analysis but to be used for presentation purposes later in this project.

The co-creation session consisted of three phases. The first phase involved questioning the participants about their interpretation of the concept of 'making'. Following an initiation with examples such as prototyping, experimenting, fiddling, tinkering, and building, the participants were asked to write associated terms and phrases. After a few minutes, participants were asked to move around the table, examining their colleagues' responses, and add more associations to their initial responses. Connections between various associations were made using arrows.

In the second phase the participants were asked to consider what objects or concepts would be 'made' according to their prior definitions of 'making', providing their initial thoughts and later iterating on these as they shifted positions and engaged with others' responses. Subsequently, a reflective question was asked regarding

the reasons and outcomes of 'making', asking the participants to envisage where 'making' could potentially lead. The participants penned down their additional ideas and highlighted these with a star for later reference. In the subsequent coding process, these starred ideas were labeled with the term 'ideal', representing the participants' optimal vision for 'making'.

The final phase of the session allowed participants to present their personal visions of what 'making' should ideally resemble in the VONK context. As an additional strategy for collecting last-minute ideas, I left the recording device active, capturing any further insights as the participants gradually exited the session.

Then the full transcript, accompanied by the audio file and the images containing all sticky notes of the participants were coded in the same way all the other interviews were coded as described in chapter 3.3 resulting in 132 separate codes (Appendix 3. Clusters of VONK's co-creation), that described briefly what the participant said. These codes were then exported to miro and clustered by me according to step 3, structuring the context, of the VIP method. This step mainly consists of clustering insights.

I plotted these clusters on the literature framework by judging where they would fall on the two separate axes, considering the axis description, as described in the discussion.



Figure 9. Impression co-creation session. Almost all members of the VONK team at that time (one online) writing down their ideas, while everything is being recorded.

2.5. Results: Framework

The framework (Figure 10) is created to integrate existing research on creativity, innovation, and play. It is meant to extend these theoretical perspectives to create a new analytical tool. This tool can help me to map and compare the outcomes of further research as well as define the direction for VONK. This framework is not a full representation of all available literature, but focussed on adapting the VONK space towards creativity, so as you can see in the keywords, the analysed research is mostly filtered on spatial design. It's also not the case that you cannot combine the ends of this framework, it is just showing the spectrum of possibilities. Note that in this report the vertical axis is called differently (nurturing a creative mindset – utilizing a creative mindset), this is a textual error, the meaning of the axis is consistent over all images, only the extremity-titles are different.

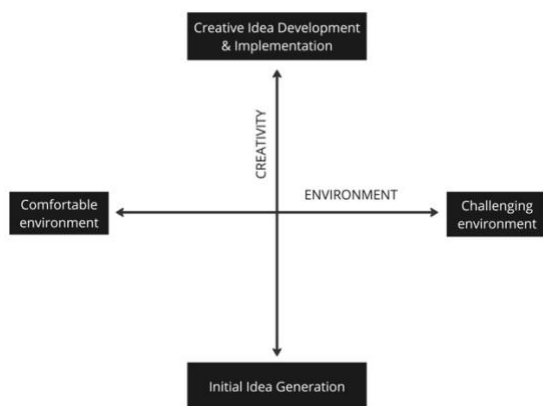


Figure 10. Theoretical framework merging insights about play, innovation, and creativity.

The Creativity Continuum (y-axis):

In essence, this y-axis, from the initial idea generation to creative idea development and implementation, encapsulates the journey of an idea from its inception, through nurturing, to its full maturation and realization.

Initial Idea Generation (Bottom end):

This phase marks the beginning of the creative process, where the seeds of creativity are sown. In this early stage, the emphasis is on expressing and nurturing individual creativity, allowing for the free generation of fresh, unique, and diverse ideas. The focus is not on the feasibility or execution of these ideas but rather on fostering an environment where individuals feel free to brainstorm without constraints. As supported by research, everyone has the inherent potential to be creative (Berkun, 2010), but fear of judgment and other barriers can inhibit this flow of thought (Eisenbart et al., 2022). Strategies to overcome ideation limitations are essential to move forward. Considering Gonçalves and Cash (2021) research on the life-cycle of ideas, this end of the continuum is addressing the first dimension of their DPI model: idea creation; and is addressing the beginnings (initial ideas) of the ideation process structures they describe. This phase aims to ensure that creativity is nurtured, allowing for the organic generation of multiple innovative ideas.

Creative Idea Development & Implementation (Top end):

Having successfully generated a plethora of ideas, this phase is centered around selecting, refining, and then bringing those ideas to life, which more in line with the second dimension of Gonçalves and Cash's DPI model: idea judgment and later in later stages of the ideation process structures they describe towards a final concept. Here, creativity has been successfully nurtured and now, the task is to utilize the fruits of that process. The focus shifts from mere ideation to a more structured approach where the feasibility, relevance, and execution of those ideas are evaluated and refined. This is where the rubber meets the road, where ideas undergo the test of practicality and are further developed, implemented, or even prototyped. This end considers potential barriers to innovation like mindset and infrastructural challenges, as these become crucial when trying to actualize a creative idea (Eisenbart et al., 2022). The continuum is governed by the variable of time and traces the journey from the birth of an idea to its full realization, emphasizing both the nurturing of creativity and the structured development of the resulting ideas.

The Environment Continuum (x-axis):

This axis describes different types of environments. At one end, the "Conventional Space," a traditional municipal space that's not specifically designed for creative activities. At the other end "Innovative Space," an environment intentionally tailored to foster creativity and innovation.

Conventional Space (Low end)

This project context concerns traditional municipal spaces that are not specifically tailored to stimulate creative activities. These are typical spaces in a city or community that serve generic functions and aren't particularly designed to nurture creativity or promote innovation. The research suggests that creativity can occur in any space (Berkun, 2010), however, the limitations of conventional spaces might hinder the free flow of ideas and creative exchanges (Thoring, 2019).

Challenging Space (High end)

An environment intentionally curated to foster creativity and stimulate innovative processes. Thoring's research suggests that a well-designed space can encourage creative thinking, provide inspiration, create a welcoming and relaxed atmosphere, and facilitate interactions among creative individuals. A key element in this context is the creation of an adaptive environment where ideas can flow freely, and individuals feel empowered to explore their creative potential (Berkun, 2010; Schneiderman, 2011). Such spaces often incorporate design elements that allow for flexibility, adaptation, and modularity ((Thoring, M., Mueller, & Desmet, 2021).

Quadrants

Quadrant Bottom Left (Initial Idea Generation & Conventional Space):

In this quadrant, the early phases of the creative process take place within traditional municipal spaces not specifically tailored for innovation. The focus is predominantly on expressing and nurturing individual creativity, despite potential spatial constraints that may not optimally support the free flow of ideas.

Quadrant Bottom Right (Initial Idea Generation & Innovative Space):

Here, the initial creative ideation occurs within a purposefully curated environment that bolsters creativity. As individuals embark on their creative journey, generating fresh and diverse ideas, the environment plays a supportive role, actively enhancing and amplifying the creative process.

Quadrant Top Left (Creative Idea Development & Implementation & Conventional Space):

This quadrant describes the scenario where selected creative ideas are further refined and developed in a traditional municipal setting. Even though the environment may not be explicitly tailored for innovative processes, individuals or groups manage to navigate these conventional spaces to develop and execute their creative visions.

Quadrant Top Right (Creative Idea Development & Implementation & Innovative Space):

This quadrant represents the epitome of creativity meeting design. Creative ideas, having been nurtured and selected, are further developed, refined, and executed within a space intentionally designed for such endeavors. The environment here doesn't merely facilitate the process but actively amplifies it, ensuring that creative ideas are effectively transformed into tangible, innovative solutions.

2.6. Results: VONK's vision

The VONK team, during the co-creation session, presented an array of thoughts on 'making'. The results from the session will encapsulate the essence of eleven identified clusters, each addressing a unique perspective of the making process, as voiced by the team members. Every cluster consists of a set of codes which can be found in Appendix 3. Clusters of VONK's co-creation. Below I've mentioned quotations from Appendix 4. quotations VONK's co-creation session, which are translated from Dutch. Some clusters don't have quotation because their insights only consisted of sticky-notes.

These clusters represent themes in the thoughts of the VONK team as a whole. These themes indicate what the team thinks are potential benefits or usefull applications of my concept of 'playful making'. Although 11 clusters in a lot, in the discussion I've formed smaller groups. Later in this research I will utilize the general tendency these clusters gave me to develop and judge strategic

ideas (chapter 4) so they resonate with VONK's vision, which is described by the 11 clusters below.

Cluster One: The City - More Beautiful, Pleasant and Efficient

The team highlighted a strong commitment towards fostering innovation in the city of Rotterdam. The team sees 'making' as an innovative approach to foster positive urban change, reducing potential errors in city projects and improving efficiency. In essence, the act of 'making' represents a pragmatic process for testing and validating urban ideas.

"Wow, enormous amounts of money every year, That is just going to waste, so now we have to rebuild that building completely from scratch. ... then I'm thinking, if you could already create it using a model or VR or something else rather than just a drawing, where you can walk through it and think, hey, guys, this, in itself, is not a very practical idea." (quotation 71 + 72)

Cluster Two: Stop Talking, Start Doing

Echoing the Rotterdam motto, the team emphasized action over mere ideation. "making is a verb" (quotation 43), an active process that spurs new insights and ideas, shifting cognitive focus towards tangible outcomes. It's a tool to help individuals break free from the confines of their thoughts.

Cluster Three: Networking Drinks

VONK sees 'making' as a platform for conversation and networking, fostering exchanges of ideas and conflict resolution. 'Making' creates opportunities for individuals to connect and communicate, acting as a catalyst for productive dialogues.

"I think, if it supports the bringing together of people, not necessarily physically, but also in exchanging ideas." (quotation 94)

Cluster Four: Making can result in anything

'Making', to VONK, is multifaceted. It is an open-ended process that can result in music, toys, virtual creations, or even abstract narratives. The team encourages individual creativity, supporting various forms of 'making'.

Cluster Five: Making can be any activity

This cluster encompasses the diverse categories within the 'making' process. The team appreciates their role in providing frameworks and designated spaces, fostering growth and development. 'Making' should come in different forms and it should lead to personal and collective growth.

"My perception of creation has actually become only broader, and thereby even more challenging to fill in, I think. When I think of creation, ... writing, doing, building. However, yes, many abstract things also come to mind." (quotation 76)

Cluster Six: Making is Discovering Your Problem

VONK views 'making' as an exploration and problem-solving process. It is a tool for research, to ask questions, and seek solutions. It's not necessarily about the result,

but about understanding and progressing towards solving a problem.
 "But I also find it very important that you gain a grip on the essence, so that you don't create just for the sake of creating, but that you also go back to the question: "Why are we investigating this?" (quotation 28)

Cluster Seven: Research things by Building it Up from its Components

'Making' involves deconstructing and constructing. The team frequently uses cooking as an analogy, comparing the process of combining various ingredients to create a dish to how 'making' can result in new possibilities.
 "For me, cooking always works very well. Then I focus on it, either by making it very complicated or just that one thing, and in the end, I not only have a dish but also a more well-founded thought about something I was preoccupied with." (quotation 24)

Cluster Eight: Nudging

VONK acknowledges their influence on user behavior through their choices of resources provided. They consider 'making' should be stimulated by objects that are ambiguous, allowing a wider scope for experimentation.
 "In some ways, your thinking is sometimes guided within certain boundaries. I think that when you enter the green space, it simply becomes your frame of reference. ... VONK is quite good in making boundaries." (quotation 3)

Cluster Nine: Making - A Creative and Playful Adventure

'Making', in VONK's perspective, is a playful and creative journey. It's about exploring limitations, overcoming

obstacles, and experiencing surprises. It offers mental clarity, discovery, self-expression, and even fun.
 "The piece of creativity, a bit of enjoyment, also known as playfulness. I think all of that makes the process even more enjoyable, inviting more people to engage in it." (quotation 4)

Cluster Ten: Making can lead to A Whole New World

'Making' can open up new worldviews and meanings. It promotes understanding, bridges differences in opinions, and improves dialectics. It's about viewing things from diverse perspectives and using imagination to understand the world better.
 "That way of working can actually provide completely new insights. Brand new perspectives. I believe that is one significant value of creation and just setting it up playfully and enjoyably." (quotation 91)

Cluster Eleven: Design is Never Done

The final cluster addresses the idea that 'making' is a continuous, iterative process, an ongoing exploration of ideas. It encourages unconventional thinking and prototyping with purpose. Ultimately, 'making' represents a cyclical process where even finished products are seen as stages for further development. These clusters represent the VONK team's collective understanding and conceptualization of 'making'. It is clear that their interpretation is wide-ranging, acknowledging the fluidity, creativity, and ongoing nature of the 'making' process.
 "Perhaps it also gains an actionable perspective of okay, so now that we are creating this and seeing it, we can take follow-up steps there." (quotation 25)

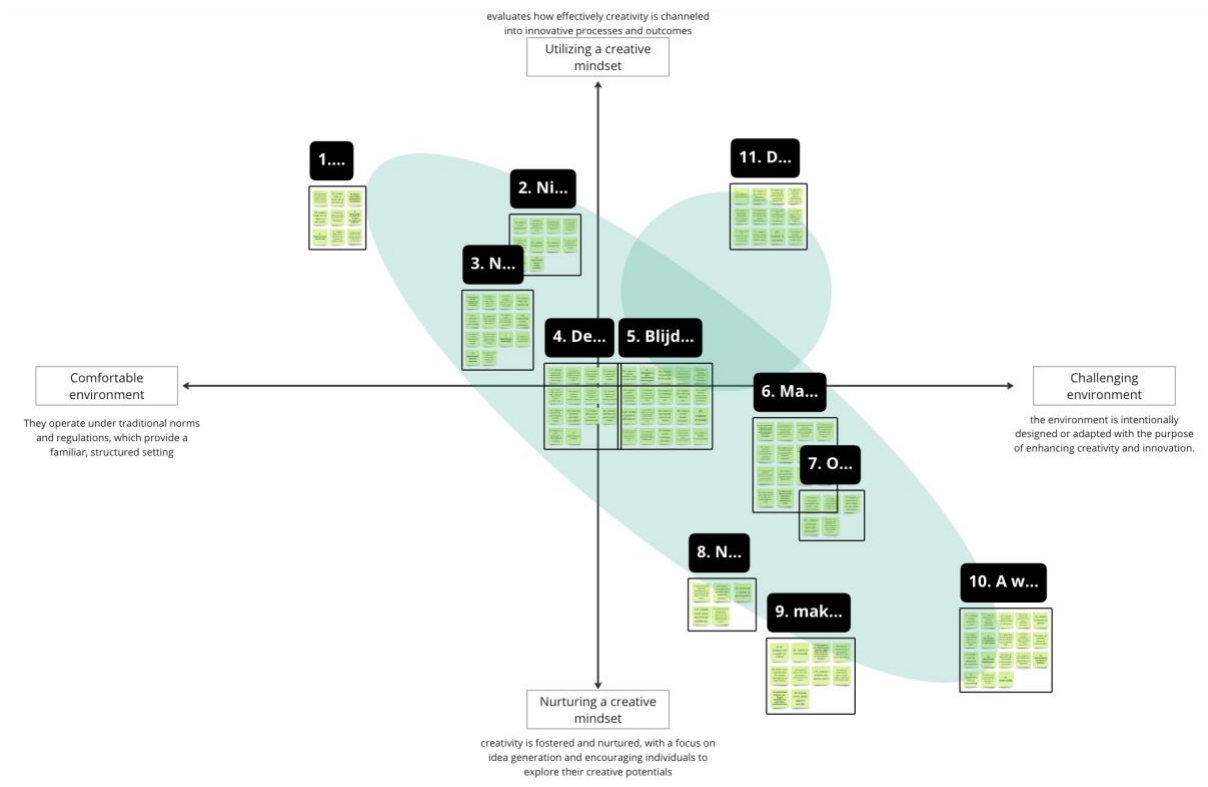


Figure 11. VONK's clusters projected upon the suggested framework, leaving us with a general idea of how VONK's wishes relate to the entire theoretical context

2.7. Discussion: Vision positioning

In this discussion I will further elaborate on the positioning of the clusters on the framework. Why where these clusters placed in this position? That positioning is relevant because further in this research, I will use the green zone from Figure 11, which is a result of this positioning as a tool for defining of the strategy and selection of ideas. The positioning represents how VONK's vision on playful making connects to the theoretical concepts about play and innovation.

Furthermore, according to the VIP method I followed by Hekkert and van Dijk (2016) more than 10 clusters limits the designer to see the data as a whole. Therefore I divided the clusters into larger groups. Below you can find descriptions of groups based on positioning. But in the continuation of the design for VONK I will use the diagonal green zone (excluding cluster 11) as seen in Figure 11, which serves as the general tendency in which the team of VONK is interested in making.

Cluster One: The City - More Beautiful, Pleasant and Efficient

This cluster is plotted towards "Utilizing a Creative Mindset" on the y-axis as it emphasizes the practical application of concepts for urban improvement. It is, however, located more centrally on the x-axis because it is bound by the current context.

Cluster Two: Stop Talking, Start Doing & Cluster Three: Networking Drinks

Clusters Two and Three gravitate towards the "Comfortable Space" on the x-axis as they are familiar concepts within the municipality. However, they are positioned slightly off-centre as they still hold a degree of novelty and excitement.

Cluster Four and Five: Making can be any activity and result in anything

Clusters Four and Five occupy a central position in the framework as they allow for self-expression without direct challenge or comfort. They are neutral in terms of nurturing or utilizing a creative mindset, emphasizing personal growth and exploration.

Cluster Six: Making - Discovering Your Problem & Cluster Seven: Research Stuff by Building it Up from its Components

Clusters Six and Seven lean slightly towards the "Challenging Space" on the x-axis due to the problem-solving aspect. They're also closer to "Nurturing a Creative Mindset" on the y-axis, focusing on the process of deconstruction and understanding rather than producing definitive solutions.

Cluster Eight: Nudging & Cluster nine: Making as an adventure

Cluster Eight is positioned centrally on the x-axis but leans towards "Nurturing a Creative Mindset" on the y-axis, representing the sensitive nature of this nurturing process. It acknowledges the subtle influences that can impact the nurturing process and user's cognitive experience.

Cluster 9 is situated far to the right on the x-axis in the "Challenging Space" because the making process is seen as a demanding journey. It is also far towards "Nurturing a Creative Mindset" on the y-axis, emphasizing the joy and adventure in the process, detached from producing a utilitarian result.

Cluster Ten: A Whole New World

This cluster resides in the extreme bottom-right of the framework. It signifies a strong orientation towards "Nurturing a Creative Mindset" and "Challenging Space". It encourages people to shift their perspectives, a challenging task, while focusing on fostering a group feeling, an abstract, nurturing process.

Cluster Eleven: Design is Never Done

The last cluster leans towards "Utilizing a Creative Mindset" on the y-axis as it embodies the refinement of ideas into tangible outcomes. It also gravitates towards the "Challenging Space" on the x-axis because it demands continual iteration and self-improvement.

2.8. Discussion: Assumed barriers & scope

"Introducing new approaches, tools, methods or methodologies into an established environment is known to create challenges around inexperience. These include not trusting in their efficacy of new approaches, wariness around investing efforts to learn new practices, and changing from established business and routines" (Eisenbart et al., 2022). Therefore I have used the research foundational to the framework to identify barriers that I want to address to try to test my hypothesis. These barriers and the process in chapter 3 that address them all align with the scope as defined in this discussion.

I identified these barriers through two key sources - the literature on play and creativity from the beginning of this chapter, and first-hand observations within the space of VONK. Several of the barriers are partly inspired on research conducted by Thoring (2019) where 49 design patterns were suggested for fostering creativity, with a focus on the barriers that are commonly encountered. For example, thoring explicitly mentions the need for a display space, visible tools, writable surface and other patterns resonating with the barriers I identified. Therefore her research gives some theoretical

confirmation of the relevancy of my barriers on stimulating creativity in a space. Subsequently, through field observations within VONK, I further examined these potential barrier. During my first weeks at VONK I noted down what I thought could intuitively, but while reading literature, be potential barriers towards creativity. The outcome of this process resulted in the identification of five key barriers that needed to be addressed, each with its unique characteristics and implications.

The first barrier is the absence of an open and inviting ambiance within the makerspace, as highlighted by the Maker Lab Handbook (Sar et al., 2023). Research by Thoring et al. (2021) discusses the potential influence of spatial characteristics on creativity and how a well-designed work environment can facilitate innovation and Berkun (2010) emphasizes the value of a creatively free environment, where ideas flow freely and in large quantities. The current layout of VONK, with the makerspace situated in a frequently occupied meeting room, severely undermines this prerequisite. This current setting not only restricts accessibility, but also fails to create a conducive environment for creative endeavors.

The second barrier relates to the paucity of materials and tools within VONK, an issue again informed by Thoring (2019)'s research. An environment that fuels creativity often has visible tools and resources readily available for use. I think VONK is lacking in this aspect, with most materials stowed away out of sight, and the visible ones not put to proper use. While Wardle (2000) shows that loose parts and a easily accessible place to store those loose parts is one of the most important elements of a space stimulating constructive play, including building and making activities.

Thirdly, a absence was observed in the form of a dedicated space for showcasing completed projects and prototypes. During my field visits, it became evident that a visible display of prior work, serving as a testament to what can be achieved within the makerspace, was a significant motivator. Berkun (2010) mentions that innovation is fueled by the freedom to exchange ideas and demonstrate concepts, implying the need for space to showcase completed projects and prototypes. This is also explicitly mentioned in Thoring (2019) list of spatial elements to stimulate creativity and the "positive design" aspect by Desmet and Pohlmeier (2013) which indicates that physical embodiments of creativity can contribute to pleasure and a sense of accomplishment, driving more creativity and innovation.

The fourth barrier I identified is the hindrance to free-play, which I deduced from an episode of a podcast (Falling-Tree-Productions, 2021) featuring Michael Rosen, the author of Book of Play. Rosen contends that children, and by extension adults, need objects with flexible functionality to stimulate creativity (Wardle, 2000). Providing materials that do not enforce a specific function can open up a world of imaginative possibilities, thereby fostering a sense of playful creativity.

Predetermining functionality could stifle creativity by directing the user towards a particular path.

Lastly, I identified a lack of guidance as the fifth barrier, based on observations during prior visits to VONK. Users often need some level of direction, not only for safety purposes but also to instigate the creative process. Presently, VONK lacks sufficient explanations and instructions, causing users to question whether the space is ready for use or how they can safely utilize the tools at their disposal.

In addition, there are a bunch of barriers like the fear of judgment (T. Brown, 2008), lack of interdisciplinary interaction (Robinson, 2006) and lack of physical, functional and psychological comfort (Kohlerl & Cooper, 2018) that I didn't explicitly address. However, I do consider them to be part of an overarching barrier of 'lack of a playful and creative culture' within VONK's space, which is implicitly addressed in the continuation of this report.

Scope

Following my inverted double diamond model, wherein I initially prototyped a solution and subsequently sought out the problem requiring attention, this scope is crafted retrospectively, post the prototyping phase. Reflecting upon my actions and the resultant prototype, I endeavored to discern which quadrant of the framework my design activities naturally aligned with.

Through my prototype, I took initiative to actively reconfigure the space, introducing innovative spatial elements to VONK's location. Hence, I deduce that I was operating towards the right side of the x-axis, specifically within the Innovative Space. The modifications I incorporated were strategically aimed at facilitating individuals in expressing and furthering their creativity. Notable examples include the open display of materials and tools, and the introduction of specialized work surfaces designed to accommodate and even encourage rigorous creative activity – quite a contrast from conventional office furniture that often discourages wear and tear. My interpretation of these actions suggests they lean more towards harnessing existing creativity rather than purely kindling new creative sparks. Therefore, in reflection, it's evident that my subconscious actions during the prototyping phase resonated strongly with the top-right quadrant, where Creative Idea Development & Implementation meets the Innovatively Designed Space.

This realization is important to later explain how the newly suggested direction in chapter 1, describing new strategies, is different from my initial approach creating a prototype in chapter 3.

2.9. Conclusion

At the heart of this chapter lies a deep exploration of the concepts of play and innovation, pivotal elements of my hypothesis. The relationship between these two zones

was examined by dissecting two primary overlapping themes: making and creativity.

Play: Play, in its essence, serves no defined purpose; its value lies inherently in the act of playing. Although often perceived as unproductive, studies have revealed that play fosters confidence, creativity, problem-solving skills, a sense of belonging, cultural growth, and overall well-being. Introducing boundaries can channelize play, making it purpose-driven. However, this also alters its natural essence, transforming it into a less spontaneous and organic activity. To easily refer back to play in this chapter I have divided its characteristics in 6 sections:

1. There are roughly four types of play
2. Playful activities are an interplay between reality and imagination
3. Play is an End in itself, so lacks external purpose and is inherently joyful and voluntary
4. Undefined or ambiguous objects are fuel or a canvas for point 2 and 3.
5. To stimulate play it is essential to balance freedom and guidance, depending of the context
6. Games are just a form of play with predetermined boundaries and performance-oriented.

Innovation: This chapter offers a concise definition of innovation, given its widespread interpretation. In this project, innovation is considered to be revolving around introducing new or improved products, services, processes, or even novel marketing and organizational strategies. It encapsulates creative problem-solving and exploits market opportunities, ultimately aiming to yield novel ideas impacting society.

Making: Positioned as the bridge between play and innovation, making encompasses activities such as DIY, prototyping, and tinkering. While it plays a crucial role in playful constructions, it's equally vital in innovation, especially in prototyping.

Creativity: Although creativity isn't exclusively the link between play and innovation, its significant role in both cannot be understated. Evidence indicates that play enhances creative thinking and fosters creativity, especially evident in children. Creativity also emerges as an indispensable component of innovation, predominantly in problem-solving and ideation.

Building on these core concepts, a theoretical framework was proposed, rooted in literature research. This framework delineates two axes:

1. **Creativity Continuum:** Spanning from initial idea generation to creative idea development and implementation.
2. **Environment Continuum:** Ranging from a comfortable environment to a challenging one.

Subsequently, a co-creation session with the team members of VONK helped identify 11 thematic clusters,

or streams of thought, pertaining to the benefits of 'making'[envisioned by the team from my hypothesis. These clusters, when superimposed on the framework, formed a diagonal that represents VONK's perceived opportunity zone. As the design is for VONK's team, the final solution should ideally align with this identified zone.

In subsequent research stages (mainly chapter 3), I explored the top-right quadrant of this framework in depth, investigating the process of inducing innovation through playful making. My findings revealed five primary barriers obstructing the realization of this quadrant:

1. Absence of an inviting ambiance.
2. Limited availability of materials and tools.
3. No dedicated space for showcasing projects.
4. Obstruction of free play.
5. Lack of guidance.

Furthermore, an overarching barrier was identified – the absence of a culture inherently creative or playful within VONK. This cultural limitation possibly impedes the natural inclination of individuals to innovate.

In the upcoming chapters, we delve deeper into prototypes that address these barriers, ultimately aiming to cultivate a more innovative and playful environment within VONK.

3. DESIGN AND RESEARCH TO FIND AND TEST BARRIERS

In this chapter I design a prototype to test barriers, researching the results from this prototype and perform a user research to find even more barriers towards my hypothesis.

3.1. DESIGNING FOR TESTING VONK'S BARRIERS TOWARDS PLAYFUL MAKING

Introduction

In the previous prototype I have determined barriers which needed to be addressed within a defined scope. This scope was one section of the theoretical framework that matched with my hypothesis. The top right of the framework focusses on designing the environment so it challenges the user to express creativity and step out of comfortzone while focussing on the later aspects of the design process: working from an idea towards a 'final concept', utilizing creativity for idea development. I hoped to break this barrier by prototyping within this scope, hypothetically overcoming the barriers by implementing new furniture and other spatial elements in VONK that each addressed a certain barrier and should lead to a visitor of VONK make more in a playful manner.

This is in line with my hypothesis that states that in this challenging environment where creative- and analytical thinking overlap, the lack of playful activities of VONK's users results in a deficiency of active participation and community initiative towards innovative processes. Thus, in this chapter I designed a prototype to overcome the lack of innovative capacity by overcoming those 5 barriers towards a playful atmosphere that promotes interaction and creation.

Method: Design

Ideation

The ideation phase was the initial step in creating the prototype. The barriers that were selected to be

addressed in the design were based on a combination of academic research, personal observations during my early days at VONK, and issues identified during both formal and informal conversations with the VONK team described in the preceding chapter. Following the identification of these barriers, several ideas were generated to address them in the design. These ideas were then translated into three conceptual designs, which were presented to the VONK team for feedback. During the prototyping phase, additional ideas emerged which were systematically documented. A list of 131 ideas was collated and subsequently utilized in Chapter 5 for defining the final concepts of the project. The origin of these ideas was specifically noted to maintain traceability, the full list of ideas can be found in Appendix 7. All ideas and their origins.

An example of how a big part of my ideation find: I picked an interesting source, like Space for Creative Thinking, a book on design principles for work and learning environments, full of interesting examples of creative spaces (Kohlert & Cooper, 2018). This source specifically was interesting because it was recommended to me by my chair based on our initial discussions on my design brief. Besides recommendations other sources I selected based on keywords as described in the previous chapter or where in the form of a visit to an inspiring location. After I found a source I scan through it and immediately write down ideas, insights and know how's based on that source. In that way I knew which ideas came from which source.

This provided me with a big list of ideas, which I selected based intuitively on how well they fit a specific barrier and I finetuned them using feedback of the VONK team.

I deliberately chose to not use any specific ideation methods, because I consider outside-of-the-box ideas are not the most relevant for this project. Instead, it's about the implementation of superficial, simple ideas found in makerspaces. There's no shortage of ideas, but there is of implementation. It's more relevant that the existing ideas I've gathered can be applied in the space of VONK, so I focussed on quickly moving on to the actual building of the prototypes.

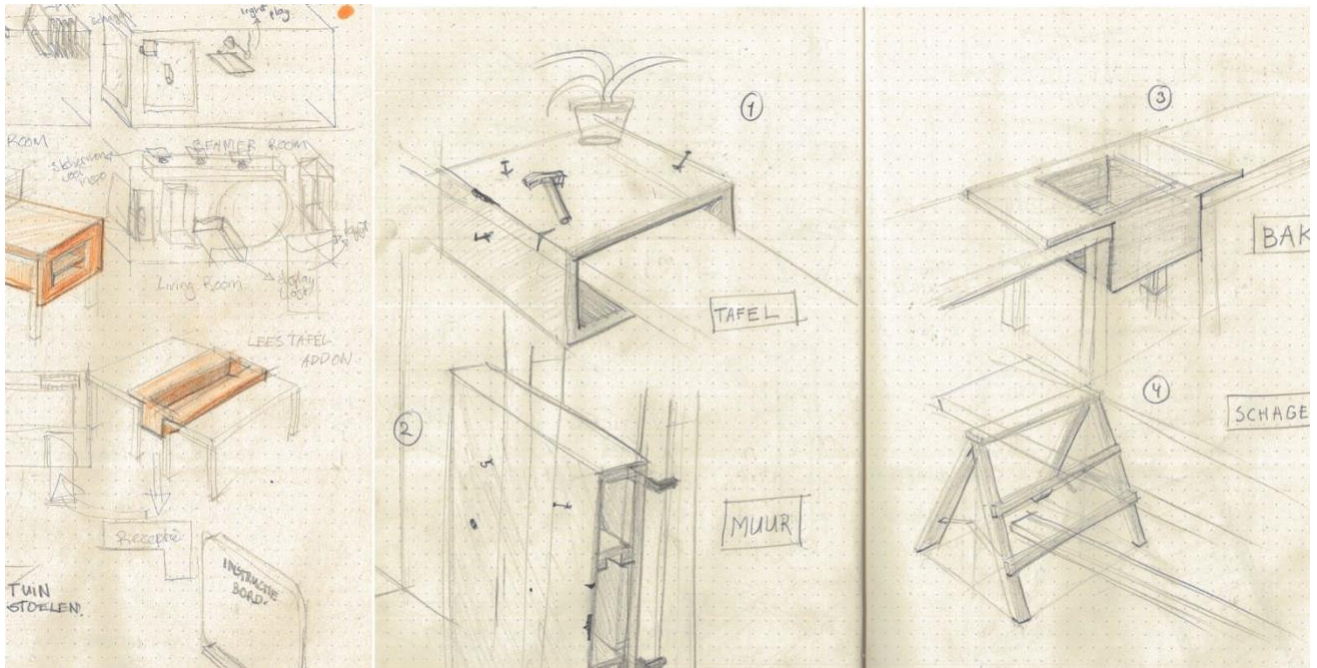


Figure 12. Sketches from initial ideas, many other ideas were described with words, on the right side you can see iterated versions of the ideas on the left side.

Implementing Feedback (Iteration)

In response to the feedback received from the VONK team, an iteration of the design concepts was undertaken. The relationship between the evolved design ideas and the existing research was analyzed to ensure the relevance and effectiveness of the design solutions. After this iterative phase, formal permission to construct the prototype was obtained from the relevant authorities. For example, an interesting piece of

feedback was that I couldn't damage the existing furniture and my design should be easily removable, because of building policies. Therefore I tried to fit my design around existing furniture (Figure 13), so it was a lot smaller, easy to move around and the existing furniture was already accepted by the building policy of course. The result of this iterative phase was a smaller selection of concepts, which I decided to build.



Figure 13. moments during my build. I have used a workmate to prevent damages to existing furniture and you can see the wood on the table, which is a part of the process of fitting my design to the existing table

Building Process

The construction of the prototype took place over two days, using a rough building plan as a guide. The initial layout was mapped out on the floor with painter's tape. Scrap materials that suited the design plan were sourced

from around the city, transported to VONK via a rented cargo bike (Figure 14). Building the prototype was largely an intuitive process, informed by the existing design ideas but not strictly adhering to a rigid construction plan.

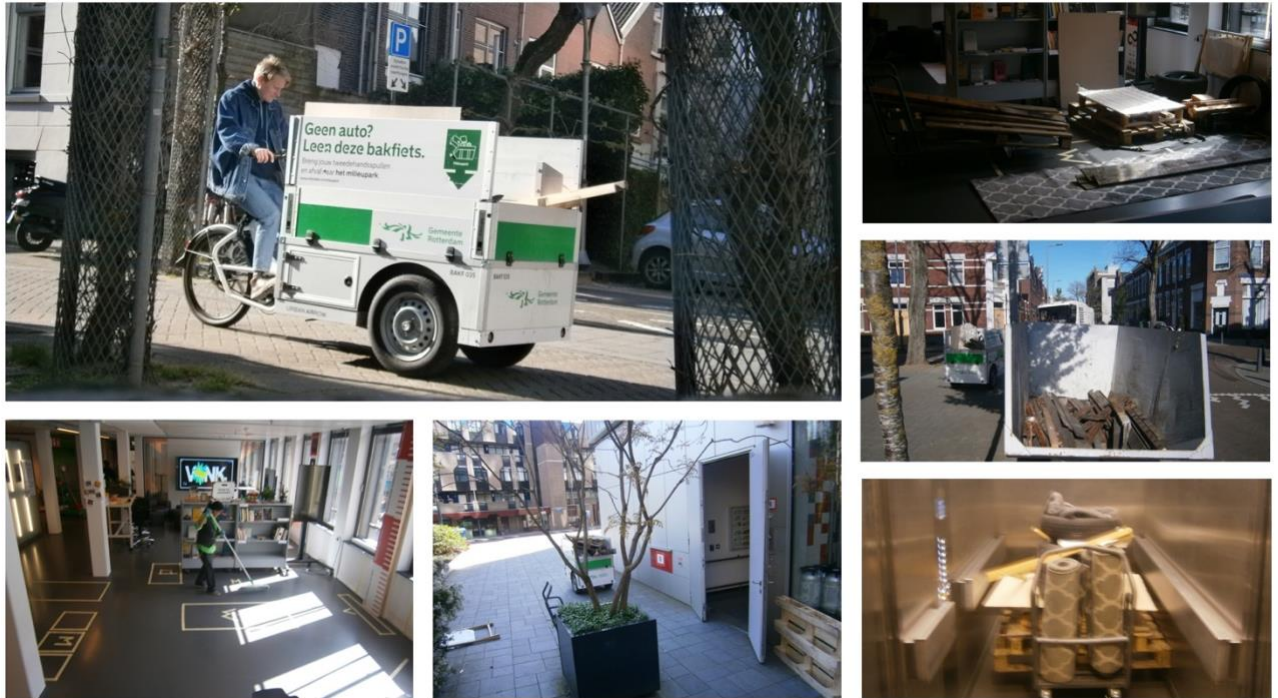


Figure 14. Collecting materials for my build with a borrowed municipal cargo bike. This was necessary because money was an important limitation of my design, I had none.

Design requirements

The prototype design's requirements were shaped by two primary sources - the project initiator's specifications (the VONK team) and the my personal observations during my first weeks at VONK. Separate T teammembers of communicated their design requirements to me during two feedback meetings, where I explained my initial ideas. Each requirement offers insights into the practical constraints and considerations that guided the design process.

- Requirement 1: Material Storage
Based on the practical necessity of an organized space, the design required a provision for material storage. This demand was based on my observations about material use within VONK and common makerspace design principles. In my first weeks at VONK I noticed that in the whole of the municipality there is very few to no clutter, everything is neatly stored inside closed closets.
- Requirement 2: Resilience and Mess Tolerance
In order to cater to the concerns surrounding the preservation of the space's cleanliness and integrity, the design needed to be resilient and capable of withstanding the messiness that accompanies creative work.
- Requirement 3: Universal Accessibility

A provision for universal accessibility was a key requirement, with an aim to create an open and inviting environment that encourages equal access for all users.

- Requirement 4: Removability
Responding to the need for adaptability within the space, removability was considered an essential feature of the design. This requirement enables easy modifications, contributing to the overall flexibility of the space.
- Requirement 5: Sound Management
To maintain a harmonious working environment, careful attention was given to the potential noise level in the space. The design aimed to facilitate creativity without causing disturbance to others.
- Requirement 6: Safe Storage for Equipment
Taking into account the presence of costly equipment, secure storage options were integrated into the design. This feature aims to ensure security and responsible management of resources in the space.
- Requirement 7: Cost-effectiveness
Due to the budgetary limitations of the project, cost-effectiveness was an essential consideration. The

design was planned to utilize scrap materials or repurpose existing resources wherever possible.

- Requirement 8: Foundation for Connection
The design was intended to serve as a foundation that other elements could connect to, contributing to a sense of coherence and continuity within the space.
- Requirement 9: Time Constraint
The one-week timeline for the prototype's construction was a given project constraint. Although challenging, it was seen as a practical consideration based on the project timelines set by the VONK team.
- Requirement 10: Mobility

The design required the capacity to be easily relocated within VONK, offering the potential for flexibility and reconfiguration of the space as needed.

- Requirement 11: Makerspace Identity
An important aspect was that the design should reflect the aesthetics of a makerspace, based on the researchers personal belief in the power of a space's visual identity to inspire creativity.
- Requirement 12: Respect for Existing Architecture
The design needed to be respectful of the existing architectural elements. This aimed to ensure a seamless integration of the new makerspace within the current infrastructure, causing no damage to the floors, walls, or any other architectural features.

Results: Design Elements

Design Element 1: The Table

The table (Figure 15) in the prototype design serves multiple purposes. It provides a dedicated workspace that can withstand the creative process's rigors without fear of damaging expensive furniture, fulfilling the **resilience and mess tolerance requirement**. Furthermore, the table incorporates a measure of material storage, addressing the **material storage requirement**. Designed with flexibility in mind, it can be moved around based on user needs and quickly detached from an existing table, adhering to the **mobility and removability requirements**. This table directly addresses the barrier of a lack of workspace, providing a specific place where users can engage in making without concern about damage.



Figure 15. Table design element, to prevent the original table from damaging including some material storage. The table is movable

Design Element 2: The Wall

The wall (Figure 16) concept was developed based on the assumption that individuals need various surfaces to attach things to when engaging in the creative process. The wall offers several surfaces – on the floor, the table, underneath the table, and vertically on the wall itself – which users can adapt as they see fit. This flexible structure aligns with the **universal accessibility and mobility requirements**, offering multiple ways to interact with the space. The wall addresses the barrier of **purposeful making**, providing a surface upon which anything can be added or altered, promoting free-form creativity.



Figure 16. Wall design element. A vertical surface to attach things to without damaging the original wall. Clamped to the original wall.

Design Element 3: Closet with Tools

An existing cabinet was repurposed as a closet to store tools (Figure 17), transforming a book-storage zone into a practical resource for creative work. This addressed the **safe storage for equipment requirement** by providing a secure place for non-expensive tools likely not to be stolen. It also fulfills the **cost-effectiveness requirement**, as existing resources were repurposed, and no additional costs were incurred. This element aids in overcoming the barrier of **lack of materials**, by providing readily accessible tools for creative work.



Figure 17. Tools design element. One of VONK's original bookshelves, but rearranged with VONK's in house tools

Design Element 4: Display Zone

The display zone (Figure 18), located on top of the tool closet, serves as a place to showcase previous projects completed within VONK. This adheres to the **makerspace identity requirement**, offering tangible evidence of what can be achieved within the space. The display zone addresses the barrier of **lack of examples of previous work**, providing a visual showcase of potential creative outcomes.



Figure 18. Display design element. Past projects made by VONK users displayed. Notice the prototype from the design thinking described in the end of this chapter.

Design Element 5: Material Storage

Material storage was incorporated in multiple zones within the space, including a bin filled with basic materials scavenged from the street, and places underneath the table and behind the wall for storing longer wooden beams (

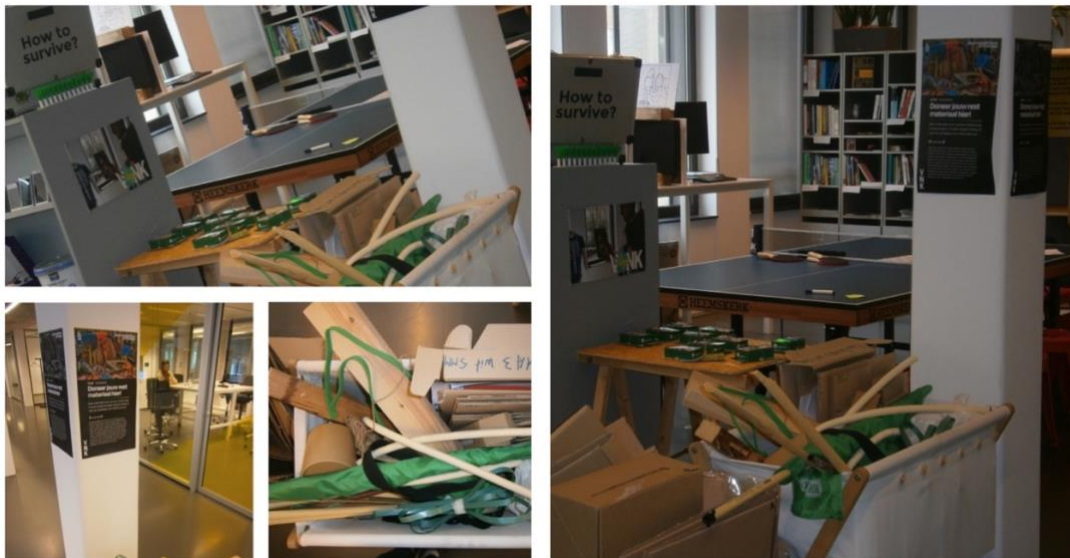


Figure 19. Storage design element. A bin filled with scrap materials to be used while making. Including a VONK branded poster inviting the user to bring its own materials

). This fulfills the **material storage requirement**, offering a variety of readily available resources. This element helps to overcome the **lack of materials barrier**, providing users with a range of supplies to fuel their creativity. The material storage included a poster designed in the newly formatted VONK poster-branding, supplied by the VONK team. This poster encourages users to bring their own scrap materials from home, to donate these to this making space, so others can use these materials to make. This is assumed to create ownership over the space and this increase interaction with the space by the individuals who donate materials.



Figure 19. Storage design element. A bin filled with scrap materials to be used while making. Including a VONK branded poster inviting the user to bring its own materials

Design Element 6: Instruction Board

An instruction board (Figure 20) was installed in the space to explain the use of tools, the space, and whom to contact for further queries. While it is unclear which specific requirement this element directly fulfills, it arguably aligns with the **universal accessibility requirement**, providing guidance for all users. The instruction board addresses the **lack of guidance barrier**, offering clear instructions on how to engage with the space and its resources.

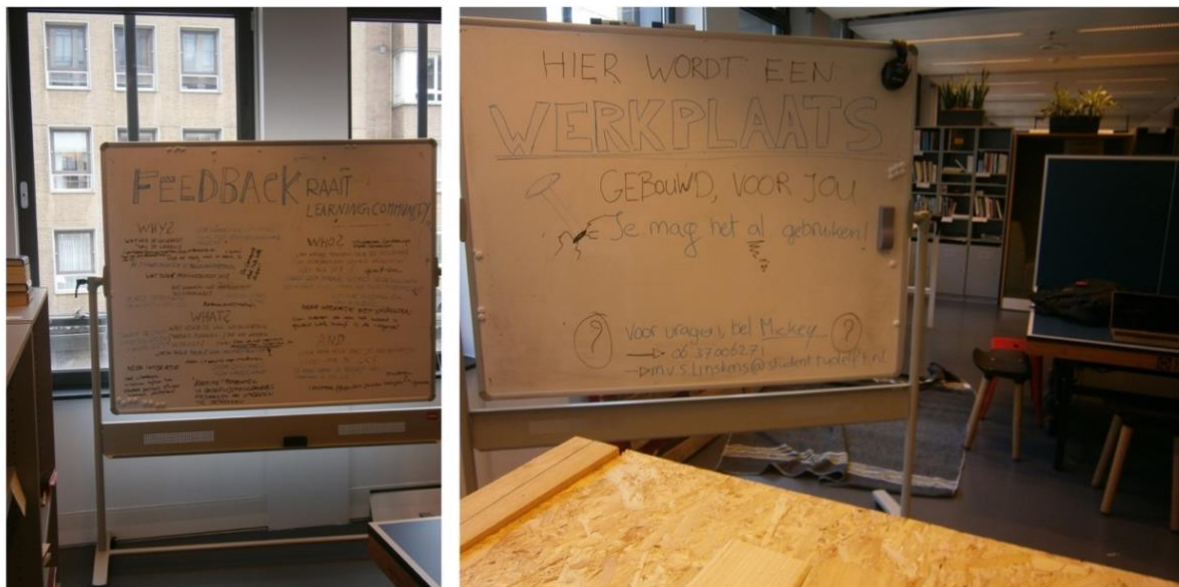


Figure 20. A whiteboard which could serve as an instruction board explaining how to use tools or other making activities, however during the first phase, based on advice from a VONK team member I wrote down what I was working on.

Design Element 7: Carpet

The carpet (Figure 21) was introduced to protect the floor, aligning with the **respect for existing architecture requirement**, and to define the making zone, contributing to the **makerspace identity requirement**. The carpet helps address the barrier of **lack of defined space for making**, clearly demarcating a zone specifically designed for creative work.



Figure 21. Carpet laying around my prototype to prevent the floor from damaging

Design Element 8: Modular Furniture

A later addition to the design was a type of modular furniture consisting of two 'schragen' (). While the basis for this addition is not explicitly mentioned, it potentially fulfills the **flexibility and cost-effectiveness requirements**, given its multi-functional use and simple construction. This element

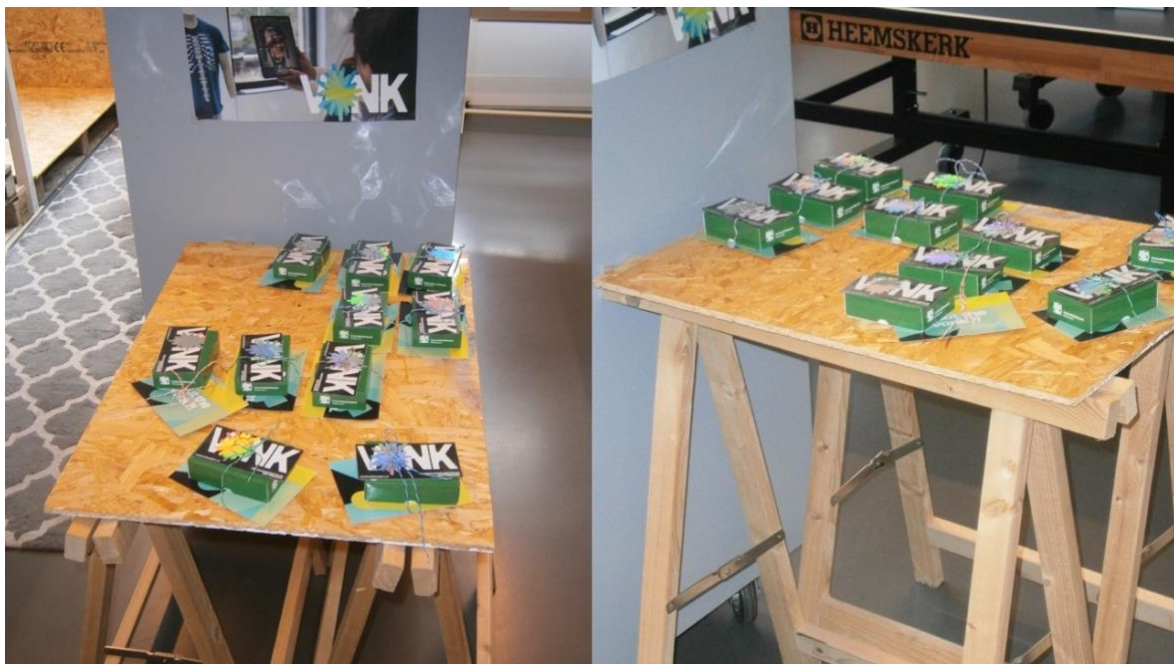


Figure 22. Two schragen forming modular furniture. On the picture, they are utilized as display space for VONK's new card deck, but by varying what size and shape plank you lay on top of these Schragen you can make any type of table you need.

Discussion: Prototype promises and limitations

The final prototype (Figure 23) consisted of 8 design elements each connected to certain barriers and designed according to certain design requirements.

Reflecting on the design I've developed, encompassing all eight elements, I genuinely feel that each component aimed to address various barriers. However, I recognize that I didn't systematically test specific barriers. Integrating my design ideas within the municipal context felt straightforward and practical, and I was particularly pleased with how smoothly new ideas were implemented. The facilities designed for material transportation also stood out in their efficiency.

One element I'm particularly proud of is the table, which I see as the centerpiece. Its distinct design provides a contrast to the typical municipal setting. However, a concern emerged with the wall's closeness to an existing pillar. I realized that drilling into it might damage the pillar, which goes against my commitment to protect existing structures.

The tool closet I designed was a success in my eyes - both easy to use and effective. And contrary to the initial concerns about theft, these fears proved to be largely misplaced. In the display zone, I noticed that the intricate products, like 3D prints and laser cuts, might not be as relatable. I believe displaying simpler

prototypes, like the ones made from cardboard tubes, would be more inspirational to the average visitor.

While the material storage served its function, I couldn't help but notice its resemblance to a trash bin. But on the bright side, I was content with the initial material storage solutions I introduced. The instruction board did capture attention, but I admit I couldn't fully realize its potential as I ran out of time to add the necessary information.

The carpeting, which I introduced to delineate a separate space, worked wonderfully. Even though I designed the furniture with flexibility in mind, it turned out to be mostly static in real-world application. I'm proud to note that my design elements harmoniously blend with the woodworking theme, complementing the tools the municipality already had. I foresee this woodworking alignment influencing future adaptations, giving the space the vibe of a makerspace.

Even if the space appears a tad chaotic, it's evident that it embodies a distinct culture and ambiance, different from the rest of the municipality, which I find intriguing.

In wrapping up, while there's room for improvement, I'm mostly satisfied with how my design elements serve their purpose and create a unique atmosphere that stands apart from typical municipal spaces.



Figure 23. The final prototype, all 8 design elements can be seen on this picture (Carpet, Wall, Table, Closet with tools, Display zone, Instruction board, Modular furniture, material storage)

Conclusion

In this chapter, the development of a prototype aimed at addressing the five barriers identified from the preceding theoretical research has been delineated. Several key insights emerge from the process:

1. **Building Upon Existing Furniture:** The integration of existing furniture into the design was particularly beneficial. This approach not only made the prototype more relatable and familiar for users but also provided a sense of comfort. As users recognized elements of the design, it fostered a sense of familiarity, which presumably would enhance the user experience.
2. **Infrastructure and Resources:** The facilities provided by the municipality greatly supported the creation of the prototype. Notably, materials were easily accessible and often available at no cost on the streets. The availability of cargo bikes, also at no expense, further facilitated the collection of these materials, making the whole endeavor financially efficient and well-suited for rapid prototyping.
3. **Scheduling Considerations:** Building during non-peak times, such as holidays, minimized disturbances and inconveniences to others, showcasing the importance of considering the timing of such projects.
4. **Design Elements:** The prototype incorporated eight design elements specifically intended to address the identified barriers. While the initial feedback from the "team of VONK" was positive, a comprehensive evaluation of how effectively these elements negate the barriers is yet to be conducted.
5. **Culture and Character of the Space:** The prototype exhibited a pronounced inclination towards woodworking, distinguishing it starkly from other municipal spaces. This distinction suggests a potential cultural difference, which resonates with the overarching barrier outlined in the previous chapter. Importantly, the current design mainly reflects characteristics observed in makerspaces, specifically those centered around woodworking. This should be factored in when drawing broader conclusions.
6. **Material Choices and Durability:** The choice of materials, notably carpet and hardboard, significantly influenced the perception of the prototype. Their use conveyed that the prototype was sturdy and not fragile, thus encouraging users to interact without trepidation. The slightly improvised construction added to this ambiance, ensuring that users did not feel overly cautious or apprehensive about engaging with the space.

In summary, the prototype stands as a testament to the potential of integrating existing furniture and utilizing available resources, all while keeping user familiarity and comfort at the forefront of the design

process. Future iterations may require a deeper dive into the efficacy of the design elements and a broader consideration of the cultural implications of the space's unique focus.

3.2. RESEARCHING ASSUMPTIONS ON USER BEHAVIOR AROUND PROTOTYPE

Introduction

The prototyping phase mentioned in chapter 3.1 led to a list of assumptions. After I finished the prototype I realized how full of assumptions this design was. I captured all these assumptions in a list and then clustered those list into 9 sub-clusters, divided over 4 main themes. These assumptions describe my insights on how a prototype like mine functions in VONK's context.

I've identified nine significant assumptions that have emerged from building this prototype. These assumptions have been classified into four overarching themes: Organisation, Things, People, and Entry. Each assumption provides a distinctive perspective and understanding of the mechanisms at work within VONK. A key outcome of the clustering process was the development of interview codes derived from the assumptions. This method is described later in chapter 4 where the codes were used.

Method: Observation and visits

Observation

The primary method of gathering results was through observation. This approach was relatively unstructured and aimed to capture organic interactions with the newly developed space. My attention was focused on how the VONK team and other visitors navigated and used the new environment, providing insights into the space's usability and effectiveness. The observational approach allowed for an unobtrusive collection of data, capturing authentic reactions and interactions within the space. During the observations I made notes, photographs and sporadically asked people what they were doing or trying to do.

Ideation Tracking

In addition to the observational research, a record of the ideation process was maintained. This involved tracking all the ideas generated during the design process, including the timing of their conception and any prompts or inspirational material that influenced them. This provided a chronological overview of the design process, offering insights into how the prototype evolved and the thought processes that guided its development.

Assumption mapping

Because of my inverted double diamond model assumption where only formulated after the solution diamond. So this prototyping-stage of the research involved the formulation of assumptions drawn directly from the prototyping process.

The prototype design process was multifaceted, incorporating feedback sessions and orientational research. In the course of creating the prototype, I noticed a multitude of questions and underlying assumptions which I immediately wrote down. I generated two distinct lists from this process: one containing 84 questions and their origins, the other composed of 60 assumptions. For this part of my researched I considered these 84 questions also as assumptions.

The objective of producing these lists was to identify patterns within the dataset. To achieve this, I utilized a technique known as clustering, frequently used throughout this project. This strategy facilitated the discovery of overarching themes and research questions that could inform the interview phase in the subsequent stage of this project. For organizational clarity, I clustered the questions into six groups (Appendix 6. Research questions), while I created four main segments of assumptions with a total of nine subclusters (Appendix 9. Assumption clusters).

Results: User behaviour

Interaction with VONK Team

Immediately following the construction of the space, the team at VONK began to engage with it. Two team members began to play with clay, culminating in the creation of a dartboard. This moment exemplified the potential of the space to stimulate play, fulfilling the playful barrier's desired overcoming. It showed the space could foster spontaneous creativity and playful discovery, just as I had envisioned.

Moreover, another instance showcased how the space could inspire corrective action. When a team member noticed an item hanging at an angle, he was prompted to adjust it. Using the drill for the first time, he was able to correct the issue quickly. This instance is indicative of the space's effect in turning a moment of frustration into a creative act, facilitated by the availability of tools and the conducive environment.



Figure 24. First success, on the left a teammember is acting on his irritation that the board is crooked and tried to make sure it hangs straight. On the right you see the result from a spontaneous playful interaction: a clay dartboard.

Design Thinking Workshop

Shortly after the space was set up, it was utilized during a design thinking workshop. Civil servants participated in this workshop, and the prototyping segment was carried out in the newly developed space. The workshop participants primarily used the space as a worktable, but they also engaged with the clay, tools, and scrap materials available. Post-workshop, they even cleaned the space, suggesting that they felt a level of responsibility and ownership towards it. However, their hesitation in using materials without seeking permission implies the need for clear indications of accessibility, hinting at the ongoing presence of the accessibility barrier.

Another observation during the design workshop was the differing levels of engagement between groups. The group utilizing a computer was markedly less active than

its counterparts. In fact, only one individual in that group seemed to be focused on the prototype, while in the groups using physical materials, all team members were actively participating. This dynamic poses questions about how to interpret such distinct levels of engagement.

It's worth noting that the observation doesn't imply "using computer=bad". It's more about understanding the balance. Different types of activities might necessitate different spaces and characteristics. For instance, at VONK, it shouldn't be promoted that they should always engage in playful activities. The ideal scenario would be if the space promotes playfulness and creativity, while giving individuals the freedom to embrace it at their preferred pace



Figure 25. Design thinking workshop externally organized in the space of VONK, this group is actively bringing their ideas to life in my prototyping space



Figure 26. A different group in the design thinking workshop, not using my prototyping space, but using the materials from my tool storage design element. in the bottom right there is a group using a computer, only one person is interacting with that computer.

General Observation and Integration

Over time, I observed an very slight increase in traffic around the prototype, spread over the month following the creation of the new space at least 5 people where

found to interact with the space, without their interaction being nudged by the researcher. Before my protpe I didn't notice any interaction with the space besides using the furniture to sit. I roughly guess that

everyday there are walking around 30 people through VONK's space, so interaction with 5 people is not that much during one month, but more than before, however only based on my subjective observation. The individuals began to approach and inquire about available tools and materials. These interactions suggested that the space had started to be recognized as a resource hub, where they could find items to help with their tasks. Also, some materials were donated, but the specific act of donation is not observed by the researcher so it is not identified what is the reasoning behind this material. However, it was observed that new material appeared in the material storage section of the space.

Another noteworthy observation was the quick incorporation of the prototype into the team's tours of VONK. This suggested that the space had been accepted as a valuable part of VONK and had successfully achieved the **makerspace identity requirement**. The integration of the space into the official tour indicates that it had succeeded in creating an environment that VONK felt proud to showcase. The visibility and promotion of the space could potentially help overcome the **lack of guidance** and **lack of materials** barriers by familiarizing more people with the available resources and the space's intended use.

Discussion: Deducted assumptions

As explained in the method section of this chapter, concerning assumption mapping, during the process of the build of this prototype and the observations of its impact on the space, I have collected assumptions. In Appendix 9. You can find specific assumptions resulting from elements of this design and research process and to which general assumption they contribute.

Theme 1: Organisation

Assumption 1: analysing/managing creativity as innovation shows performance benefits: The process of creation within VONK can be ambiguous and unpredictable. The municipality, however, is a place of analysis, primarily populated by policy-thinkers. The challenge lies in effectively managing creativity to align it with the overarching goals of the municipality. By doing so, innovation is more readily perceived as relevant, providing a shortcut to this alignment.

Theme 2: Things

Assumption 2: people need certain stuff to be creative: The current meeting spaces may not provide the necessary elements to stimulate creativity - either by having too many distractions or not enough resources. The creative process can be significantly influenced by the availability or absence of certain materials.

Assumption 3: people will be influenced by stuff: Everything in a given space can impact an individual's creativity. As such, it's crucial to mindfully select the items present, understanding that each addition or subtraction can influence the creative process.

Theme 3.: People

Assumption 4: you need to know who you want to stimulate: while creative individuals may not be as readily found within the municipality as in locations such as keilewerf, creativity can be stimulated by identifying like-minded individuals who can inspire each other. Connecting the right individuals requires a deep understanding of who you aim to target for a specific challenge, type of making, creative context, or project.

Assumption 5: people need other like-minded people to find interesting challenges: it's essential to connect like-minded individuals to uncover and engage with interesting challenges. The creative process is significantly fostered in this environment.

Assumption 6: creativity is not obvious in this context: creativity within the municipality is less obvious compared to spaces such as keilewerf and might be outside the comfort zone of a typical civil servant. However, encouraging like-minded individuals to inspire one another can bring up challenging perspectives.

Theme 4.: Engagement

Assumption 7: people follow their nose: individuals in the municipality are naturally curious and seek to engage with stimuli that spark their interest. Yet, without transparency and access, they cannot fully explore their curiosity and creative potential.

Assumption 8: people need traces of making to hook onto: even when something sparks an individual's interest, they may not engage significantly without experiencing some guidance or purpose connected to other parts of their work. Similarly, if they see somebody else making, they are also more inclined to make

Assumption 9: people need guidance and goals: despite their curiosity, individuals need clear guidance and goals to sustain their engagement with creativity and innovation. By providing these, I can help align their creative pursuits with their larger work or goals.

Assumption 10: People need a purpose, they don't express creativity within the municipal context just because it is fun. Also, providing tools for making or expressing creativity does not mean that people will actually start making, they need more and that thing more might be purpose.

Conclusion

In this chapter, the research on the effects of the prototype within the VONK context was presented. Using observation across varied scenarios, I monitored the performance of the prototype, which will subsequently guide the strategy in Chapter 4. At the conclusion of these observations, a comprehensive list of both implicit and explicit assumptions was crafted. These assumptions were organized into four predominant themes, laying the foundation for further user research.

A pivotal insight gleaned from this chapter is the distinct way the VONK theme interacted with the prototype. The design workshop exhibited the prototype being used precisely as intended, showcasing its potential. However, the overall traffic around the prototype was less than anticipated, even though efforts were made to mitigate potential barriers. This suggests that some barriers may still exist, or perhaps the identified barriers were not genuine obstacles for users. Further research is imperative to delineate the actual barriers users encounter. Furthermore, my prototype was resonating strongly with wood working, but I realized that this type of playful making was not necessarily suited for everybody, therefore in the next chapter I will be looking for the type of creativity or playful making that is resonating with the actual users of VONK.

Despite these challenges, it is heartening to note that the VONK team has actively incorporated the prototype into their tours for newcomers to the VONK space, reflecting their enthusiasm. Therefore, while there may still be existing barriers hindering widespread adoption, the prototype has garnered attention and has mildly boosted traffic, ensuring it is not a complete misstep. The subsequent chapter aims to delve deeper into understanding these barriers and strategizing effective solutions.

Stage 2

The described assumptions as result from stage 1 form the foundation of the following research, which is the first diverging phase of the second diamond of this thesis. This stage, including the second diamond and the additional diverging phase of ideation thereafter are relying on the framework created in the beginning of stage 1.

Based on what I learned from the playful making prototype I interviewed users to find a better direction toward innovation in the described framework. Then I defined strategic steps towards that direction based on interviews with municipal experts, which can be achieved by playful ideas based on interviews with field experts. Summarizing, this phase presents playful steps to strategically go towards more innovation for VONK.

3.3. RESEARCH TO FIND USER BARRIERS TOWARDS PLAYFUL MAKING

Introduction

The first part dissects data from nine user interviews, identifying four opportunities to stimulate the making process, two personal benefits users perceive, and three innovation barriers for users. These insights, paired with insights from the 'VONK co-creation session' in chapter 2, prompt a direction for VONK to foster innovation through playfulness and an update to my initial hypotheses.

Method: Participant selection

In executing the interview phase of my research, I conducted semi-structured interviews of about 45 minutes with a total of eight individuals. My initial intention was to have two participants from each quadrant of the "quadruple Helix" model discussed in the introduction (Figure 2). However, the actual distribution of participants differed slightly from the original plan. Specifically, I was able to interview three individuals from the Knowledge quadrant, three from the Public sector, and two from the Private sector.

What participants belonged to which part of the quadruple helix	
Knowledge	Participant 2, 4 and 6
Public	Participant 1, 7 and 8
Private	Participant 3 and 5
Societal	none

Unfortunately, the Societal section, as per the quadruple Helix model, was not represented among the interviewees. This absence was not by design but resulted from a set of circumstances that I discussed with the team at VONK.

VONK explained that this section comprises organizations primarily funded through municipal subsidies, which necessitates navigating around financial

arrangements to engage with them without conflict of interest. Previous attempts by VONK to collaborate with a representative entity, such as a Buddhist center, proved unsuccessful as no one participated. The team at VONK believes that the inherent complexity of the subsidy relationships and the untransparent nature of these societal communities make it difficult to identify appropriate representatives or 'ambassadors.'. The Knowledge, Public, and Private sectors are naturally transparent, because they are more inclined towards initiatives like VONK, making it easier to secure participation. Conversely, in the Societal sector, a request to participate in an innovation center like VONK is not usual, so more difficult to secure engagement.

The closest VONK said they came to finding someone from the Societal section was through a 'district director', a municipal representative serving as a communication bridge between a specific neighborhood and the municipality. However, this individual more closely represented a civil servant than an actual ambassador of the community in that neighborhood.

In light of these challenges, improvements to this approach could entail developing strategies to better engage the Societal sector. This could involve direct outreach to community leaders, organizations, or networks within the Societal sector to ensure representation and participation in these kind of interviews.

One participant didn't want the transcript of it's interview published, because it was uncomfortable with sharing literal quotations, so all those quotations and transcript has been removed from the appendix. The participant did gave me permission to use the data from that interview for analysis, so I did include the codes from that interview in the coding clusters.

Method: semi-structured interview

For my user research, I employed semi-structured interviews, guided by a carefully crafted interview guide. A comprehensive version of this guide can be found in Appendix 12: Interview Guide. Below I describe the phases of the interview.

Introduction

At the beginning of each interview:

- I briefly introduced myself and mentioned my affiliation with Team Delft.
- I provided a succinct description of my project, ensuring that I did not reveal or hint at any expected results. The primary aim I communicated was the project's focus on functional innovative capacity.
- I sought permission to record the interview, ensuring to inquire about their preferred end time. See: Appendix 24: Informed consent form.
- Lastly, I mentioned the informed consent form, which was shared with users post-interview.

Interview Structure

The main body of the interview was divided into five distinct sections:

1. **Background & Context:** Initially, I garnered some context by asking participants about their professional background and their relationship with VONK. This section was designed to be brief, ideally within 5 minutes.
2. **Understanding 'Making':** In this 10-15 minute segment, I delved into the participant's perspectives on 'making.' I asked them about:
 - Their personal definitions of making.
 - Their experiences related to making.
 - Their motivations or purpose behind making. This was imperative as the prior chapter inferred that my prototype predominantly involved woodworking. I was curious to understand their inclinations towards various forms of 'making' and if they had a keen interest in doing more of it.
3. **Innovation Insights:** Spanning 20-25 minutes, this segment was centered on innovation. Here, I:
 - Prompted participants to describe what innovation signifies to them.
 - Inquired about how innovation integrates into their professional roles.
 - Asked if they were inclined to adopt more innovative processes. The emphasis here was to ascertain if the participants shared VONK's aspiration to amplify innovative capacity. My intention was to ensure that the 'making' aspect aligns with innovation, transcending mere creation to foster innovation.
4. **Combining 'Making' and Innovation:** This 20-25 minute segment endeavored to intersect the realms of 'making' and innovation. I posed broader questions, aiming to be more direct and explicit, about how the two could synergize. Specifically, I sought their insights on how an establishment like VONK could bolster their 'making' endeavors or invigorate their innovative spirits.
5. **Visionary Imagery with Mid-Journey:** Concluding the interview, I presented participants with visualizations crafted using a visual generative AI named 'Mid-Journey'. Showcasing five images, my aim was to assess how participants resonated with my envisioned concept of playful making. The visuals were reflective of my initial perceptions of what

playful making could look like. Through this, I aspired to gauge if my foundational vision of playful making aligned with the users' perspectives or deviated from them.

Method: clustering data from user interviews

The activities from chapter 3.1. led to numerous assumptions about my design and the current situation. I then grouped these assumptions into nine broad categories (Appendix 9. Assumption clusters) I've translated these assumptions into specific codes as seen in Figure 27. Below I'll describe the steps of this process in more detail.

First, I've individually analyzed each of these assumptions, formulating a series of questions aimed at determining the validity of each assumption (Appendix 10. Questions for validating assumptions) To ensure comprehensive coverage and avoid any overlap, I cross-checked these questions with the list of questions of the project (Appendix 11. Check assumption questions with research questions). This allowed me to maintain focus on my current research objectives without adding any redundant questions.

Following this, I devised a set of code groups based on these questions (Appendix 13. Validating questions -> codes). Finally, I divided these codesgroups individually into sub-codes according to the structure of the interview guide I was using (Appendix 12. Interview guide) This also helped to check if the codes where coherent with the interview content. The guide was partitioned into phases, starting with the interviewee's background, moving onto discussions about 'making' and 'innovation', and culminating in an open conversation about the intersection of 'making' and 'innovation'. So the sub codes where roughly: making, innovation, background and different combinations due to the last phase of the interview. Below you'll find the full code scheme explained.

The positioning of the clusters went in a similar manner as discussed in chapter 2.7.

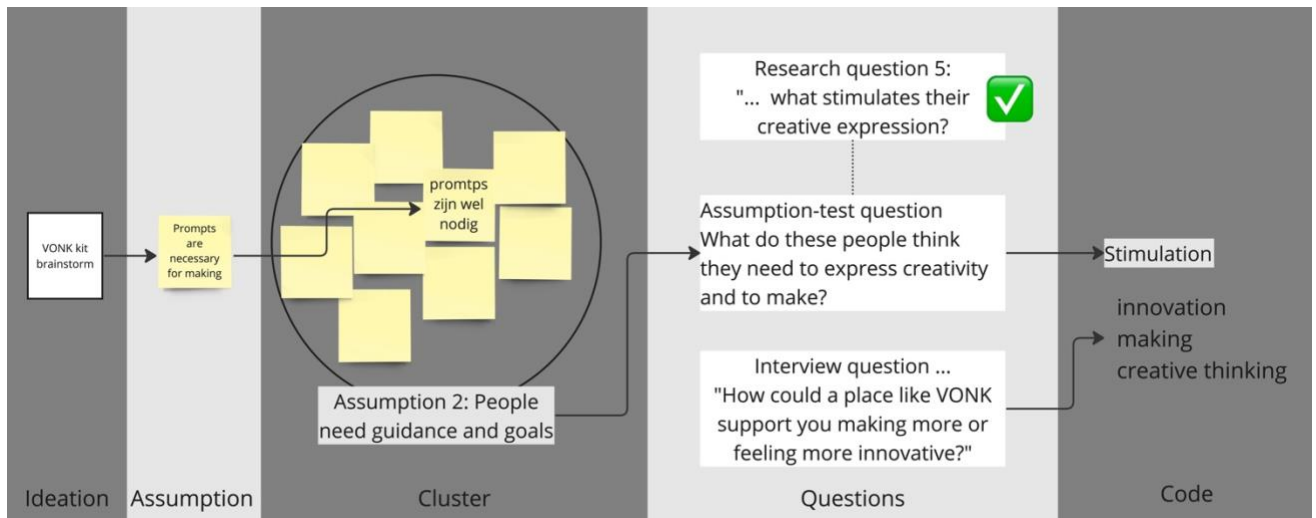


Figure 27. How the coding was formed from initial ideation activities in the prototyping phase to a specific code. Notice that the codes are adapted to the interview guide and formulated via assumption based questions, that overlap with the research questions

Method: coding scheme

The interview analysis proceeded in three stages. These stages consisted of an initial coding round, selection of specific codes for further analysis, and a second coding round.

The first coding round employed a method known as 'Directed Qualitative Content Analysis' (DQICA) (Ho & Limpaecher, 2020c). Ho & Limpaecher describe that this method "is used to test, to corroborate the pertinence of the theory or research guiding your study, or to extend the application of the theory or research to contexts or cultures other than those in which they were developed. ... In this way, DQICA and deductive approaches derive codes from preexisting theory (theory-driven) whereas inductive methods generate codes directly from data (data-driven).".

My process of deducing these codes is explained in the clustering data method outlined earlier (Method: semi-structured interview)

For my user research, I employed semi-structured interviews, guided by a carefully crafted interview guide. A comprehensive version of this guide can be found in Appendix 12: Interview Guide. Below I describe the phases of the interview.

Introduction

At the beginning of each interview:

- I briefly introduced myself and mentioned my affiliation with Team Delft.
- I provided a succinct description of my project, ensuring that I did not reveal or hint at any expected results. The primary aim I communicated was the project's focus on functional innovative capacity.
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- Lastly, I mentioned the informed consent form, which was shared with users post-interview.

Interview Structure

The main body of the interview was divided into five distinct sections:

6. **Background & Context:** Initially, I garnered some context by asking participants about their professional background and their relationship with VONK. This section was designed to be brief, ideally within 5 minutes.
7. **Understanding 'Making':** In this 10-15 minute segment, I delved into the participant's perspectives on 'making.' I asked them about:
 - Their personal definitions of making.
 - Their experiences related to making.
 - Their motivations or purpose behind making. This was imperative as the prior chapter inferred that my prototype predominantly involved woodworking. I was curious to understand their inclinations towards various forms of 'making' and if they had a keen interest in doing more of it.
8. **Innovation Insights:** Spanning 20-25 minutes, this segment was centered on innovation. Here, I:
 - Prompted participants to describe what innovation signifies to them.
 - Inquired about how innovation integrates into their professional roles.
 - Asked if they were inclined to adopt more innovative processes. The emphasis here was to ascertain if the participants shared VONK's aspiration to amplify innovative capacity. My intention was to ensure that the 'making' aspect aligns with innovation, transcending mere creation to foster innovation.
9. **Combining 'Making' and Innovation:** This 20-25 minute segment endeavored to intersect the realms of 'making' and innovation. I posed broader questions, aiming to be more direct and explicit,

about how the two could synergize. Specifically, I sought their insights on how an establishment like VONK could bolster their 'making' endeavors or invigorate their innovative spirits.

10. **Visionary Imagery with Mid-Journey:** Concluding the interview, I presented participants with visualizations crafted using a visual generative AI named 'Mid-Journey'. Showcasing five images, my aim was to assess how participants resonated with my envisioned concept of playful making. The visuals were reflective of my initial perceptions of what playful making could look like. Through this, I aspired to gauge if my foundational vision of playful making aligned with the users' perspectives or deviated from them.

Method: clustering data from user interviews). Utilizing this approach, I applied the deduced codes to all the user interviews. The coding scheme (Appendix 21: All codes with descriptions) provides a detailed overview of the codes that emerged from this process.

Following the completion of the initial coding round, I selected four codes for further investigation. Each of these codes directly relates to the research questions. The first category, 'Stimulators and Barriers of Making,' comprises the 'Stimulators of Making' and 'Barriers of Making' codes derived from the user interviews. This category was chosen to address the fourth research question, "What does the ideal user journey look like in a space that supports making?"

The second category, 'Definition of Making,' aimed to comprehend how users perceive the concept of 'making.' This category was informed by the fifth research question, "How do users perceive making and what stimulates their creative expression?" Primarily, it focuses on the first part of this question.

The third category, 'Benefits of Making,' aimed to understand what users believe could be the potential outcomes of 'making.' I also included the benefits associated with the process of 'making.'

Lastly, the fourth category, 'Barriers Towards Innovation,' connects to the third research question, "How can a culture of innovation be fostered within the municipality and diverse target groups?" Here, I was looking for reasons users might identify as obstacles to engaging in 'making' for innovation.

In the second round of coding, I employed a more inductive approach. I took each code category, compiled all the user interview quotations associated with that code, and briefly described each quotation. This provided concise data snippets suitable for clustering. While it is challenging to fully describe this process, Appendix 19. clusters of making stimuli and its respective codes., which shows what kind of codes (describe quotations) are in the clusters of 'making', is meant as an example for the result of this process.

Some codes generated from the first round of coding were not utilized in the second round, primarily because they were not directly linked to answering the research questions. However, the coded data, despite not being applied in this research, are stored and can easily be used for further research if VONK chooses to do so.

Results: Clusters

To obtain the results, the codes from the second round of coding were clustered. This was done per coding category as describe above. Then these clusters where plotted on the literature framework from chapter 2 (Figure 10). I grouped the clusters close to eachother into 'zones' on the framework. Each of these zones represent a general insight, which is used to determine possible directions.

Results: Definitions of making – the current understanding of making by users

The clusters of the first round coding Definitons:making can be seen as one zone projected on the literature framework, which represents the current understanding of making by the users. Within this zone I identified 11 definitions, which consist of specific codes (Appendix 14. Definition:making clusters) connected by number to the quotations in Appendix 15. Quotations coded with Definition:making.

Cluster 12 is so distinctly different from the other clusters that I have chosen to leave it out of my further analysis.

1. **Physical Creation:** This involves the tangible process of creating or building something with materials. It includes 3D printing, prototyping, drawing, and the physical act of creating with objects around them.
2. **Intellectual Creation:** This category describes 'making' as a mental process, such as brainstorming, analyzing, ideation, and conceptualization. This includes the mental manipulation and reassembly of concepts or ideas.
3. **Digital Creation:** 'Making' can also refer to the creation of digital artifacts, such as digital designs, games, or digital prototypes.
4. **Narrative Creation:** This encompasses the creation of stories or narratives, either through words or visual representation. This could include the creation of a storyline to explain a problem or the use of words to create images in someone's mind.
5. **Problem-solving:** 'Making' can also mean finding solutions to problems, applying new knowledge to different situations, or innovating. This includes ideation, testing, and refinement.
6. **Collaborative Creation:** This refers to the act of 'making' as a collective effort, where one works with others to create something or achieve a shared goal. This includes brainstorming in teams, creating a shared feeling or atmosphere, or jointly giving shape to ideas.
7. **Emotional Impact of Making:** This pertains to the feelings or emotional states associated with 'making', such as concentration, peace, fatigue, or exhilaration.

8. **Trial and Error:** The process of 'making' can also involve iterative steps of trying, failing, and trying again until a satisfactory result is achieved.
9. **Creation from Unconventional Means:** This involves creating by combining unrelated elements, repurposing objects, or using unconventional methods.
10. **Creation as Influence or Change:** Some view 'making' as the ability to effect change, to influence something, or to innovate.
11. **Visualizing Ideas:** 'Making' can be a process to visualize thoughts or ideas, which aids in creating collective ideas or supporting personal ideas.

cf

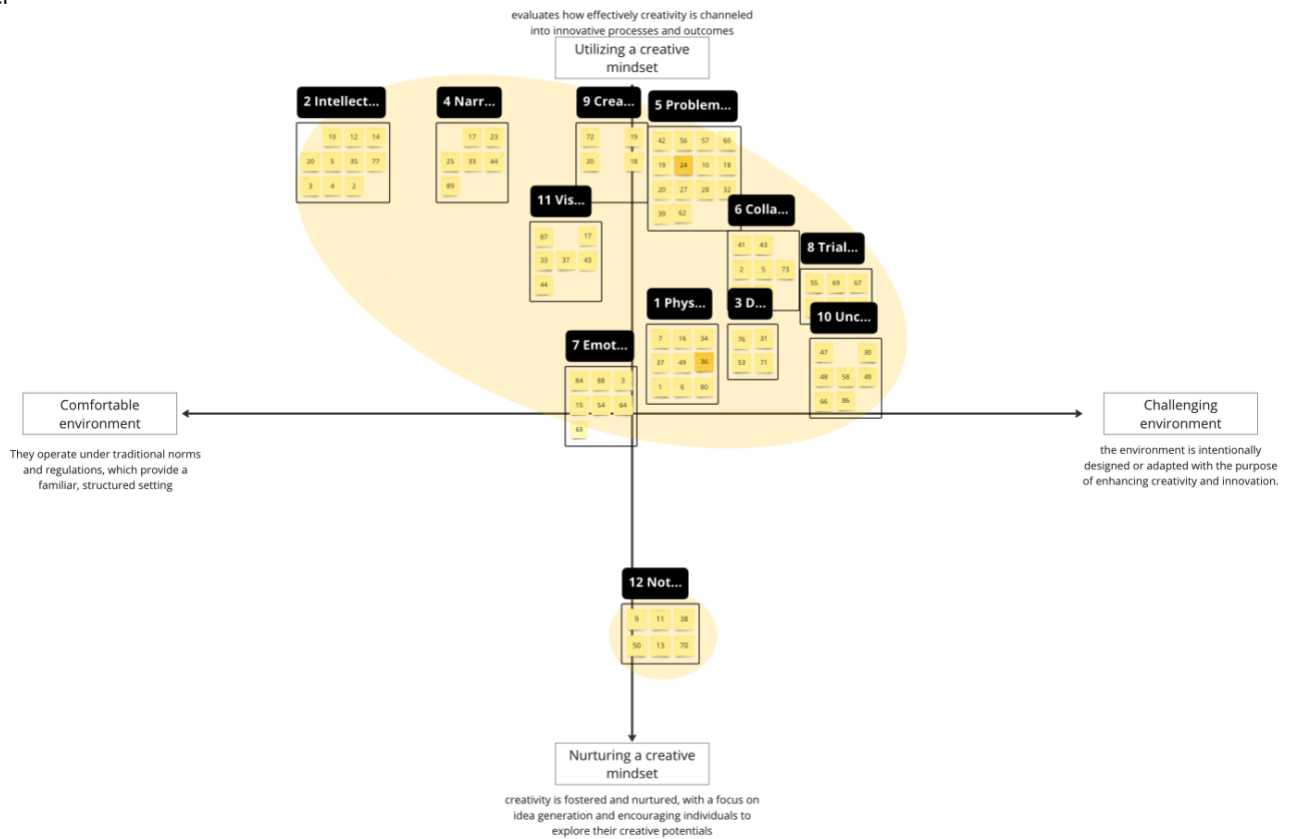


Figure 28. Definitions of making based on user interviews. These clusters contain all codes from the user interviews with first round code: Benefits:making. The goal is to understand how users define making and how that relates to my literature framework.

Results: Benefit's of making – what positive results making can lead to according to users

The clusters of the first round coding Benefits:making contain 9 benefits of making according to the users of VONK. These clusters consist of specific codes connected by number to the quotations in Appendix 16. Quotations coded with Benefits:making

BENEFIT ZONE 1 – MAKING AS COMMUNICATIVE TOOL TO EXPLAIN IDEAS THROUGH VISUALIZATION

3. Communication and Explanation: Making can aid in communicating and explaining ideas to others. It can make certain concepts more understandable and assist others in further explaining ideas (Codes 10, 12, 25, 28, 36).

9. Visualization and Tangibility: Making helps people visualize things and the tangible result offers added value (Codes 17, 29, 56).

BENEFIT ZONE 2 – MAKING IS BENEFICIAL FOR LEARNING, PROBLEM SOLVING AND PREDICT PROCESS DEVELOPMENTS

1. Learning and Understanding: Many of the codes talk about the learning and understanding that comes from the process of making. They suggest that by making something, people better understand how things work, why they are designed the way they are, and what it takes to create something. They also learn new techniques and develop new skills in the process (Codes 1, 4, 7, 27, 32, 57, 41, 44, 46, 23, 30).

This theme involves the benefits of "making" in the development and exploration of ideas. These codes suggest that the act of making is necessary for further reflection on an idea (41), providing form to vague ideas or directions in one's mind (44), and enabling the exploration of various ideas (46). This underscores the value of making in fostering creativity and critical thinking. (codes 41, 44, 46)

6. Problem Solving and Improvement: Making aids in problem-solving and in improving products, policies, or even oneself. It can help identify needs, discover new functionalities, speed up processes, and provide advice in a different way, fueled by healthy criticism (Codes 5, 21, 31, 33, 34, 37, 38, 54, 51).

7.Process and Materials: Making helps people realize how much material they need and lets them encounter certain things during the making process. It also assists in gaining insights into group dynamics and involving others in the process (Codes 6, 39, 43, 55, 61).

BENEFIT ZONE 3 – MAKING AS A FUN AND SATISFYING PROCESS OF DISCOVERY

2. Self-Expression and Creativity: Making offers people the opportunity to express their ideas and imagination, and to experiment with new concepts.

It can lead to innovation and can be a source of pleasure and satisfaction. The value of making lies in the discussion about what is made (Codes 2, 9, 16, 40, 49, 47, 60).

4. Perspective and Discovery: Making helps to see things from a different perspective and discover new possibilities. It also enables the unexpected and can lead to new insights and discoveries (Codes 3, 13, 19, 20, 26, 50).

5. Engagement and Enthusiasm: Making engages people in the process and excites them. It can also excite others and encourage them to experiment. Making brings peoples values and group dynamics to the surface, easy to recognize (Codes 8, 45, 52, 53, 58).

8. Motivation and Satisfaction: Making brings satisfaction and joy, it fulfills the needs of the makers and prevents boredom (Codes 22, 42, 54).

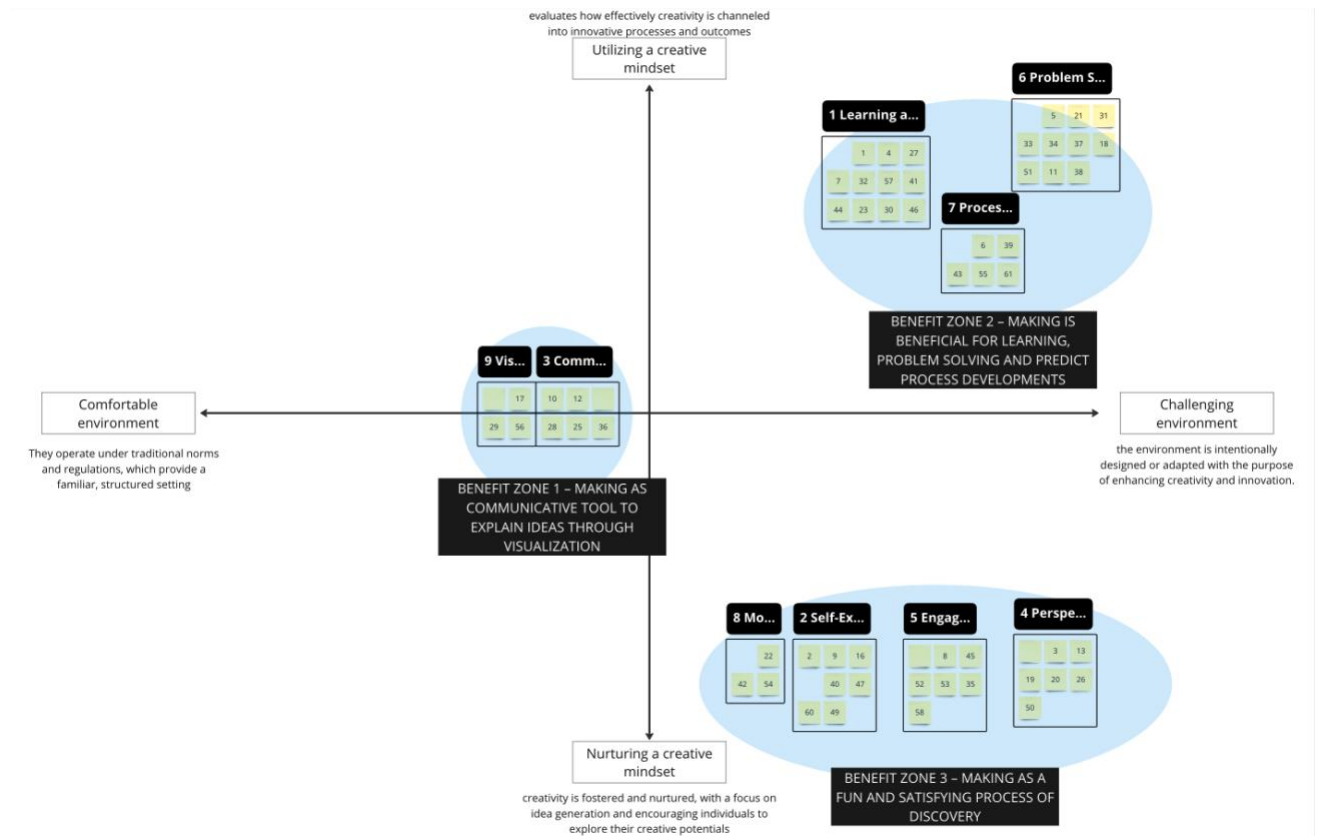


Figure 29. Positive results where making can lead to, based on user interviews. As you can see there are three zones of benefits, two of which are in the extremities of the literature framework

Results: Barriers towards innovation – where users feel limited considering innovation

The clusters of the first round coding Barriers:innovation contain 9 barriers of making according to the users of VONK. These clusters consist of specific codes connected by number to the quotations in Appendix 17. Quotations coded with Barriers:innovation.

BARRIER ZONE 1 – THE ENORMOUS SIZE OF THE MUNICIPALITY

4 Organizational Culture and Structure: Statements 6, 17, 26, 34, 37, 52, 57, 56 indicate that organizational culture and structure could be a significant barrier to innovation. For instance, strict divisions between departments, high workload, a lack of flexibility, or a reactive rather than proactive stance can all hamper innovation.

BARRIER ZONE 2 – LACK OF RESOURCES FOR CHANGE, RESISTANCE TO CHANGE AND BUREAUCRACY

5 Lack of Resources: Statements 19, 20, 21, 22, 24, 27, 35, 55 refer to the lack of resources, both physical and digital, as a barrier to innovation. This includes lack of adaptable spaces, cluttered spaces, digital resources, and even financial means.

6 Resistance to Change: Statements 13, 14, 36, 58, 64 highlight that resistance to change, whether due to conservative principles or simply a preference for stability, can be a significant barrier to innovation.

8 Inadequate Processes and Regulations: Statements 1, 47, 46, 49, 54 imply that processes and regulations that are either too rigid, complicated, or outdated can serve as barriers to innovation.

BARRIER ZONE 3 – CREATIVE EXPRESSION IS UNCOMMON AND THE VALUE UNEXPLORED

1. Lack of Inclusion and Collaboration: Statements 3, 10, 15, 50 indicate that not including or consulting different stakeholders, including users or employees, in the decision-making process, could

inhibit innovation. The same applies to the lack of collaboration and teamwork.

2 Fear and Uncertainty: Statements 4, 11, 12, 16, 32, 60 suggest that the fear of change, the unknown, or failure can prevent innovation. This could be fear of wasting time, damaging existing systems, or fear related to personal inadequacy or lack of expertise.

3 Forcing doesn't work: Statements 40, 41, 63, 33 suggest a theme where trying to control or force innovation can paradoxically become a barrier to the organic emergence of innovation. This theme reflects the understanding that innovation often arises from conditions that can be fostered, but not precisely controlled or manufactured.

7 Lack of Vision and Understanding: Statements 2, 8, 9, 18, 25, 45 reveal that the lack of a shared vision or understanding of what innovation is or where it is heading, can hinder innovative efforts. This also includes an inability to grasp the transient and unpredictable nature of innovation.

9 Psychological Factors: Statements 7, 28, 29, 30, 39, 59 suggest that personal feelings of inadequacy, the perception of burdening others, or feeling uninvited or isolated can block innovation.

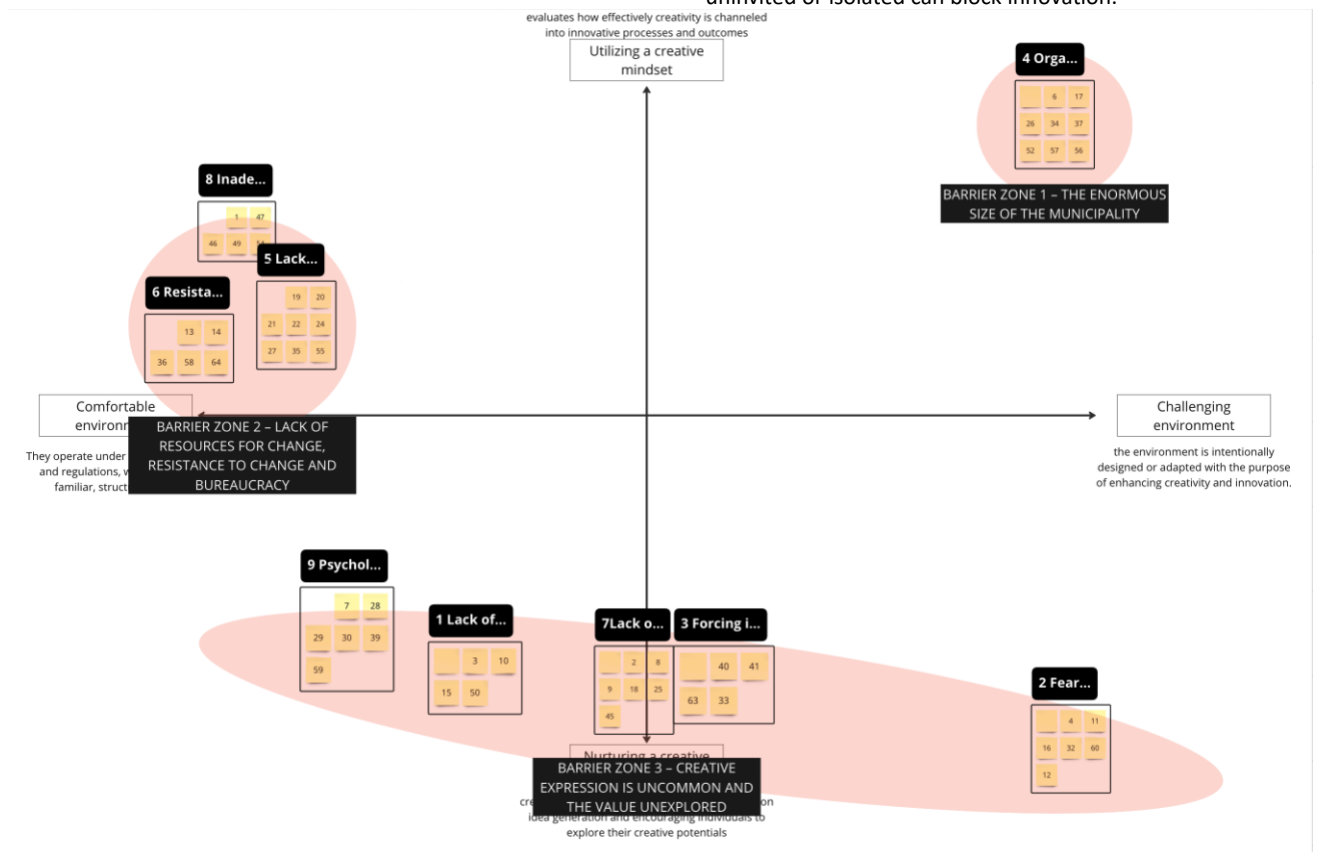


Figure 30. Barriers towards innovation according to the users. These are zones that potentially need to be avoided in the final roadmap

Results: Stimulators & barriers towards making – opportunities for users to be stimulated to make

Although there is a difference between stimulators and barriers, with slight reformulation you can describe a

complementary stimulator for every barrier, So I tried do describe the zones as being one encapsulating stimulus. The amount of codes for this cluster was so large (Appendix 18. Quotations coded with Stimulator:making and barrier: making) that I decided it was easier to display the clusters in a separate table, so you can find the clusters with their respective codes in Appendix 19. clusters of making stimuli and its respective codes.

N.B. Some clusters are merged together, you can recognize those clusters by the formatting. They don't have an 'enter' in between them.

MAKING STIMULUS ZONE 1 – CONFIDENTLY UTILIZING CREATIVITY TO OBTAIN EFFICIENT PROJECT RESULTS

Cluster 2 - Fear of Being Judged This cluster deals with the fear and anxiety associated with being judged on the outcome of creative projects. It includes concerns about others' opinions of the end result (23), fear of wasting resources (25), and concerns about intellectual property rights (82). It also mentions the discomfort of embarking on a project without knowing the exact outcome (152) and the demotivation associated with unsuccessful projects (87).

Cluster 1 - Proving it Can Be Better This cluster focuses on the motivation to improve and innovate. It includes factors like personal career advancement (31), customer relevance (120), and dissatisfaction with the status quo (155). This cluster also mentions the role of external influences like frustration (73) and pressure from superiors (119) in stimulating creativity and innovation.

Cluster 3 - Justifiable Confidence in One's Abilities This cluster discusses barriers to creativity related to self-confidence and perceived abilities. This includes lack of knowledge or necessary skills (77), fear of technical complexity (146), and intimidation by the multitude of possibilities in creative projects (141).

Cluster 8 - Tangible End Result that Can be Quickly Implemented This cluster emphasizes the importance of quickly achieved, tangible results in motivating creativity. It discusses the role of prototyping (102) and immediate feedback (97), the importance of visualization (158), and the challenges of testing and validation (97).

Cluster 6 - Leave the Making to Others (unpleasant tasks to handle) This cluster focuses on the barriers to creativity imposed by other work responsibilities, particularly time-consuming tasks such as paperwork (196), discussions (197), and tasks outside one's role (111). **Cluster 7 - I'm Not a Maker** This cluster deals with barriers to creativity due to perceived lack of resources, including time (32), skills (13), or money (75).

Cluster 4 - Fitting Making into Project Planning This cluster discusses the need to

balance creativity with existing work processes and pressures. It emphasizes the role of time management (79), risk perception (59), productivity expectations (15), and the potential for unforeseen changes or disruptions (162). **Cluster 5 - Making Can Save You Time** This cluster focuses on the efficiency and time-saving potential of creativity and innovation (128). It also discusses the importance of quickly demonstrating project viability (128).

MAKING STIMULUS ZONE 2 – STRUCTURED SPATIAL DESIGN THAT FACILITATED CREATIVE FREEDOM

Cluster 14 - Zones Assist in Making This cluster explores the impact of physical workspaces on creativity, highlighting the need for both organized and messy spaces (172) in the creative process.

Cluster 15 - Spatial Layout Influences Making This cluster discusses how the design and organization of a physical space can impact creativity. It covers the potential influence of clutter (165), institutional settings (167), and functional restrictions (174) on creative processes.

Cluster 16 - Freedom Needed to Create This cluster discusses the importance of creative freedom (104) and resistance to rigid constraints (18) in the creative process.

MAKING STIMULUS ZONE 3 – SEEING OTHERS, COLLABORATION AND GOALS

Cluster 11 - Gym Fitgirls This cluster discusses the motivation derived from observing others' activities (200), successes, and examples (134). It includes the importance of understanding who created something (91), the impact of screen visibility on creativity (142), and the demotivating effect of only seeing end results (6). This cluster is very similar to cluster 18, but cluster 11 is more process oriented. Cluster 11 suggest that seeing others' results and examples, rather than energy/flow stimulate creativity.

Cluster 10 - Perfect Prompt This cluster is about the need for clear goals and concrete tasks in creative processes. It discusses the role of restrictions (84), the need for creative reasons or triggers (144), and the role of ready-to-use projects (125) in stimulating creativity.

Cluster 12 - Stronger Together This cluster underscores the power of collective creativity. It focuses on the value of collaboration (19), diverse teams (45), and the exchange of ideas (41) for innovation.

MAKING STIMULUS ZONE 4 – AMBIENCE OF FREE CREATIVITY WITH AN ABUNDANCE OF INSPIRATION AND TOOLS

Cluster 19 - Making in a Sandbox This cluster represents the idea of a creative "sandbox" where unrestricted exploration (198), play, and experimentation are encouraged.

Cluster 18 - Making People Inspire This cluster emphasizes the inspirational effect of seeing others engaged in the creative process (147), suggesting that such observation can stimulate curiosity and motivate creativity. This cluster is very similar to cluster 11, but cluster 11 is more result oriented. Cluster 18 suggest that just witnessing others' creative flow can arouse curiosity and personal creativity.

Cluster 20 - Research as a Fertile Ground This cluster underscores the significance of diverse resources (67), basic tools like paper and pen (110, 109), academic stimulation (3), experimental reassembly (107, 103), understanding the target audience (35), and the freedom offered by undefined materials (135) in the creative process.

FLOATING CLUSTERS – THESE ARE NEGLECTED IN FURTHER ANALYSIS, BECAUSE THE DIDN'T SEEM TO BELONG TO ANY GROUP

Cluster 17 - Supporting Each Other in Personal Motivation to Create This cluster focuses on the role of personal motivation (116), shared passion (44), and mutual support (38) in stimulating creativity.

Cluster 9 - Whose Party is This? (Specific Makers' Needs) This cluster focuses on the importance of tailoring the creative process to the needs, interests, and capabilities of the individual maker. This includes considerations of technology availability (17), collaborative involvement (92), and project scalability (184).

Cluster 13 - Less Prompt This cluster suggests that creativity can be stimulated by less specific, more open-ended prompts (85), encouraging trial and error and learning by doing (85).

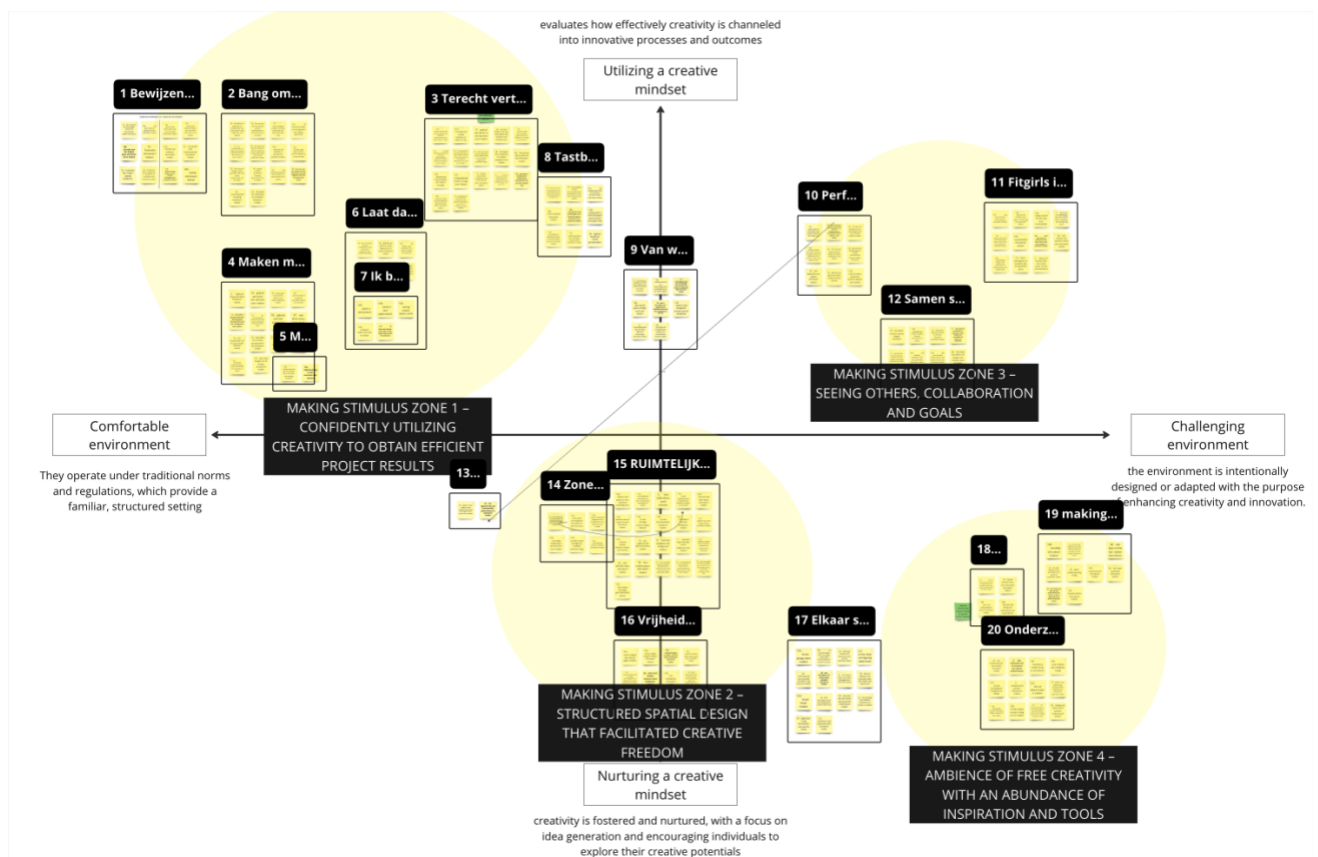


Figure 31. Making stimulus zones. 4 clear zones of opportunity, which could be utilized to stimulate people to make more

analysing the current definition of making and the four quadrants.

Discussion: User opportunities and threats (four directions)

What canlearn from all this research plotted on this framework? To understand this I've broken it down into

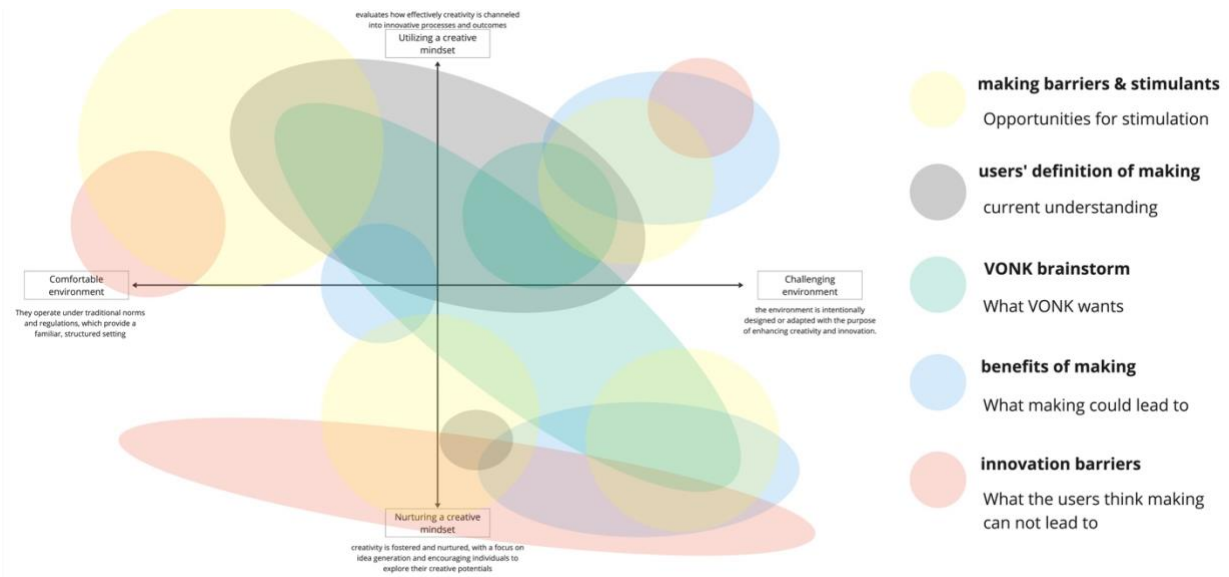


Figure 32. All research plotted on the literature framework. Notice the gap in the bottom left, the crowded zones in the top and bottom right and the big stimulus zone in the top left

Starting point

I find that there's an overlap between the users' understanding of making and three other elements. These include stimulus zone 1, benefit zone 1, and VONK's vision. To me, it suggests similar way of understanding shared between the users and VONK that leans towards the idea of leveraging a creative mindset for achieving specific goals, specifically directed towards

“making as communicative tool to explain ideas through visualization” (Benefit zone 1).

From the interviews conducted with the users and VONK representatives, it seems to me that the value of this creative process is well-recognized. This overlapping of various elements not only shows a shared vision but also brings to light the locally accepted value of 'making' within VONK and its current users. This will be the starting point of the roadmap

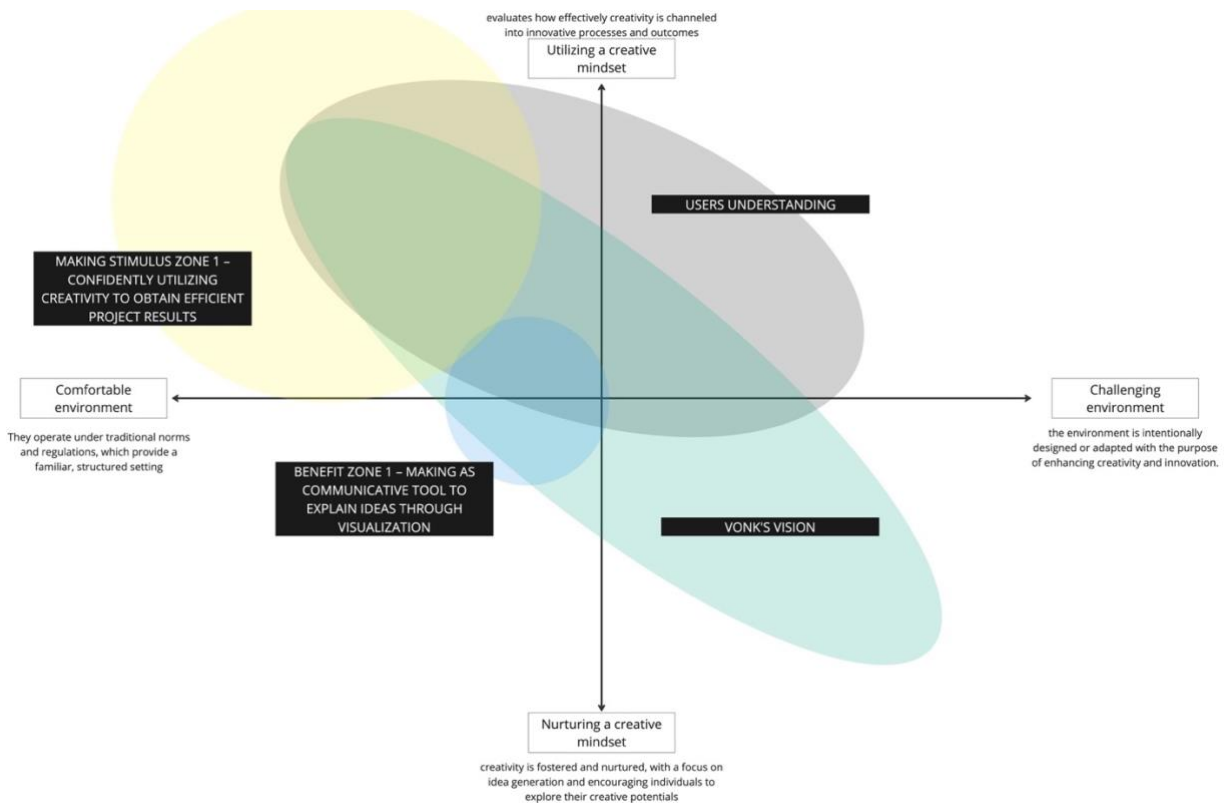


Figure 33. Selected clusters relevant for the defined starting point. Notice how several clusters with different themes overlap close to the center of the framework

Direction Top Right – seems nice, but it isn't

Let's delve into the upper-right quadrant of the literature framework, where I find an intriguing opportunity. It emerges from the overlap between the 'making stimulus zone three' and the perceived benefits from users, labeled as 'benefit zone 2.' This conjunction suggests that by establishing goals, 'making' can be harnessed as an effective tool for problem-solving. However, as I navigate further into the top right, I encounter a formidable barrier, referred to as 'Barrier Zone 1'. This obstruction does not overlap with the identified opportunity zone or 'making stimulus zone three.' The barrier emanates from the sheer scale of the municipality, an obstacle I perceive as tremendously challenging to surmount. Even with effective collaboration and problem-solving within smaller groups, the breadth of the municipal challenges remains vast. Moreover, numerous groups within the

municipality are unfamiliar with these creative processes, complicating the issue further. Importantly, this barrier and the opportunity zone do not align with VONK's vision. VONK does not aim to efficiently produce solutions for significant issues. Instead, its vision leans towards fostering the innovation process on a smaller scale, redirecting larger scale initiatives, as delineated in Chapter One: The Vision of VONK. Thus, this direction is best avoided. This finding presents a fascinating twist as my initial prototype was a challenging environment designed to harness the creativity of VONK's users. My original assumption was that a change in environment could unearth the inherent creativity within individuals. However, considering the substantial barrier and the particular context of VONK, it's clear that achieving this would be exceptionally difficult. Consequently, my initial hypothesis must be revised, a process I will embark upon by the end of this chapter.

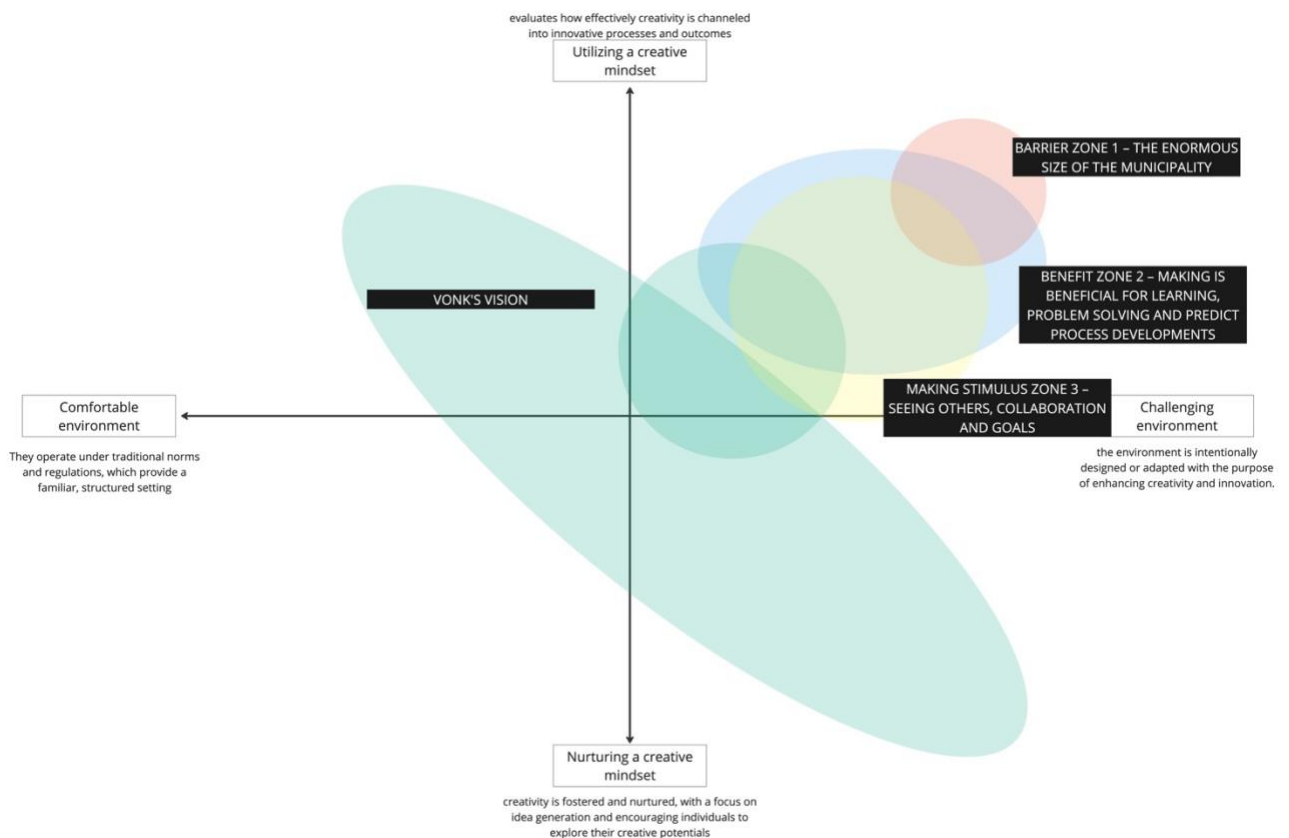


Figure 34. Selected clusters relevant for the top-right quadrant. notice how the clusters not overlap altogether and how there seems to be some diagonal ending in a barrier zone

Direction Top Left – Don't go too far there

Here I find a significant opportunity within 'making stimulus zone 1.' This zone is heavily populated with various stimuli that could potentially inspire users to increase their creative output. However, there's only a minor overlap with VONK's vision, suggesting a noticeable gap between what VONK is envisioning and the stimuli that might motivate users to create more.

Furthermore, I encounter a barrier on the far left, identified as 'Barrier Zone 2.' This zone represents the scarcity of resources and the resistance to change. However, before I delve deeper into this barrier, it's important to note that the overlap with potential benefits (those indicated by the blue zones) is insufficient and doesn't align adequately with VONK's vision. There's a possibility of slightly adjusting VONK's vision towards this stimulus zone. However, this would require

careful consideration due to the adjacent 'Barrier Zone 2. VONK could venture slightly into this zone, but they must be cautious not to go too far, as they could potentially find themselves grappling with a lack of

resources, bureaucracy, or encountering considerable resistance.

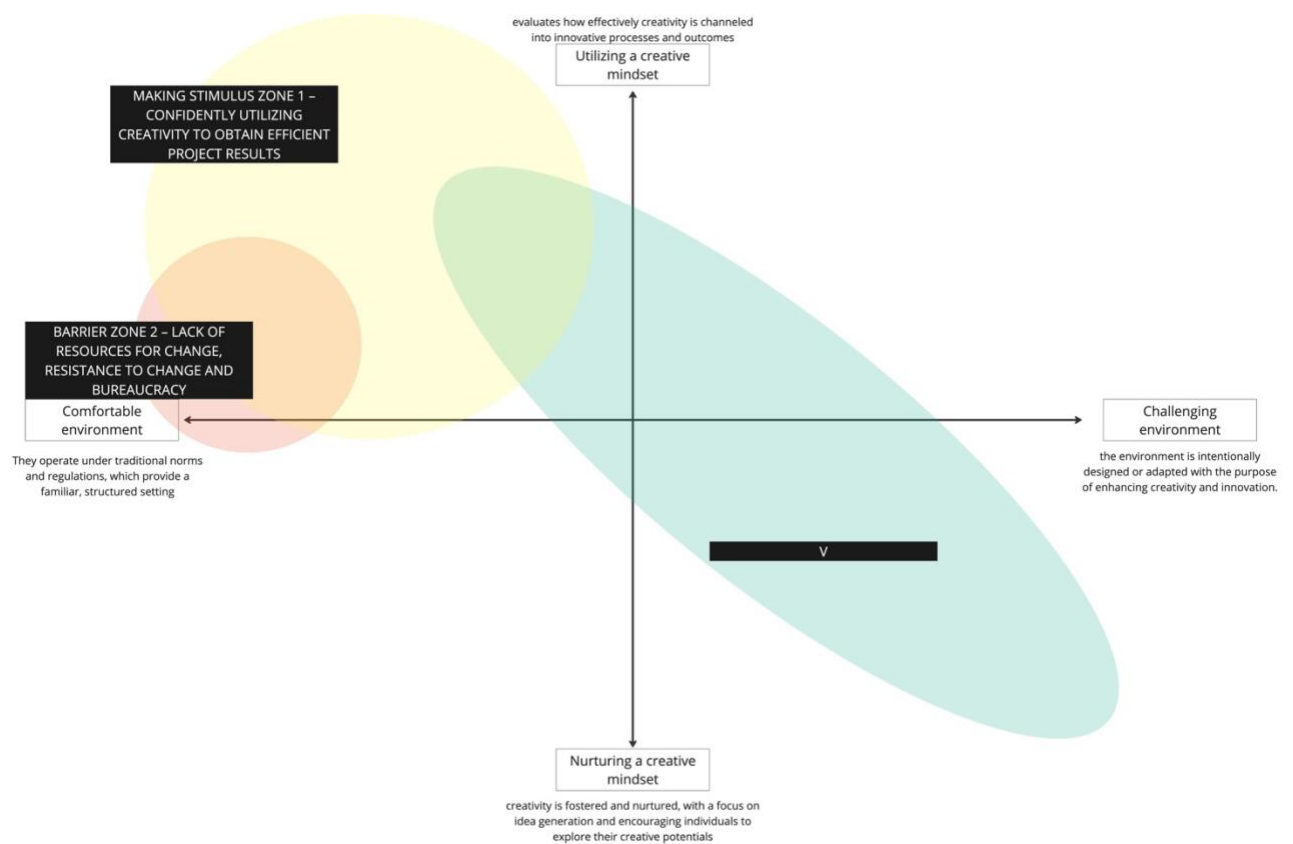


Figure 35. Selected clusters relevant for the top-left quadrant. Notice that there are only three relevant clusters, one very big stimulus cluster and one barrier zone, but they are not strongly overlapping with VONK's vision, indicating some kind of gap between my research and VONK's vision.

Direction Bottom Left – Could be interesting, but also risky

Next, let's examine the bottom-left quadrant of the literature framework. Immediately, what strikes me is the significant gap that appears when plotting all the research within this framework. The only element visible in this zone is 'Barrier Zone 3,' which encapsulates the observation that creative expression remains relatively uncommon within the municipality. The value of creativity remains largely unexplored, and people are unfamiliar with this concept.

However, the existence of this gap piques my interest. Isn't there any potential here for exploration? It might be interesting to delve into why this gap exists in the

next chapter. Perhaps there lies an unexplored opportunity. But it's crucial for VONK to recognize and understand the presence of this barrier zone if it decides to venture in this direction.

Creativity, in this context, is still quite delicate, new, and could be a sensitive topic for many. This barrier zone is laden with clusters related to various psychological factors, such as a lack of inclusion, fear, uncertainty, and confidence issues. Therefore, any approach towards this zone necessitates a soft touch and caution.

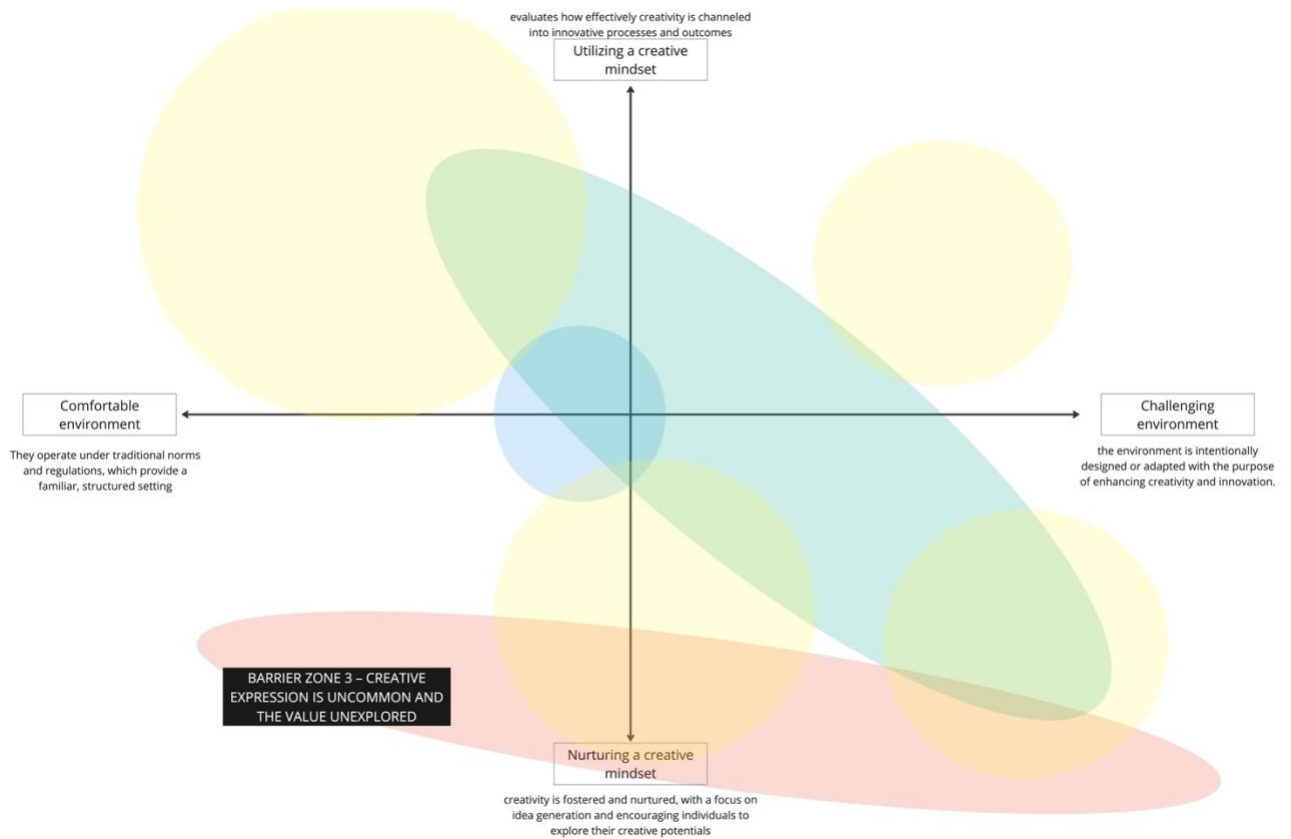


Figure 36. Selected clusters relevant for the bottom-left quadrant. Notice that this quadrant is almost entirely empty except for a barrier zone. The yellow, blue and green zones only serve to indicate that there is actually nothing of my research strongly overlapping with this quadrant.

Direction Bottom Right – Go there, totally worth the risk
 Finally, the last quadrant, the bottom right. A closer examination of the research plotted here reveals that most research elements overlap within this zone. However, the users' current understanding, is not present here. But this shouldn't be much of a problem, because challenging existing definitions is what innovation is all about (see Chapter 1, definition of innovation). There is 'Benefit Zone 3', 'stimulus zone 4' and VONK's vision, and these three potential opportunities demonstrate a substantial overlap. Just based on the fact that that much of my research is present in this quadrant, I would already propose that this direction is quite compelling and worth exploring further. However, similar to the situation in the bottom

left quadrant, VONK needs to be aware of 'Barrier Zone 3' that also resides here. However I don't think this barrier is as much of a treath as barrier zone 3, because this section of barrier zone 3 is mostly about the fear of change, the unknown, or failure. Thus this is a area with high potential and low risks, but it needs to be adressed with care for the potential fears of users.

If VONK chooses to venture into this quadrant, they could possibly leverage the benefit of 'making' being a fun and satisfying process of discovery. This could be achieved by fostering an environment of unrestricted creativity teeming with inspiration. As an added bonus, this direction aligns with parts of VONK's vision, further substantiating the appeal of this direction.

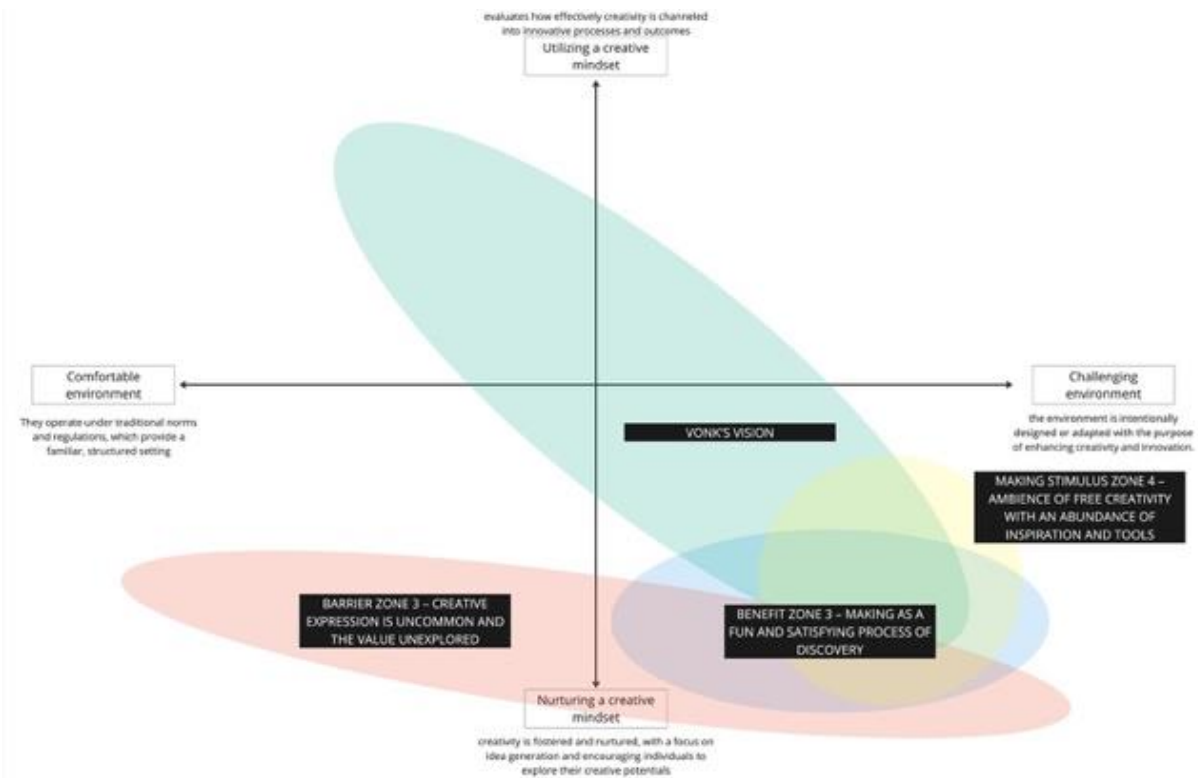


Figure 37. Selected clusters relevant for the bottom-right quadrant. Notice that in this quadrant is the most significant overlap in the full framework, four themes are overlapping

Conclusion

I would suggest VONK to direct their attention to the bottom right section of the literature framework, definitely not to the top right and keep in mind the top and bottom left.

While exploring the bottom right quadrant's opportunities, it's critical to consider 'Barrier Zone 3.' This barrier reflects unfamiliarity with creative expression in the municipality. As you foster creativity, you must also address concerns stemming from this unfamiliarity, such as resistance and fear. This does make sense though because then you've moved so far away from the current understanding of making by the users. This huge difference is also the reason why VONK cannot move directly, in a straight line, from the current situation to the desired destination in the bottom right. If you look back at the image at the top of this section you can also see that there is a gap between the current understanding and this zone of opportunity where only the vision of VONK is present as a research element. Therefore I need to find a different route to his destination in the next chapter.

3.4. RESEARCHING ORGANISATIONAL OPPORTUNITIES & THREATS

Introduction

In this segment of the chapter, my objective is to analyse the four quadrants on from a strategic viewpoint to navigate the direction highlighted in the previous part. Recognizing that VONK can't move directly towards our goal, it's necessary to understand the typical progression of internal municipal projects, particularly successful ones.

Method

To gather this information, I conducted semi structured interviews with three municipal experts, each for about one hour. One of them had participated in a successful, innovative project (expert 10). Another, a strategist within the municipality, offered insights into internal processes and thinking, given their long service and participation in numerous projects (expert 3). The third interviewee was an auditor who assesses project success and provides guidance for goal attainment, providing an analytical perspective (expert 8). The interviews were in an informal setting, one online, one in a café and one in loungechairs ;). All the audio was recorded and transcribed before analysis, just like all other interviews in this project.

For further research I would advise to also interview a cluster controller, whose role unrelated to creativity and more focused on financial effectivity, could provide additional valuable insights. These interviews were semi-structured, with similar preparation notes for each expert rather than a singular interview guide. These notes can be found in Appendix 20. In the result I present individual insights from these experts, projected on the different

Results

Starting Point

First, let's focus on the starting point within this research—the overlap between users' definition of 'making.' The experts identified three key opportunities here.

One is the **mutual support among creative individuals** within the municipality, reinforcing the logic of beginning our roadmap where VONK's vision aligns with user definitions, benefits, and stimuli.

Secondly, the presence of innovative individuals within the municipality, who may be unaware of each other and VONK, suggests an **opportunity to expand beyond the current starting point**, reaching out to this untapped potential.

Lastly, the existence of individuals who act as **links between civil servants and civilians** presents another opportunity for connection and creativity.

However, the experts also flagged a threat—the complexity and overlap of terminology around creativity,

making, and projects within the municipality. **Effective communication is crucial** to ensure clear understanding among all stakeholders.

Direction: Top Right

Turning to the top right quadrant, the experts provided insights that both support and caution against moving in this direction. On one hand, they acknowledged the opportunity present, citing **successful examples such as the Mendix platform**, which is a low-code platform initiated by the Rotterdam municipality used to develop apps at scale—a significant accomplishment in software development within the municipality of Rotterdam.

However, they also pointed out substantial threats. Larger creative projects need to align with **stringent project planning** and **business case requirements**. A great example of this barrier is “de rotterdamse standaard” mentioned by Expert 3, which is a document which explains all standard procedures and guidelines of a project, according to expert 3 this dramatically numbs the feeling of freedom and flexible culture within projects. Moreover, embarking on a substantial project like this represents a significant **deviation from the norm**, which might result in some resistance. This aligns with the observation that moving into this direction is far from VONK's original vision.

An interesting topic that multiple experts brought up is “**maken moet meteen toegepast kunnen worden**” and “**ruimte moet passen bij de dingen waar mensen mee bezig zijn**”, which both address the need for a purpose to utilize creativity in the municipality, this confirms Assumption 9: people need guidance and goals, found in chapter 3.

Direction: Top Left

Considering the insights provided for the top left quadrant, the experts insights suggest a measured advance in this direction. With the potential of **uncovering innovative individuals** within the municipality, it would be beneficial to gravitate towards the 'making stimulus zone 1.'

As one expert's success story revealed, **tapping into the ideas of colleagues**, some of whom may not yet be familiar with the project, can yield positive results. However, they also noted the importance of considering the value each project brings to the municipality, hinting at the relevance of **thinking along the lines of business cases**.

This movement does bring with it the **risk of bureaucratic entanglement**. While bureaucracy is often perceived as an impediment to progress, it does serve to protect the city and underpin democratic processes. Thus, bureaucracy isn't solely a threat but a necessary mechanism for ensuring secure processes.

However, too significant a shift towards a business case model could intensify the **bureaucracy, potentially stifling innovation**. Then another result from the current way of working inside the municipality one expert

suggested: there is a great need to **connect municipal projects** rather than merely running them in parallel, as is almost always the case now.

Direction: Bottom left

Continuing in the bottom left on the topic of parallel projects, what the expert referred to as '**compartmentalization**,' reveals a significant municipal concern that could potentially **fill the identified gap** in our framework.

Two significant issues stem from this compartmentalization. Firstly, many of these parallel projects **don't provide feedback to related projects**. The expert offered an example of five separate initiatives aimed at addressing roofing issues in Rotterdam, each considering the total number of roofs. But upon completion of these projects, only 1/5 of the roof total was applicable to each, a fact only discovered post-project completion, leading to significant energy wastage.

Secondly, many civil servants persistently adjust their projects, even when the primary goal is unachievable. Here, creativity is used to bypass immediate hurdles, but it's not harnessed to **make the hard decision of discontinuing** or radically changing a non-viable project.

Interestingly, this issue of parallel projects aligns well with the gap discussed earlier. It represents a significant challenge for the municipality and is **closely related to innovation**, which often involves connecting and combining elements to create something new. Furthermore, it is a **problem happening within the comfortable context** of thinking in municipal projects, but also **nurturing a new way of thinking**, which could **utilize creativity to prevent this compartmentalization**.

Furthermore, the experts **confirmed 'Barrier Zone 3'**—individuals being unaware of each other's activities. This strongly links to the barrier cluster concerning a lack of inclusion and collaboration as describe in the previous part of this chapter. To overcome this barrier and propel creative ambitions, **support from higher-ups (like a manager) or a network of individuals enthusiastic about your ideas is beneficial**. The expert highlighted they are part of such a small network, filled with people passionate about creativity and innovation, independently working on creative projects outside their usual tasks.

the suggested destination on our roadmap is the bottom right of the framework. The experts indicated two opportunities in this zone.

First, they believe it would be beneficial for the municipality to **foster an environment where project failure is socially accepted**. An utopian culture, where altering the direction of a project would be welcomed over endless tweaking.

Second, one of the experts, citing their successful project, emphasized **the importance of having a specific**

goal. Their project, tied to an upcoming event involving changes to the sewer system, presented an excellent opportunity for broader change due to aligned construction planning. This clear, **time-bound goal acted as a significant stimulus for creativity**. They articulated this goal into eight distinct ambitions, which they consistently adhered to—a strategy that has proven effective within the municipality.

Additional opportunities have also been highlighted in the middle-bottom zone of the framework. One of the experts, reflecting on their successful project, mentioned the effective implementation of creativity, which was researched specifically for them by a resident promovendus (Joose-Bil & van Buuren, 2020). They **started small, utilizing a simplistic approach to creativity, and gradually progressed towards their substantial goal with incremental steps**. They consider this one of the key drivers of their project.

Furthermore, the experts highlighted the potential in **showcasing tangible examples** of innovation. Concrete demonstrations can convince fellow civil servants that **innovation isn't as daunting as it may seem**, presenting an intriguing opportunity for creative stimulation.

The experts also observed a shift in the personnel profile of the municipality. Traditionally, employees were **hired for conventional competences**, focused on analytical thinking. However, as the municipality evolves, there is a **growing need for creative competences**. The experts noted that individuals with analytical mindsets might find it challenging to stimulate creativity due to their inherent tendencies, therefore it could be relevant to **look into the hiring process** if you want to stimulate creativity within a project.

These insights align with certain 'making stimulus zones' mentioned earlier. They particularly resonate with facilitating creative freedom under 'making stimulus 2,' and with 'making' as a fun and satisfying process of discovery under 'benefits zone 3.' These overlaps reinforce the notion that creativity can be both enjoyable and naturally appealing to individuals who are intrinsically curious.

Discussion

The insights on the starting point suggest VONK is already a great initiative to start, but there is some opportunity to expand their userbase, utilizing effective communication

The top right quadrant indeed has potential but should be avoided based on the insights below

The top left quadrant is an interesting direction to expand VONK's userbase by uncovering innovative individuals and thinking a little bit more along the lines of business cases, without getting entangled in bureaucracy.

One very interesting possibility for more businesscases is uncovered through insights applicable tot the bottom

left. Maybe the struggle of compartmentalization can fill the identified gap in the framework, by utilizing creativity to connect parallel projects together. That also sounds quite similar to the definition of innovation of chapter 1. The experts also confirmed barrier zone 3, so this should definitely be taken into account. But they also provided two ways to potentially overcome that barrier: support from higher up or a supportive small network.

Then in between this interesting gap and the suggested destination lie a few opportunities in the form methods that are proven to successfully stimulate creativity within the municipal context.

And if I translate the insights from my expert interviews this confirms the potential of my suggestion for the bottom right. To do this VONK should utilize a big specific inevitable goal.

Conclusion

We'll start by steering clear of the top right, mainly due to its lack of alignment with VONK's vision and the formidable barrier it presents. VONK is already off to a great start with creative individuals who support each other and share a similar understanding of creativity and innovation. However, there might be more innovative individuals within the municipality who are yet to be involved.

Given the gap between VONK's vision and the 'making stimulus zone 1,' I suggest an initial movement towards the top left of the framework in the coming months. But this should be a measured move—we don't want to

wander too far into bureaucracy that could stifle innovation.

Next, moving downwards, addressing the broad municipal concern identified in the gap mentioned earlier. As one expert pointed out, a myriad of projects are concurrently taking place within the municipality, many of which are compartmentalized, leading to wasted resources and duplicated efforts.

Yet, VONK should avoid moving too far down to sidestep the psychological challenges associated with the uncommon nature of creative expression within the municipality. Support from higher-ups and inclusion in the VONK network can mitigate these issues, helping to maintain an optimal position within the framework.

Then, the roadmap veers towards the bottom right—our end goal. While moving in this direction, 'stimulus zone 2' and 'benefits zone 3' are encountered. These zones align with opportunities identified by the experts—optimizing the process through small steps and creating tangible examples that show colleagues the accessible nature of innovation.

At the bottom right is alignment with VONK's vision—making being a fun and satisfying process of discovery, an ambiance of free creativity with an abundance of inspiration and tools, and setting a grand goal with a clear deadline. This journey aligns with VONK's vision of making leading to new perspectives and a playful exploration of the world, as mentioned in chapter one. Thus, it seems an apt direction for this roadmap.

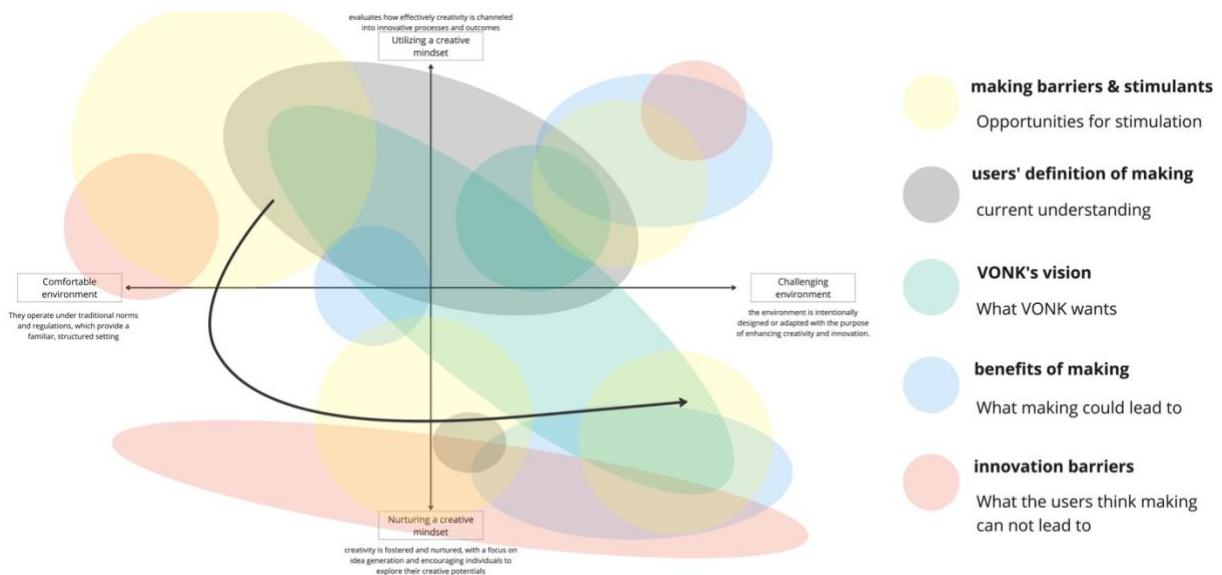


Figure 38. All cluster zones plotted on the framework and my suggested route for VONK to take, notice that that route looks for interesting overlaps and gaps, avoids the top right quadrant and steers clear of strong barriers.

4. STRATEGIES AND IMPLEMENTATION FOR ACHIEVING VONK'S VISION

4.1. DESIGNING STRATEGIES FOR ACHIEVING VONK'S VISION

Introduction

To map out my final suggested trajectory, I need to synthesize all these insights. In this closing walkthrough of the framework, we'll formulate the most effective approach to navigate towards the suggested direction.

Moving forward from the groundwork laid in the previous chapter, this chapter dives into the crucial stages of designing and implementing the project. Recognizing the practical difficulties in making an instant leap from the current situation to the proposed future, a more measured, step-by-step roadmap has been developed. Here, you'll find a careful dissection of necessary actions for VONK within the municipal context. Through expert advice and on-site visits to existing maker locations, the proposed route has been vetted and refined. The focus here is to ensure that VONK can comfortably own and execute the steps, fostering an innovative capacity in their audience in a fun and engaging way.

Method: Horizon defining

To delineate the horizons for the strategic roadmap, the following steps were undertaken:

- 1. Reassessment of Organisational Opportunities and Threats:** I began by reanalyzing the organisational opportunities and threats. From there, I incorporated the insights and opinions of municipal experts.
- 2. Framework Analysis:** I considered the starting point and subsequently delved into the four quadrants of my framework to ensure comprehensive coverage.
- 3. Additional Research Incorporation:** Two additional pieces of research were incorporated:
 - The first was a thorough study on a case similar to that of VONK, Reyeroord+, by an internal promovendus researcher on Reyeroord's processes (Joose-Bil & van Buuren, 2020). Notably, I also interviewed an expert for the preceding chapter from this research, further enhancing its significance.
 - The second resource was a video by Jan Rotmans (2022), Professor specializing in climate change, sustainability and transitions, author of over thirty books and 300 articles on the topic. This video was on "The Activistic Civil Servant." This was selected based on a recommendation from a Funk team

member who believed it had greatly impacted the municipality of Amsterdam. After viewing the video, I noticed considerable parallels to challenges identified during my user research, especially within expert consultations.

- 4. Leveraging External Insights:** Rotmans' perspective, rooted in his research on transitions, proved invaluable. As an external researcher focusing on municipalities, his insights offered a balanced contrast to the potentially subjective views of the experts I interviewed from within Rotterdam.
- 5. Direction Analysis and Pivoting Points Identification:** The directional analysis, deduced from the conclusions of the previous chapter, enabled the identification of pivotal moments. These moments, or pivoting points, were instances where there was a perceptible shift or redirection. I then used these points as benchmarks to define the horizons.
- 6. Horizon Thresholds:** It's worth noting that I opted not to designate the shift from the top-left quadrant to the bottom-left quadrant as a horizon, deeming the change too marginal to be considered significant.

Results: Horizons

For this roadmap, I propose four stages, which I refer to as 'Horizons.' Each Horizon represents a key phase in our journey towards the end goal. These horizons are already based on organizational implementation, but not on my initial assumption or ideas or the context of VONK's team.

Horizon 1, 2 and 3 are an iterative process of finding enthusiastic people, connecting them and guiding groups of people to success stories, showing the value of overcoming compartmentalization.

Horizon 1 – Finding 'connectors' within compartmentalized projects

The starting point, mentioned in chapter 3.4 provides a solid foundation. The first horizon, expected to be reached within the next year, involves broadening the user base of VONK to include those eager to partake in the innovation process. The focus during this stage will be on projects with innovative people, specifically addressing these individuals to boost their confidence in employing creativity within their projects.

What is distinctly different in this horizon from the current way VONK searches for people is my newly suggested focus: Victims of compartmentalization. I see strong benefits in moving towards the gap in my research, in the bottom left of the framework, considering the negative effects of compartmentalization (as described in the previous chapter). Therefore I am suggesting to first find enthusiastic people within projects, which are (probably unconsciously) struggling with the negative effects of compartmentalization. These would be people who recognise the negative effects of

compartmentalization within their municipal project and want to act upon it but don't know how. These people would ideally naturally be curious to learn about other projects and how they could learn from these projects, therefore I would call these people: connectors.

For example, instead of looking for people who are interested in technology and innovation, as VONK is doing now, VONK will be looking for projects like the rooftop projects described in the previous chapter. These projects where all developing possible use-cases for empty rooftops in Rotterdam, but where not connected in any way, resulting in a lot of double work and un-holistic assumptions, like the amount of empty roofs which could be used for their project. After VONK has identified that there is a set of projects which could benefit from overlap, but are still compartmentalized and not connected with each other, VONK will be looking for the people within these projects who are excited to tackle this problem and connect their own project to the others.

Ideally VONK would be doing this project scouting in line with their current scope (Figure 4 in Introduction). Specifically they would be looking for projects which address issues connected to the transformations there are currently focussed on: either digitalization, sustainability, inclusivity, economy or services. Accordingly, the rooftop projects would be connected to the sustainability transformation, because they are addressing issues of e.g. water retention and urban overheating. The first horizon is just meant to develop a standardized method of finding these people and building a first set of innovators (2,5% of the full municipality according to the law of diffusion of innovation (Rogers, 1962)). Finding these 'connectors' should continue (although with less focus) during the other horizons, working iteratively with additional early adopters (2,5 – 13,5 %).

Horizon 2 – Teach the connectors how to fight compartmentalization

The second horizon, to be targeted over the following two years, is about addressing the gap identified in the proceeding chapter of compartmentalization. This involves identifying projects running in parallel that could benefit from better connectivity. VONK would play a guiding role in linking the found connectors within these projects, mitigating the compartmentalization that hinders their success.

This horizon includes connecting the different connectors with each other, creating a network of enthusiastic people that want to address compartmentalization. Furthermore, the most important is connecting the connectors of projects which should be connected. VONK then could take responsibility to organize experimental interaction between relevant people, guiding them in the trial-and-error process to find innovative solutions to compartmentalization within their projects. In this interaction a culture of trust, freedom and lack of pressure should be leading.

These interactions should be carried out with VONK's scope in mind, simultaneously keep the three influential factors in mind, being: the transition the people try to address, the criteria influencing their individual projects and technologies which could influence their projects and the larger transition. For example, VONK would be organizing an interaction between the found connectors of the different rooftop projects, guiding them in how to overcome the compartmentalization of their different projects. The individual project can then prevent working on the same rooftops and identify overlapping activities concerning their different projects.

If these people and projects are successfully connected VONK can start focusing on connecting these sets of people to relevant others in their network: civilian communities, technology experts, innovation enthusiast. Basically, that is exactly what VONK's expertise is at this moment. This can be seen as organizing multi-disciplinary panel-groups of people in one way or another connected to a set of projects are now compartmentalized but could complement each other. For example, VONK could contact an innovative building expert within their network, which could help generalize the building techniques that the different projects plan to use for their rooftop constructions. Or a group of companies/civilians who own a certain piece of rooftop and have specific demands or wishes that influence the activities of the municipal projects with those rooftops, maybe they want to have a green roof, or solar panels, or a terrace.

These connecting activities should continue in Horizon 3, as is explained below.

Horizon 3 – Guiding projects towards complementation:

The third horizon, to be achieved within one or two years following the second, involves steering these newly connected projects towards becoming successful case studies. Over three to four years, VONK's guidance would transform projects initially suffering from compartmentalization into valuable assets through the infusion of creativity. Note that VONK's role remains as a facilitator and guide, with the innovative individuals discovered in Horizon 1 driving these projects to success.

For example, VONK could be organizing interactions between different stakeholders (including companies, their civil connectors, civilians, and more) to discuss the overlap between the different rooftop cases and stimulate the stakeholders to undertake action to overcome these actions, so could a concept like a holistic project division of all rooftops, which project addresses what rooftop, be a result of this horizon. Such a result is a concrete prove of the value of the processes executed in horizon 2.

This horizon is also the ideal moment to expand beyond the group of initial enthusiasts to people who are less easily convinced (like conservative managers) on VONK innovative approach to connecting projects and show those people these successful case studies as prove of the value of this approach. This could stimulate more

people to include in processes executed in Horizon 2, which should continue after horizon 2 is done during horizon 3. In that way horizon 1, 2 and 3 are iterative processes, working towards the innovative tipping point of 25% of the full organization involved in the new innovative approach (Rogers, 1962).

Horizon 4 – Showcasing innovative success:

The final horizon envisages a large-scale goal where the success stories from the third horizon are showcased and celebrated. This would highlight the atmosphere of free creativity within these projects and the value derived from VONK's facilitation. Achieving this within the next five years would not only serve as a potent stimulus for creativity but also represent a significant added value for the municipality as a whole.

This goal should be used to cross the tipping point of the law of diffusion of innovation by Rogers (1962). This showcase and celebration of the success stories achieved the last 5 years should present the benefit of overcoming compartmentalization through innovative processes to the 'early majority' (Rogers, 1962) of the municipality.

For example, all stakeholders of all the rooftop project could be invited to an event where the work of their inside connectors in collaboration with VONK lead to clear improvement of all separate projects.

Horizon 5 – Becoming an annual celebration of innovation

After the first celebration VONK can iteratively repeat Horizon 1-4, resulting in more and more emerging success stories and more people involved. This could result in a yearly celebration of these success stories, becoming a well-known concept within the municipality, increasing awareness of the value of this approach. After the 5 year process of moving towards the first celebration VONK should have gained enough experience and knowledge on the processes within each horizon that they can execute these activities in parallel, successively stimulating the 'production' of success stories.

This roadmap aims to harness creativity to achieve tangible benefits, steering VONK's innovative community towards becoming a pivotal part of the municipal ecosystem. Eventually in 10 years, the cumulation of many of these success stories could lead to closing in the gap and overcoming the barrier in the top right corner of the proposed framework, because then the success stories can become as big as the Mendix platform project.

For example, the rooftop projects could be inspired after the first celebration to act upon the suggested improvements because of the first work of the connectors and showcase their improvements year by year. In a few years the plans made in these innovative cycles could be (partially) implemented on Rotterdam rooftops, becoming a national icon of sustainability and

proof of the effective use of innovative processes within the municipality.

Discussion: Roadmap for VONK

Discussion: Horizon 1

Drawing upon the 'law of diffusion of innovation' (Rogers, 1962) as interpreted by Sinek (2009), it's posited that the tipping point of a successful innovative project is achieved when approximately a quarter of the total number of people are onboarded. Berkun (2010) further reinforces the necessity of a large number of people for innovation. For VONK to manifest change, this tipping point needs to be a targeted milestone, rallying more supporters behind their vision.

However, a contradiction arises when considering the perspective of Rotmans (2022). He suggests that rather than seeking a wide support base, initiatives should pursue a narrow but deeply committed support group. This resonates with expert insights from the preceding chapter, which cautioned against bureaucratic entanglement, especially when deviating too far towards the top-left of the proposed framework. Therefore, VONK might benefit more from initially targeting specific individuals, sidestepping potential bureaucratic snags. I posit that to achieve this depth of commitment, a focused search strategy is essential, something I presently overlook in VONK's approach. Specifically, targeting "connectors" within projects that have been adversely affected by compartmentalization might be the answer.

Addressing compartmentalization serves as an internal business case. By mitigating its negative impacts, substantial value can be salvaged, leading to cost reductions and an enhanced project impact. For instance, synergies between the rooftop projects previously mentioned could be established sooner, allowing for collaborative results sharing and minimizing redundant efforts, a sentiment echoed by experts in the preceding chapter.

A striking revelation from my user research (Making Stimulus 1) was the vast untapped creative potential within project members. While many exhibited inherent creativity, they felt constrained, primarily because their creative pursuits did not always translate to tangible outcomes. Rotmans contends that there's more flexibility available than most civil servants recognize. Expert insights from the prior chapter support this, emphasizing the need for hierarchical support to foster creative expression, and occasionally deviating from rigid project plans. It appears many users possess latent creative prowess, but lack the knowledge or network to fully exploit it.

Joose-Bil and van Buuren (2020) study on Reyeroord+ — an initiative with similarities to VONK aiming to implement innovative pilots in a Rotterdam neighbourhood — emphasizes the criticality of including the formal hierarchy in such programs. They argue that

while these programs operate outside conventional boundaries, they remain intrinsically linked to existing processes. This duality mirrors challenges faced by VONK and the connectors within projects who, while seeking systemic change, still require systemic support.

The autonomous position of VONK presents an advantage. They can wield their extensive network to persuade and mentor the managers of these creative talents within identified projects. By championing the compartmentalization business case I've proposed, they can bridge the innovation-implementation gap. As noted by Joosse-Bil and van Buuren "It is important that the managers who support the movement also make an effort to connect the movement to the regular system and translate lessons into adjustments of routines, methods, and rules. From these managers, ambidexterity is expected: they need to translate the world of yellow (if we can use the terminology of Next City) into the world of blue and vice versa, in the world of blue, organize receptiveness for the lessons of yellow." Thus the respective managers of the 'connectors' VONK should be looking for while moving towards horizon 1, have an important role in continuing with those people towards horizon 2.

Discussion: In between horizon 1 and 2

Moving from horizon 1 to horizon 2 there is a transition to a different quadrant on the framework, however I didn't address this as a separate horizon. I think this shift is represented by the newly proposed 'compartmentalization-mindset', described both by the search query for people in horizon one as by the guidance by VONK to bind the compartmentalized projects together. Because this mindset is a means of moving towards the proposed direction, it is not something you will 'achieve', which is done at any point, it is a way of going there, therefore I didn't identify it as a horizon, which should be something concrete that VONK can mark as 'achieved'.

Discussion: Horizon 2

The insights regarding innovation from the introductory section of this research inform the necessity of connecting certain individuals. It was concluded that for firms to be truly innovative, they need to harness creative problem-solving and effectively utilize resources such as their network (Berkun, 2010; Neely & Hii, 2014). Additionally, an environment conducive to innovation should promote open conversations and exhibit nurturing leadership. These characteristics are congruent with VONK's leadership role in harnessing the human resources gathered during the first horizon. By doing so, these resources can be oriented towards scrutinizing their own projects innovatively, seeking solutions to the challenge of compartmentalization.

However, VONK should be cautious of Barrier Zone 3, as highlighted two chapters prior. This barrier signifies that the act of creative expression might still be foreign to the group of individuals VONK targets. Specific subcategories of this zone, particularly clusters 1 (Lack of Inclusion and Collaboration) and 9 (Psychological Factors), demand

careful consideration. The repercussions of excluding stakeholders or individuals during the initial horizon might surface in subsequent stages, potentially manifesting as feelings of exclusion, hindering the innovation process. Delving into the psychological intricacies of cluster 9, feelings of inadequacy or other psychological hurdles experienced by the connectors identified in the first horizon need to be sensitively addressed. Despite being early-adopters, these individuals might find the concept of creativity unsettling, as unveiled through user research. Hence, orchestrating interactions warrants prudence given this potential stumbling block. This aligns with Rotmans (2022) explain that the biggest barriers are 'between your ears', or mental barriers. He even goes further that of the three variables that can impact change in a municipality: policy, technology, and behavior. The latter is most underestimated, but social-norm dictated behaviour is leading in transition according to Rotmans. Behavior change is exactly what I suggest VONK focusses on: a specific mindset change in their users, similar to the exemplary mindset change Rotmans provides: a small group of people who stopped smoking 50 years ago, triggering a domino effect, resulting in less people smoking. In a similar manner VONK could try to overcome compartmentalization bit by bit, by facilitating that first group of users.

The study by Joosse-Bil and van Buuren (2020) on Reyerood+ underscores the essence of fostering discussions, dialogue, and, when necessary, critique, as pivotal elements buttressing change. This suggests that the mere act of connecting individuals isn't sufficient; enabling them to critically assess, question, and aid one another is instrumental in championing change in their respective projects. The value of incorporating external perspectives, possibly from civilians or third-party entities within VONK's network (external to the municipality), cannot be understated. Joosse-Bil and van Buuren further emphasize the significance of cross-project learning. Their recommendation leans towards fostering tight-knit collaborations between programs, with a specific focus on translating lessons across different initiatives within an organization. This corresponds with Rotmans (2022) concept of the need for agility within the municipality. According to his research this agility should consist of simplify (lack of compartmentalization and complex hierarchy), understanding the civilians, working multi-disciplinary, learn from experiments and organization based on trust. These advocacies reinforces many elements of the second horizon.

Nevertheless, a word of caution emerges from Rotmans (2022). He advises against the formation of panel-groups to avert the inclusion of 'meestribelaars'— individuals who, while not openly resisting change, neither contribute to its advancement, hence stalling the transformative process. It becomes imperative for VONK, in this horizon, to periodically assess and ensure the involvement of genuinely enthusiastic and proactive individuals, mitigating potential barriers. It's also pivotal that, at this juncture, participation is restricted solely to

early adopters to elude potential bureaucratic complications.

Discussion: Horizon 3

The Reyeroord+ initiative stands as a prime example of what I think a success story achieved by the close of Horizon 3 could look like. Here, multiple parties collaborated to experiment with innovative concepts within a Rotterdam neighbourhood. Joosse-Bil and van Buuren's (2020) examination of Reyeroord+'s operational processes underscores the pivotal role of program direction in guiding synergistic and complementary undertakings. Rapid realization and follow-up of these tasks are essential, ensuring a build-up of successful outcomes.

This outcome aligns well with my recommendation to VONK about undertaking these activities within Horizon 3. Another dimension introduced by Joosse-Bil and Buuren is the transformation of these activities into narratives. By presenting these success stories to influential figures like managers or other decision-makers within the municipal domain, these narratives act as tangible evidence of the efficiency and efficacy of the new method employed during horizon 3 activities. This insinuates that as Horizon 3 is approached, VONK should prioritize regular showcase events, communicating the progression and outcomes of user activities to the wider management echelon.

However, the autonomy with which parallel projects are conducted by connectors in collaboration with VONK warrants scrutiny. Drawing on findings by (Van Meerkerk, Kleinhans, & Molenveld, 2018), there's an indication that successful civilian initiatives, much like those seen in Reyeroord+ and potentially in VONK's purview, benefit from some form of institutionalisation. The revelations from the research could challenge the purely facilitative stance of VONK, hinting at the potential need for a more product-ownership role.

An integral aspect highlighted by Van Meerkerk and colleagues is the necessity of fusing strong social capital with a robust business model for enduring innovative projects. While Horizon 1 lays the foundation for cultivating social capital, it's imperative that this momentum continues in subsequent horizons. Van Meerkerk et al. further pinpoint the role of entrepreneurial leadership in reinforcing social capital and steering it towards project realization and solid business modelling. This perspective resonates with Rotmans' emphasis on the municipal need for genuine, unifying, and assertive leadership. The nature and form of leadership that VONK aspires to provide or encourage amongst connector groups deserves deeper introspection.

Interestingly, the concept of using success stories as business cases emerges prominently in Horizon 3. While this doesn't necessarily imply a monetary focus, it echoes the insights from the prior chapter and Rotmans about the strategic essence of implementing changes in a municipal setting. Engaging and leveraging the right

stakeholders is paramount to this 'game' of municipal transformation.

Within this horizon, VONK's role is instrumental in assisting connector groups to actualize their projects. This could entail creative stimuli, such as organizing workshops in maker labs or introducing them to emergent technologies. While this graduation project hasn't delved deeply into proven methodologies, VONK can harness my research and insights on stimulating making and innovation.

Furthermore, Rotmans (2022) emphasizes the value of civilian understanding for agility in municipal projects. Integrating civilians into the interactions amongst connectors during this horizon could be a game-changer for VONK's transitional goals. Both my expert interviews of the preceding chapter and Thoring's (2019) research found in chapter 1 corroborate the essence of external inclusivity, be it through field testing or probing external stakeholders beyond VONK's immediate municipal sphere.

Discussion: Horizon 4

The research by Joosse-Bil and van Buuren (2020) suggest a duality within the Reyeroord struggle which I think also applies on the activity of setting a big celebratory goal in the 4th horizon. They state that on the one hand "an experiment requires peace and space to discover new ways of working. Early pressure to perform and achieve visible results can hinder experimentation. On the other hand, it can benefit from the positive attention that comes with recognition and perhaps also the resources to grow. And if a municipal experiment wants to become the standard instead of the exception, then, in the long run, this requires a political choice. Thus, operating in the background also comes with risks."

The benefit of setting such a big goal is clearly apparent from my expert interviews from the preceding chapters, but is also confirmed by Rotmans (2022), who mentions the important of thinking big, but acting small and celebrate along the way. Which is exactly the type of activities that I advocate for in this horizon. Rotmans concluded from his research on transitions that change arise from people that do things that others didn't know where possible. And showing that a lot more is possible than the majorities think, removes the common feeling of powerlessness, that Rotmans thinks is a major barrier for civil servants to start acting to facilitate change.

Such a big goal as I propose VONK will strive towards hasn't yet been set. Maybe that is for a reason, because VONK wants to focus on the process, not on results. A big goal can remove some flexibility within your practises. But in my expert interviews I recognised a clear benefit in two projects. Reyeroord+ had the inevitable deadline of the sewer replacements, which was their biggest motivation of acting quickly, because it was a unique opportunity to implement innovative concepts. Hof van Cartesius in Utrecht has one big statement: building with 90% circular materials. Both

goals strongly limit the project, but in those limitations these projects flourished and creativity and innovation was boosted. Furthermore, in the expert interview with the workshop organiser, the timelimit also was one of the most relevant factors stimulating the participants to step out of their comfortzone and use creative problem-solving skills. So I think that whatever the goal is, a goal would help boost all the activities in the other horizons. Besides it makes explaining VONK to new people a lot easier: We are an innovation sector and have work towards a big celebratory event, showcasing success stories where compartmentalized projects worked together with innovative approaches, facilitated by us and our innovation network.

Discussion: Horizon 5

The most important note on this horizon is that after the 4 event and maybe after every horizon, VONK needs to perform an extensive evaluation on the process they went through, because I think cycles of 5 years are too long. But to shift to a yearly cycle, including all the first 4 horizons, the processes done in each separate horizon need to be streamlined and executed in parallel instead of consecutive.

Secondly, VONK's role during these year-spanning activities is guiding and facilitating. This corresponds with their current aim to be a "tourist information center for innovation". The VONK team will not participate in any of the creation of the success stories and maybe not even play a big role in organizing the yearly celebrations. They should strategically foster, facilitate, and guide the members of their network into organizing everything needed to achieve this. The team of VONK should be aware of the pitfall of executing themselves, not only is this in contrast with their vision, but this also is a lot of work and also posing the risk of being compartmentalized themselves, because then they could easily be defined and organised as a free-standing project. This would be the opposite of what I suggest they achieve. An interesting link to two expert insights comes to mind here: "If we succeed, we don't see our users" this was said about a playground and the DIY workshop. If you succeed in exciting your users to act, they are probably not interested anymore in your guidance but want to do something, so you don't see them. This could be something that VONK can take into account, but if they don't see their users it can also mean the users are not doing anything, so checkups are good, but if you know they are excited, not seeing them is a great sign that you as guide are not too involved.

Conclusion: A 5 step roadmap

In conclusion, the strategic roadmap for VONK presented in this master design thesis outlines a comprehensive and iterative journey towards fostering innovation and overcoming compartmentalization within the municipal ecosystem. The four distinct horizons proposed in the roadmap provide a structured approach to guide VONK's efforts and actions, gradually steering the organization and its network toward a transformative state of enhanced collaboration, creativity, and value realization.

This roadmap is the blueprint for playful concepts presented in the next chapter.

Horizon 1 sets the stage for VONK's search for 'connectors' within compartmentalized projects inside the municipality. By focusing on individuals who recognize the negative effects of compartmentalization and are eager to address them, VONK can gather a core group of enthusiastic people who are poised to drive change and facilitate connection between projects.

Horizon 2 emphasizes the importance of teaching these connectors how to combat compartmentalization. The establishment of a network of innovative individuals who share insights and learn from each in addition to co-existing with VONK's current Innovation Network Rotterdam. In this stage the newly found connectors can be also connected to relevant people in the existing network. VONK's role in guiding experimental interactions and fostering a culture of trust and freedom is crucial during this phase.

Transitioning to Horizon 3, the roadmap directs VONK towards guiding projects towards complementation. The established network of connectors, facilitated by VONK, now focuses on turning their projects into successful case studies. By nurturing collaboration and integrating external perspectives, VONK helps drive these projects towards becoming valuable assets within the municipal ecosystem.

Horizon 4 marks a significant milestone where the success stories from Horizon 3 are showcased and celebrated. This serves as a tangible demonstration of the innovative processes and collaboration facilitated by VONK. The celebration aims to capture the attention of a wider audience within the municipality, encouraging more widespread adoption of the approach.

Looking ahead, Horizon 5 envisions an annual celebration of innovation, effectively producing successful showcases to be part of a recurring event. The roadmap acknowledges the need for continuous evaluation and adjustment, advocating for shorter cycles and parallel execution of processes from previous horizons. Throughout all phases, VONK's role remains one of guidance, facilitation, and strategic leadership, enabling the network to take ownership of the innovation process.

The proposed roadmap aligns with insights from expert interviews, scholarly research, and practical case studies, offering a cohesive strategy for VONK's transformational journey. By fostering creativity, breaking down compartmentalization, and leveraging the power of collaboration, VONK has the potential to become a pivotal force within the municipal ecosystem, because the problem of compartmentalization is not well enough addressed according to the experts I've interviewed. As the celebration of innovation becomes an annual tradition, VONK's efforts may pave the way for a more agile, creative, and interconnected municipal environment in the years to come.

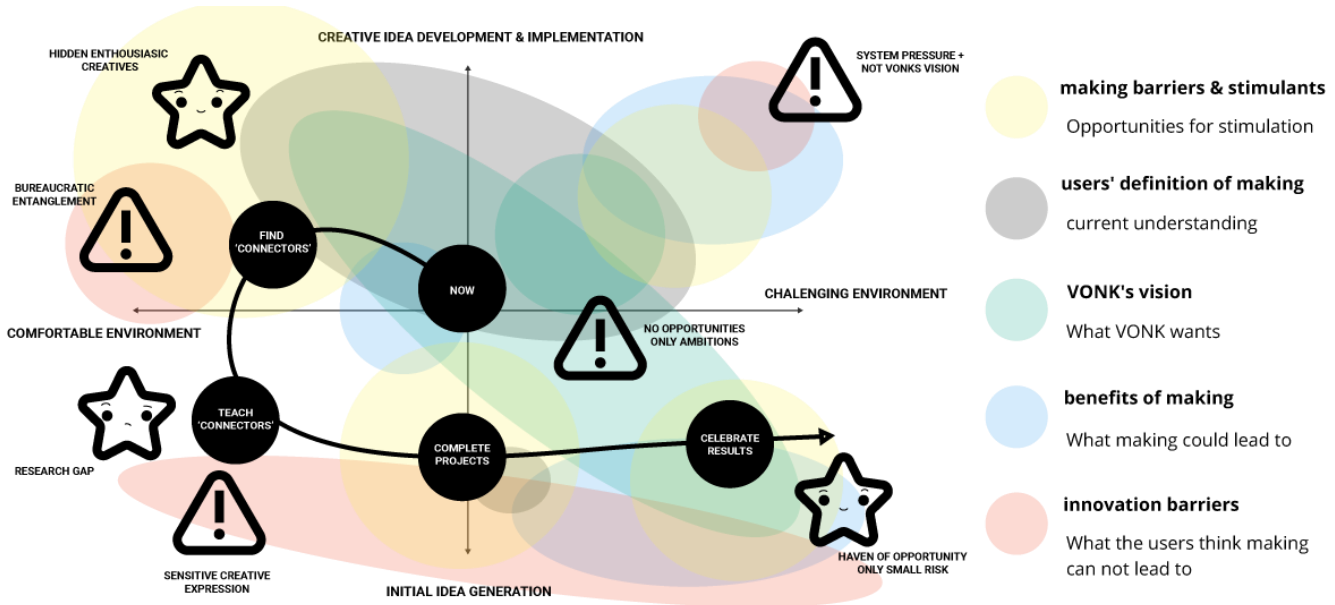


Figure 39. The suggested roadmap. see how the horizons work towards opportunity stars, but avoid dangerous barriers. And the direct route towards the end is blocked

4.2. DESIGNING IMPLEMENTABLE CONCEPTS FOR ACHIEVING THE PROPOSED ROADMAP

Introduction

The horizons described in the previous chapter are still quite abstract, in this chapter I describe ideas which suggest specific actions that the team of VONK can perform to get to these horizons. These are just initial ideas, but I did try to tailor them to the team of VONK.

Method: Idea selection

The upcoming chapter will aim to associate specific ideas with the various horizons identified in the roadmap. These ideas are intended to serve as concrete actions for the VONK team to implement if they decide to follow the roadmap. However, it's key to keep in mind that these are mere exemplifications of possible strategies, based on my interpretation of various expert insights.

For this purpose, I interviewed a total of nine experts, each from unique settings and contexts that inspire creativity and innovation outside the municipality. These individuals represent an array of environments where 'making' is a key aspect.

- Expert 1 & Expert 2: These two experts hail from public makerspaces, creative hubs that offer community access to tools, technology, and knowledge. Expert 4: From an educational

makerspace, this expert has insights into how 'making' can be integrated into the learning process.

- Expert 5: As a host of creative workshops, this expert provided perspectives on how to organise and stimulate creativity in a group setting.
- Expert 6: An expert on 'play,' who furnished valuable insights on the role of playfulness in the creative process.
- Expert 7 & Expert 9: Both of these experts operate within makerspaces for children, where they inspire and guide young minds to engage with making. Note that for reasons such as commercial confidentiality, Expert 9 chose to exclude their full interview transcript from this research.
- Expert 11: This expert is part of an innovative community in Utrecht, known as the 'melting pot', focusing on circular building methods.

Furthermore I plotted all my 133 ideas also on the framework in clusters, to find which ideas potentially matched with horizons, then I chose some ideas based on intuition to be suggested the basis of my final concepts for the horizons. I deepened this basic ideas with insights from the expert interviews and visits to their respectful locations. The idea clusters that didn't match up with any horizons where included in the suggestions for further research.

During the process of idea selection and development, my focus was on ensuring that the ideas were firmly rooted in the principles of play as established in my

theoretical analysis. This alignment was intentional, aiming to ensure that the concepts not only exuded a sense of playfulness but also conformed to my hypothesis.

My ideas emerged from my initial research on play. Keeping the essence of play in my forefront during the ideation stage allowed for a natural connection between the concept of play and the ideas generated. This ensured that the playful element was inherently embedded within them.

A significant component that enriched my ideation process was the visits to various inspiring locations. In total, I visited nine inspiring places.

- Stadslab
- Studiolab
- Ontdekfabriek
- Bouwkeet
- Hof van cartesius
- Maakplaats 010
- Keilewerf
- De Kroon
- Doe het zelf werkplaats

Out of these, at seven locations, I had the opportunity to engage with representatives who shared invaluable insights. These representatives were integrated into my study as the experts mentioned earlier. Besides the informative conversations, these visits were often complemented with tours. The observations and knowledge garnered during these visits played a pivotal role in shaping and inspiring my ideas.

To capture insights of these visits I utilized the following tools

1. A Camera: This enabled me to consistently document creative sessions and inspirational elements encountered during my visits. These images served as visual reminders of key moments and concepts.
2. A Microphone: I used this to record my thoughts and interviews, facilitating later transcription and analysis. This auditory capture allowed me to revisit and study my real-time responses and interactions.
3. A Booklet with Notes: This booklet was divided into sections labeled with three identifiers: insights, ideas, and know-hows. Periodically, I reviewed these notes, integrating them into categorized lists, such as ideas, assumptions, questions, contacts, and literature references. This structured approach aided in tracing the origins of specific thoughts and ideas.
4. Atlas.ti Software: Finally, I utilized this qualitative data analysis tool to store all my notes and transcripts. The coding feature allowed me to

organize the data and view transcriptions alongside the corresponding audio, thus enhancing my ability to interpret and synthesize the information.

To offer a glimpse into these explorations, I've included photographs from my visits in the section below.



Figure 40. De Ontdek Fabriek in Eindhoven



Figure 41. Studiolab in Delft



Figure 42. Het Stadslab in Rotterdam



Figure 43. De Doe Het Zelf Werkplaats in Rotterdam



Figure 44. Maakplaats 010 in the Rotterdam central library

Method: VONK review

In this section, I detail the methodology adopted to understand VONK's perspective on my proposed ideas and the subsequent refinement of these ideas for the strategic roadmap.

Co-Creation Session:

I orchestrated a co-creation session, inspired by the one outlined in Chapter 2 of my theoretical framework. The aim was to superimpose VONK's views onto my tier-ethical framework. In the session, I addressed all four quadrants of my framework, discussing the potential opportunities within each. The objective was to understand which tasks VONK members felt enthusiastic about within the full theoretical context.

Session Warm-Up:

To set a positive tone for the session, I initiated a warm-up activity. Each member was prompted to describe a significant project they felt proud of and believed encapsulated VONK's mission. This was designed to jog their memory on the tasks they had undertaken in those projects and which tasks they enjoyed. This exercise was instrumental in helping them contextualize and respond to my subsequent questions.

Quadrant Discussion:

For each quadrant of my framework, participants were given five minutes to jot down tasks they believed were both enjoyable and beneficial for that specific quadrant. These insights were pivotal in gauging their natural inclinations and preferences.

Analysis and Idea Selection:

I meticulously analyzed the transcript from this session, linking the insights to my original ideas. This connection was vital in idea selection; if a concept resonated with a task that a VONK team member found engaging, I anticipated a higher likelihood of its execution. This approach ensured the selected ideas weren't merely personal favorites but had practical resonance with the VONK team.

Further Refinement through External Research:

In addition to my session insights, I incorporated research conducted by Lucy from the Erasmus University of Rotterdam, the resident researcher of VONK. Analyzing her research, I connected certain elements to my ideas, adding a fresh perspective on VONK's processes and working style. This in-depth understanding substantially assisted in fine-tuning my ideas to align more closely with VONK's observed practices, processes, and team preferences. In conclusion, the methodologies employed in this research were geared towards enhancing the potential for my ideas to be integrated into VONK's operations, ensuring they are not just theoretically sound, but practically implementable.

Results: IDEAS

Idea 1.1 Tactical war room

A board where you will collect as many projects as possible and key figures within them, like a kind of evidence board, reflecting how you want your users to work. It also acts as an advanced experimentation space in that context. Keep track of the playing users because if they're playing you don't see them. So come up with something to still be up to date on their progress. Regularly update this evidence wall with monthly strategic sessions focused on this specific goal.

A digital version of this idea would be ideal for easy knowledge retention, but a physical board would be more playful. Considering physical play a corque board for example would invite to thick things in, so you need to reach for a specific spot. A physical board would also invite for the use of undefined objects, including string to visualize connections or lego to illustrate people. A far

stretch would even be using AR to add a digital layer and utilize play's interplay between reality and imagination.

Idea 1.2 Create an event

Invite specific people to create something together at VONK by VONK, then needs and ownership will naturally arise. Perhaps even include additional parties besides officials who have a problem to deal with.

Play is fundamentally socially connective according to Huizinga (1955), so in that sense bringing together these different people in a new environment is quite playful. Then the only thing left to do to stimulate play is to carefully experiment with the freedom-guidance balance. For example, give a very broad task and a wide variety of inspirational materials, but let the group free in how they spend their time. In such an event VONK should think about the purpose of the event, because experts and users highlighted that activities need to have a certain purpose in line with the users' daily activities, for them to be motivated to participate

Idea 1.3 Share stories

First find out what your target audience's favorite medium is and tell a story about innovation in all its forms and colors, containing elements of your scope and giving the target audience inspiring hooks to take action, which are reflected in your space.

VONK could for example think of certain themes to discuss or a medium to use and then invite people in their network to create a story, in any way they like, because play is end in itself. VONK then again would experimentally test the freedom-guidance balance in this assignment. They could even create a simpel platform to share stories, similar to a guest-book, this would be a slight gamification for this idea.

Idea 1.4 Useful making

Find out what your audience wants badly, like a bike to a kid. This object should empower them to fulfill their envisioned role of innovator and connector within their team. Then openly display the needed materials for that cause, maybe even in a mobile way. Or offer people the chance to use an essential product or material that doesn't fit within the limitations (e.g., budget, space, time) of their own project. This is a quite literal translation of the benefit of undefined objects in constructive play, discover what the user wants and supply them with materials that enable them to create what they want themselves. It also is connected to imaginative play, help the users dream about what they want and what impact that thing would have on their project.

Idea 2.1 Training expert guidance

Guidance is essential to help people create, as evidenced by the examples I've visited. The discovery factory distinguishes two types of people in their guidance, and the construction shed has a methodology that also focuses on soft skills. I recommend that the VONK team starts following training in this. A kind of VONK guide

academy, fixed moments for self-education to learn to support complex needs from horizon 1. Aim for one professional spearhead based on your scopes and enthusiastic guidance from the VONK team; it's not that hard. So try to create experts in the zones found in hor. 1.

To boost motivation I would let the team free in what form and what specific focus they apply to the trainings they attend to. For example they could also follow a woodworking workshop, if they think that is relevant in guiding the connectors. This again is a matter of the freedom-guidance balance of play and the fact that play is end in itself. The team of VONK itself should have fun and not feel obliged for these trainings, because how can they teach their users to be playful if they don't feel passionate about what they do?

Idea 2.2 Deliberate User subscription

Find people that deliberate want to join VONK's mission and bind themselves to VONK. These people would actually become some sort of members and also share responsibility with the activities of VONK. Some experts showed the benefits of offering the users the deliberate choice to join the 'club'. It gives sense of community and projects responsibility on the users, which can be a motivation to act. The onboarding of these people could be gamified, but essential is that these people subscribe because they think is fun, if they join for a specific purpose that threatens playfulness.

Idea 2.3 Spatial ambiance

Play with spatial design elements, some of which are listed in the idea list in this report, like music or entrance, to direct the ambiance of VONK's first-floor space more towards the goal of connecting people. This is an obvious change to use ambiguous materials to ensure a playful quality in the ambiance. I would avoid purposefull things or suggestiveness from the space and consider the different types of play. For example, create a space which leaves room for imagination with art or other inspirational materials or a space with things like balance boards, ladders, tactile walls, things that invite for body play.

Idea 2.4 VONK academy

Build well-structured, time-bound playful workshop programs that teach interested users the new mindset of connecting projects together. Consider the different types of play and the freedom-guidance balance during these workshops. This can range from a workshop of an hour to workshop programs of multiple sessions. Focus on quickly applying the innovative process to solve compartmentalization issues on a set of existing different use cases. Don't offer huge programs, but a maximum of a few weeks. You can offer these workshops in your network, place them on Sofie, or even invite specific targeted people. This is where your guiding preparation is utilized.

Idea 2.5 Seek Interesting Collaborators

As an extension of those workshops, you can expose potential or enthusiastic groups to an external party. Push them to go outside or invite role models or experts from the network to also participate in the innovative process. You can do this explicitly by organizing a session or implicitly by inviting that influential party separately and hoping for natural cross-pollination. Going outside has a big change of naturally stimulate play, because natural elements and the outside are fundamentally ambiguous (Wardle, 2000). You can also utilize techniques like 'identity-swaps' where the users apply social play and body play to perform some kind of empathic role play.

Idea 3.1 Present stories

Let users pour their experiences into any communicative medium and display these presentations on the VONK website, physically, on RIO, or any other social media-like platform. As much freedom as possible, but support them with ambiguous materials, inspiration or necessary equipment, playfulness and fun for the users is essential in this idea.

Idea 3.2 Co-Innovation event

Organize larger events where end/intermediate results are presented and openly discussed between deliberate users. You could organize different events for each theme or structure one larger event into themes with different 'stages.'. The events can be slightly gamified, but you can also try to stimulate cognitive/mind play and also provide the users with quiet and introspective space where users can reflect themselves. In such an event the playful tendency to switch between reality and imagination is the main things to focus on, because in the event you are discussing things which are not real yet, but can become.

Idea 3.3 Project management

A/the team in VONK manages projects that connect compartmentalized projects. They organize regular sessions, inviting different people to look at that project-problem. Eventually, committees might arise to do this, instead of the VONK team. The users still help the project from their expertise, but VONK facilitates the overarching process.

Idea 3.4 Knowledge retention

Create a method in which the knowledge generated from these separate workshops is retained in a way that the key takeaways can easily be used in future workshops and can be communicated towards key figures in the organization.

Idea 4.1 VONK festival

A yearly festival showcasing all success stories from VONK's workshops and projects, illustrating the value of connecting projects together, and inviting all civil-servants to witness and discuss the results of that year. Such a festival is an ideal event to include all different types of play and the feeling of freedom is essential to

any festival. Also, in essence a festival is a social event, connecting it to the fundamental social character of play.

Idea 4.2 VONK immersive cinema

Showcasing successful projects in a (VR) cinema, where selected project stories are shown in a feature or documentary film style. Implicitly these movies inspire the audience, preferably unrelated to VONK's regular user base, about the value of creativity and connecting projects together in this way. The props used in the movie can afterward be seen, touched, and experienced inside VONK. Such a cinema could strongly stimulate the delicate interplay between the real and imaginative world for the users. You can even implement some actual theater, as a form of dramatic play.

Idea 4.3 VONK yearly challenge

VONK invites its entire user base, primarily focused on those who actively participated in the workshop, to embark on a challenge connected to their scope and connecting impactful projects together in a more disruptive way. The challenge holds a clear principle to be used in the submissions, similar to Cartesius's "90% circular building materials," culminating in an award event, inspiring many people. This idea mainly depends on a form of gamification, so VONK should carefully think about what the boundaries of the game is so there is still room for free-play. By including some kind of currency the teams can use to use as a 'financial' source in their challenge can enforce the reality-imagination balance of play and even be a game boundary (like you can use limited amount of material, which you can 'buy' from VONK). I think during this challenge VONK should also focus on stimulating the different kinds of play within the teams.

Discussion: Reviewed ideas

Idea 1.1 Tactical War Room

we learn about the confirmation of the forward-looking perspective and the roles of 'missionary'/'ambassador' (73:16 and 75:29). VONK also acknowledges that establishing long-term relationships with people attracts more individuals (75:40). The evidence room aims to explore how to attract users (75:37) and put it into action effectively. They are currently sporadically acting as missionaries, referring to it as 'planting seeds,' but there is no systematic tracking of these specific connections or where the 'seeds' have been planted (75:40).

Lucy's research adds an important aspect (79:1), suggesting that they should first consider their own identity, which can also be discussed in this war room before establishing connections. Hence, this identity should determine who appears on the evidence board and provide reasoning for their inclusion. The proposal is to include compartmentalization as part of this identity, alongside the scope focused on societal transformations, which already defines their existing identity. Additionally, the research revealed that exploring the gray zones within the organization unnoticed, metaphorically

described by VONK as being a 'loyal heretic,' is the most exciting and enjoyable aspect (79:11). This serves as an extra reason to develop and document this identity on the board.

To truly make the war room an interesting, exciting, and insightful space with guaranteed oversight, it might be a good idea to use their large digital smartboard instead of post-its.

Idea 1.2 Create an Event

the idea of a "maak event" (create event) is recognized, where people come together to observe natural needs that arise, although not explicitly mentioned in VONK's responses. They did express enthusiasm for conducting interviews and observing users (75:26;75:27). They also acknowledged the positive correlation between having more users and serving them well, leading to attracting even more users, especially in the context of creating (75:38).

However, this idea contradicts the fact that they want to acquire more users before feeling confident in thoroughly researching the specific needs of each user (75:38). Hence, it is crucial to remain relatively abstract at this stage and avoid directing the participants towards specific activities.

The notion of bringing people together remains essential, although it wasn't mentioned in the tasks listed by the VONK team. It could be transformed into conducting interviews and observing users, aligning better with the team's current approach, and can be combined with the following idea. Moreover, it is emphasized that the focus should be placed on a specific user during these activities.

Idea 1.3 Share Stories

we learn that, as mentioned in Lucy's research, it is essential for VONK to persuade unfamiliar individuals to get involved with their cause (79:18). The VONK team takes pride in the mere existence of VONK (75:4). They have already mentioned several ideas for sharing what happens at VONK, including "Wist je datjes" (Did you know) (75:34), an online poll in a fun newsletter (75:23), and data visualization (75:25). These can be implemented using the stories they currently possess. However, once those stories run out, they can conduct interviews and visits with specific users, as suggested in idea 1.2.

To make these stories impactful, it is crucial to mention VONK's goal of countering compartmentalization and include a corresponding Call to Action (CTA). Lucy's research also highlights that PR can reflect interactions with various societal transformations (79:3), which also play a significant role in finding stories for this idea, as available on the evidence board.

Idea 1.4 Useful Making

the session did not cover any specific details about "Useful Making," and while the VONK team might have a few ideas, they were not highlighted as primary tasks. Therefore, it might be wise not to prioritize this aspect initially to avoid potential process stagnation. Instead, it could be left to emerge naturally as a need during the process. When the need arises, the ideas you have collected can serve as a valuable resource to further facilitate the implementation of "Useful Making."

Idea 2.1 Training Expert Guidance

it is mentioned that the VONK team currently does not engage in the aspect of training expert guidance, but they showed enthusiasm for it during the session. As previously mentioned (75:26), they are already eager to accompany users, providing support to alleviate feelings of insecurity (73:8). Moreover, they find fulfillment in supporting creative processes rather than process-oriented support (73:13).

Based on Lucy's research and the team's inputs, several key themes are crucial in VONK, forming the foundation for the guidance provided. These themes include enthusiasm (79:7), managing information overflow (79:10), building reliability (73:3), and addressing the fear of failure (73:2). In designing the guidance training, these elements would be integrated to steer the training effectively.

One team member also expressed interest in assuming the role of a user and having the freedom to pursue their own interests. The atmosphere at VONK already supports this freedom (75:5). Hence, self-development would be an essential component to incorporate into the guidance training.

Idea 2.2 Deliberate User Subscription

it is observed during the session with VONK that their network already functions as a form of deliberate user subscription, despite not explicitly mentioning the idea of binding users. Lucy's research also emphasizes the value of this approach, as it strikes a balance between offering consistency and embracing the unknown, necessitating the seduction of the existing network to take action. One potential idea to strengthen this effect is through the implementation of open badges (72:24), although it has not been fully realized yet, it holds potential.

Additionally, the session highlighted interesting points about identifying specific users. These points would be valuable additions to the evidence room, not only to guide the search for new users but also to verify whether the current targeted individuals align with the envisioned user profile.

These specific users include:

- Individuals who push the boundaries, seeking ways to do what they want, either at the edge or just beyond the existing frameworks (73:25).

- People who dare to be vulnerable, standing firm in their beliefs and knowing what they want (73:24).
- Ambassadors, individuals who advocate for VONK's vision beyond the confines of VONK itself (75:29).

However, I think this idea has a big risk of not being playful, because it is quite purposeful and sets up boundaries for the users in the form of responsibility.

Idea 2.3 Spatial Ambiance

various ideas were discussed during the session to address the spatial ambiance at VONK. Some of these ideas include occasionally playing music (73:10), improving the accessibility/entrance (73:1), projecting reliability and professionalism (73:3), and maintaining a constant presence (73:8). It is suggested to work on enhancing the spatial ambiance, as this aspect is already being addressed to some extent, but without specific goals. Hence, it should serve as an ongoing background consideration rather than a standalone task at a specific moment.

This team's positive attitude towards adapting and improving the spatial ambiance can be effectively utilized when specific needs arise throughout the entire process of this roadmap.

Idea 2.4 VONK Academy

Lucy's research confirms VONK's need to transition to action (79:2), making this step crucial to work towards promptly. The team exhibits great enthusiasm towards organizing workshops (75:32) and acknowledges the power and struggle of being in a creative flow (73:21). Among their most successful projects, they highlight the hackathon's achievements, which brought together diverse individuals from various backgrounds, encouraged building tangible outcomes, centered around a clear overarching theme, and had significant post-event impact (75:7). These parameters not only serve as exciting elements to incorporate into the idea but also demonstrate the relevance of linking these workshops to a broader goal (VONK's scope) and ensuring they have a lasting impact, as proposed in this roadmap (horizons 3 and 4).

Lucy's research also mentions that addressing major societal transformations in VONK's programming is essential (79:3), and VONK could assume a role as a "Dungeon Master," providing frameworks in games (79:8).

Thus, the suggestion is to indeed organize workshops, where VONK adopts the role of a "game leader" in a reasonably unstructured yet well-prepared "game" to stimulate people's creative flow. The workshops will bring together individuals from diverse backgrounds, encouraging them to create/think within an overarching theme aligned with VONK's scope and the roadmap's suggestion of preventing compartmentalization. These workshops are not isolated events but are followed up and connected in the subsequent horizons.

Idea 2.5 Seek Interesting Collaborators

In this text, it is evident that the VONK team already exhibits a proactive approach towards searching for interesting people outside their current network. Their interest in exploring other places within the innovation ecosystem (75:33), actively inviting people to contribute their knowledge and connecting it to users (75:30; 75:31), seeking specific resources/tools and specialists (75:24), and their past successful collaborations and positive experiences involving residents in projects (75:16) all demonstrate this characteristic.

This idea is further validated by Lucy's research, which emphasizes the significance of creating synergies to combat societal fragmentation (79:20).

Considering these factors, the idea of seeking interesting collaborators is indeed commendable and well-aligned with VONK's existing approach. It would enhance their potential to foster beneficial collaborations and generate innovative solutions, further supporting the overarching goal of preventing compartmentalization as per the roadmap.

Idea 3.1 Present Stories

The idea of presenting stories is scarcely mentioned. It is briefly touched upon in the team's desire to make VONK a place where it's acceptable to showcase failures and the iterative innovation process explicitly (73:5). While the presentation of user processes is deemed important, it appears to be more about fostering a desired culture rather than a specific need for focused presentation.

Considering this, it could be beneficial to incorporate the concept of presenting stories within the broader ambiance and culture described in idea 2.3. By making it a part of the overall atmosphere at VONK, showcasing both successes and past "fuckups" as part of the iterative innovation process can naturally become an integral aspect of the organization's culture.

Idea 3.2 Co-Creation and Connecting Actors

The benefits of co-creating (79:5) and connecting different actors (79:13) are affirmed in Lucy's research. However, organizing reflection or connection events is not extensively mentioned in the tasks listed by the VONK team during the session. While VONK has already organized networking gatherings, the specific event idea related to reflection might not perfectly align with the team's desired tasks.

Despite this, it is evident that reflection is crucial, as emphasized by Lucy's research, the team's input, and their focus on post-event impact (75:7). Therefore, suggesting further research to explore the significance of reflection and connection events would be valuable. By understanding how these events can complement the team's objectives, it may pave the way for more effective implementation in the future.

Idea 3.3 Project Management

Lucy's research emphasizes the value of VONK's satellite role, where they maintain an overview and observe unknown zones from a high-level perspective (79:14). Additionally, VONK recognizes the importance of professional and seamless facilitation of change (73:4), which could involve providing financial support for specific project components (73:9) or approaching projects from the perspective of a "user" team (75:28). These aspects indicate that the team takes on a facilitative role that closely aligns with the tasks of the users.

Hence, considering this alignment, the idea of project management could indeed be intriguing, particularly when dealing with more complex projects at VONK. This approach would allow VONK to efficiently manage and guide projects, leveraging their facilitative capabilities to drive successful outcomes.

Idea 3.4 Knowledge Retention

The team of VONK did not mention the task of knowledge retention, despite its multiple mentions in Lucy's research. Lucy highlights the significance of inspecting both big and small projects to determine which lessons should be secured (79:24). Additionally, the research suggests a two-sided role for VONK, acting as a filter to prevent information overload for the users (79:22), while also combining existing information to draw relevant conclusions (79:6). These findings demonstrate the relevance of knowledge retention for VONK's processes.

However, since the team did not address this task specifically, it is essential to further research and explore the topic to identify a specific concept or task that aligns with the team's competences. As a result, the idea of knowledge retention is part of the further recommendations for VONK to delve into and potentially integrate into their processes. I also couldn't come up with a playful translation of this goal yet.

Ideas 4. VONK Festival, Cinema and Challenge

specific ideas were not explicitly addressed by the VONK team, but they align with various aspects of Lucy's research. Enthusiasm, playfulness, and joy should be the guiding principles (79:7), making them ideal for the proposed festive events. Additionally, breaking away from risk-averse patterns, explicitly showcasing "risky" projects to people who wouldn't typically see them, aligns well with VONK's aim to challenge risk-avoidant behaviors.

Furthermore, a team member highlighted the value of humor in their approach, which could serve as an excellent foundation for the events described in this horizon. The mentioned idea of creating a "Speld" for the municipality (73:6), a satirical online news magazine in the Netherlands, could be adapted into a platform where compartmentalization and its resolution at VONK are humorously or even self-ironically discussed and questioned.

The concept of awarding VONK knowledge badges (75:41) to users who achieve certain milestones within VONK, in the form of badges or stickers, complements the "yearly challenge" idea well.

Considering these factors, a magazine variant combining elements of the cinema idea and the yearly challenge concept appears to align well with the team's competencies and interests. The other two ideas, while not unsuitable and aligned with important aspects from Lucy's research, would require further revision if VONK intends to explore them further.

Conclusion

After a thorough examination of the implementable concepts for VONK, I've identified several ideas that I believe hold the most potential for the organization's journey towards its vision.

Firstly, the concept of **Co-Creation and Connecting Actors** resonated deeply with me. During my observations and visits, I consistently found that projects flourish when they involve a multidisciplinary team. The integration of external opinions and a genuine grasp of the civilian perspective significantly elevates the quality of such initiatives. This approach not only aligns with what VONK is currently doing but underscores the need for VONK to be discerning in its projects. By ensuring that the external influences invited are relevant and purposeful, we can ensure that the co-creation process is both effective and meaningful.

Furthermore, the notion of **Project Management by VONK**, where we oversee projects that bridge compartmentalized initiatives, struck me as particularly promising. Given the complexity of certain projects, having a dedicated team or individual from VONK to manage and provide an overview can be invaluable. This not only ensures that projects are streamlined but also aids in connecting various stakeholders, aligning with the essence of Horizon Three.

For the fourth horizon, I'm particularly excited about organizing an event, possibly a festival or business fair. By setting up stands or showcases where successful projects are displayed, VONK can easily and effectively showcase its achievements. Such an event, while straightforward to organize, can be impactful, drawing a wide audience and expanding VONK's network. This aligns perfectly with the objective of Horizon 4, which is growth and expansion.

Incorporating the insights from my inspiring visits, it's evident that the presence of diverse viewpoints and the process of co-creation can catalyze growth. By focusing on these ideas and tailoring them to VONK's unique context, I believe we can pave the way for a more interconnected, innovative, and vibrant municipal environment.

5. CONCLUSIONS, SUGGESTIONS AND REFLECTION

5.1. Conclusions

Evaluate three struggles and hypothesis

Reflecting upon the entirety of my project, it's essential to evaluate how my efforts have addressed VONK's three primary struggles and the hypothesis set forth in the introduction.

Addressing the First Struggle: Active Participation

The initial challenge was the lack of active participation despite VONK's robust network and enthusiasm. My prototype showed promise, with increased traffic and utilization of the space during my tenure at VONK. However, the real key to fostering active participation, as revealed by my research, is applying a targeted focus. This focus, termed "compartmentalization," provides individuals with a clear understanding of VONK's objectives and a purpose for their interaction. It's evident that merely providing tools or facilitating doesn't necessarily boost participation. Instead, setting specific goals and selecting the right individuals can lead to more active engagement. The elements of play I've defined could then be employed to shape these participatory activities.

Addressing the Second Struggle: Community vs. Team Initiative

Currently, VONK predominantly drives initiatives, whereas the ideal scenario is for the network itself to take the lead, with the VONK team playing a facilitating or connecting role. This challenge is addressed by the horizons I've established. VONK's role should be to identify and connect individuals, allowing them to drive innovation. This aligns with the core principle of play, which emphasizes a balance between guidance and freedom.

Addressing the Third Struggle: Professional Growth, Creativity, and Perception

VONK is currently grappling with the need for structure and professional growth while balancing creativity with its predominantly analytical audience. This challenge can be addressed by aligning the team towards a unified goal, such as compartmentalization or the VONK festival. My user research offers valuable insights into the clash between creativity and analytical thinking, providing a roadmap for VONK to navigate this complex terrain.

Revisiting the first struggle, insights from my expert interviews and visits to inspiring locations are particularly relevant. VONK can learn from existing models that successfully foster active participation.

Addressing the Hypothesis

My hypothesis posited that the absence of playful activities in VONK's challenging environment, where creative and analytical thinking intersect, leads to a lack of active participation and community initiative. While I provided insights into the impact of play on innovation, I

couldn't conclusively demonstrate that play significantly influences innovation within VONK due to limited testing. However, the potential of a playful atmosphere is undeniable, as supported by my literature research on play. Experimenting with the play-rooted ideas I've developed could be a starting point to test the impact of playful activities on innovation.

In conclusion, the direction resulting from my user research, particularly focusing on the bottom right of my theoretical framework, is crucial for VONK. The horizons I've proposed offer a roadmap to achieve this direction. VONK should prioritize this focus and consider implementing my ideas, all of which are grounded in user research, an area they haven't extensively explored yet.

Evaluation of assumptions

Theme 1: Organisation

Analysing/managing creativity as innovation shows performance benefits: In my research, I found that the roadmap's horizons are pivotal in outlining the management process. By pinpointing innovative individuals and orchestrating the connection of parallel projects, I was able to align creativity with innovation within VONK. This alignment potentially offers performance benefits. The challenge I faced was managing creativity within VONK, especially given the municipality's dominance by policy-thinkers. However, by effectively overseeing this creativity, I ensured that innovation became more relevant and seamlessly aligned with the municipality's overarching goals.

Theme 2: Things

People need certain stuff to be creative: My findings support this assumption. The roadmap I designed moves towards an environment that fosters uninhibited creativity, equipped with an abundance of inspiration and tools. I observed that the current meeting spaces might not be optimally set up to stimulate creativity, either due to distractions or a lack of resources. The emphasis I placed on creating an environment rich in inspiration and tools in the roadmap reflects the importance of this assumption.

People will be influenced by stuff: My research underscores this assumption, emphasizing the role that a conducive environment plays in the creative process. Every element in a given space, from tools to ambiance, can influence an individual's creativity. The focus I placed on fostering an ambiance of free creativity in the roadmap underscores the significance of this aspect.

Theme 3: People

You need to know who you want to stimulate: My research confirms this assumption. I identified more innovative individuals within the municipality to participate in the innovation process. While it's true that creative individuals might not be as prevalent within the

municipality as in places like keilewerf, by identifying and connecting these individuals, I was able to stimulate creativity.

People need other like-minded people to find

interesting challenges: The starting point of the roadmap I designed emphasizes the mutual support among creative individuals within the municipality. This reinforces my belief that connecting like-minded individuals can uncover and engage with intriguing challenges, fostering the creative process.

Creativity is not obvious in this context: I discovered the presence of innovative individuals within the municipality, some of whom might be unaware of each other and VONK. This suggests there's untapped potential. While creativity might not be as overt within the municipality compared to places like keilewerf, encouraging these individuals to connect can bring forth challenging perspectives.

Theme 4: Engagement

People follow their nose: The roadmap I developed highlights the importance of guiding individuals towards innovation and creativity. I observed that individuals in the municipality are naturally curious, but without clear guidance, transparency, and purpose, they might not fully explore their creative potential.

People need traces of making to hook onto & People need guidance and goals: The emphasis I placed on the roadmap about creating an environment that fosters free creativity, providing clear goals, and ensuring that individuals see the purpose behind their creative pursuits aligns with these assumptions.

People need a purpose: I realized that merely providing tools for creativity doesn't guarantee engagement. Individuals need a deeper reason, a purpose, to truly immerse themselves in the creative process.

In conclusion, the research I undertook provides a comprehensive understanding of the challenges and opportunities within VONK and the municipality. The roadmap and strategies I proposed align well with the assumptions, emphasizing the importance of managing creativity, fostering the right environment, connecting like-minded individuals, and ensuring clear guidance and purpose for all involved.

5.2. Discussion: Recommendation

Suggestion 1: Implement my horizons with regular evaluations

Dear VONK team, I strongly advise implementing the horizons I've outlined in my research. These horizons represent key phases in our journey towards fostering innovation. Specifically, the iterative process of Horizons 1, 2, and 3 focuses on finding enthusiastic individuals,

connecting them, and guiding groups to success stories that highlight the value of overcoming compartmentalization. These horizons are rooted in the principles of play and innovation that I've explored. By integrating these horizons, you can foster a sense of belonging, cultural growth, and overall well-being within the VONK community. However, it's crucial to regularly evaluate your progress to ensure alignment with these horizons and make necessary adjustments.

Suggestion 2: Focus on compartmentalization

Compartmentalization emerged as a significant concern during my research. It's intricately tied to your cause and offers a more specific focus than your current broad approach. If the term "compartmentalization" feels too abstract, consider adopting a more tangible focus like "90% circular materials." Such a focus, while still challenging, provides a measurable goal, unlike the vague directive of "be innovative."

Suggestion 3: Direct stimulation prototyping

Before diving into direct stimulation, it's paramount that VONK establishes an environment conducive to creativity. This involves fostering a culture that celebrates the act of 'making.' Once this foundation is set, you can introduce materials or prompts to further stimulate creativity. However, remember that VONK's mission isn't to become a full-fledged makerspace. Instead, you aim to provide a platform for superficial experimentation, guiding visitors to specialized environments when they express deeper interest.

Suggestion 4: Get managers onboard

Reflecting on the discussions around horizon 3, it's essential to define the kind of entrepreneurial leadership you envision for VONK. Effective leadership is crucial for managing social capital and steering the realization of the business model. Consider instituting roles like an office manager or service desk for immediate contact and an executive officer to streamline team efforts. Regular monthly meetings can ensure alignment with the horizons and goals I've provided.

Suggestion 5: Address unexplored assumption questions and codes

There are several codes and assumptions from my research that remain unaddressed. I recommend further exploration into questions like how making connects to innovation, the role of creativity in work life, barriers faced by users, and their experiences with VONK so far. These insights can provide a deeper understanding of the needs and preferences of your audience.

Suggestion 6: Knowledge management

Knowledge management isn't just about new systems or departments; it's about refining how everyone in the organization operates. Given the insights from my

research and Lucy's suggestions, I believe that VONK can benefit immensely from a robust knowledge management system. This involves fostering a culture that values knowledge sharing, changing work patterns, and ensuring easy access to information resources.

I hope these elaborated suggestions provide clarity and direction for the VONK team. Remember, the essence of my research lies in harnessing the power of play to foster innovation. By integrating these principles, VONK can truly become a beacon for innovators and pioneers.

5.3. Personal reflection

Introduction:

As I take a walk to reflect on my graduation master thesis, I want to capture my experiences and learnings from this project. This reflection will help me organize my thoughts, and it will also serve as a reference for future projects. I have learned a lot from this journey, and I want to be honest with myself about the challenges and zones for improvement without being critical of others.

1. Use of Audio Recorders:

One of the highlights of my project was the use of audio recorders during interviews. This allowed me to bridge the gap between interviewing and understanding the participants' responses. It made the process smoother as I could simply transcribe and code the interviews later. I recognize the value of investing in a transcription service like Microsoft Teams for more efficient data collection.

2. Photography in Research:

I found taking photos during my research to be beneficial, although I didn't end up using many of them. They can be valuable materials for presentations and visual aids, so I will explore using them more effectively in future projects.

3. Standard Interview Guide and Assumptions:

Using a standard interview guide and creating lists of assumptions proved to be a helpful practice. Writing down my assumptions and discussing them with others enabled me to generate focused research questions. It was a valuable step in ensuring the quality and depth of my research.

4. Clustering and Frameworks:

Learning how to cluster data and create frameworks was eye-opening. It revealed that my initial approach was too broad, and I could have benefited from narrowing my focus earlier in the process. Creating meaningful clusters helped me understand the extent of my research and provided direction for further analysis.

5. Importance of Early User Interviews:

I realized the significance of conducting user interviews early on in the project. Engaging with the target audience sooner would have given me more time for analysis and improved the quality of my design work based on their insights.

6. Challenges in Accessing Literature:

Literature review posed a significant challenge for me. I recognized that I tend to read literature only when I have specific questions or need information on a particular topic. I should work on cultivating a habit of more continuous and proactive literature research to expand my knowledge base.

7. Embracing Creative Process and Coding:

I thoroughly enjoyed the creative and open-ended aspects of research, particularly in coding and categorizing interview data. Finding nuances and patterns in the data was exciting, and I realized that I genuinely enjoy these aspects of the research process.

8. Project Size and Motivation:

One critical insight was that, on my own, I am better suited for shorter, more focused projects. I found myself lacking passion for the extensive scope of this thesis, which affected my motivation. In the future, I should be more mindful of project size and choose subjects that genuinely inspire me. A topic which was often addressed by my coaches is: divide your project in sections which are distinctly separate. For example, chapters which are free-standing. However, during my project I failed to address this. But that way of working would possibly address the issue of this project being too big for me to handle. If I was able to divide it into sections which had a clear conclusion to refer back to, connecting all pieces in my graduation would have been a lot easier and those connections would also have been easier to understand. Instead, now I often felt overwhelmed by trying to combine all loose insights of my project. I definitely need to implement this strategy in future projects, divide it into sections which can be addressed as separate mini projects, so I can only use the distilled conclusions instead of having to deal with internal details of each mini-project.

Furthermore I realize that I am constantly try to connect everything together, which is increasingly difficult, hard to grasp and far-fetched, like conspiracy theories: I might see patterns that are not sufficiently proven to be there.

9. Utilizing Tools and AI:

Using tools like Chat GPT to help organize my thoughts and actions was highly effective. It allowed me to focus and provided structure to my work. I should continue leveraging such tools to stay organized and on track.

10. Being Proud of Achievements:

I should acknowledge and celebrate my achievements more often during the project. Seeking feedback from peers and discussing my progress helped me gain confidence in my work and validated the value of my efforts.

11. Learning About Myself and Adapting:

This thesis journey taught me a lot about myself, especially about my working preferences and the need for more specific and focused research topics. I have

identified zones that genuinely interest me and plan to align future projects accordingly.

12. I feel that play is super relevant, but I haven't been able to proof it

Throughout my journey of crafting this master thesis, I have faced a series of revelations, challenges, and enlightenments. The major takeaway I wish to share, a lesson hard-learned, stems from the essence of 'play'.

During my research, I often found myself lacking a clear direction or purpose. While my aim was to integrate the concept of 'play' into my work, it wasn't until the project neared its conclusion that I realized a fundamental principle about play: it is inherently purposeless, yet intrinsically joyful and fun. Thus, recommending anyone to simply "play more" is inadequate. Play is not a mere tool; it is a sensation, a feeling. What one should strive for is identifying what feels playful personally, understanding the balance between guidance and freedom, and immersing oneself in those moments of unbridled joy.

Some of my cherished moments during this journey involved instances of unstructured play. Whether it was collecting materials with the cargo bike, building from rough sketches, or observing genuine moments of play in different environments, these instances were enlightening. The lesson here is not just to recognize the feeling of play but to deeply understand it before attempting to implement or harness it. Forcing structures onto play can feel like placing boundaries on a boundless world, altering the very nature of play itself.

In attempting to marry playfulness with productivity within the rigid structures of academic research, I faced my greatest challenge. The pursuit of efficiency and clarity seemed to stifle the very essence of play. In my drive to find play in an efficient manner, the contradiction became evident: by valuing efficiency, I unintentionally undermined play. This made me question the very purpose of productivity when it robbed me of the joy I sought. Around me, I see reflections of this struggle, particularly in societal critiques of efficiency. A poignant example is in the song "Rotterdam," which lauds inefficiency and critiques our obsession with constant productivity.

The inherent inefficiency of play, with its purposelessness and spontaneity, should not be seen as a drawback but as its strength. In a world replete with burnouts and analysis paralysis, perhaps there's merit in embracing inefficiency. Play, I believe, embodies this inefficiency and has the potential to be a salve to modern societal challenges.

My personal journey through this research was colored by my own struggles with finding a balance between productivity and the essence of play. The paradox of striving for efficiency while desiring the inefficiency of play has piqued my curiosity. As I move forward, my aim is to delve deeper into understanding this balance, hoping to uncover the profound benefits of play and

how to integrate it genuinely within structured environments.

Perhaps, in a few years, with more exploration and experience, I'll be better equipped to elucidate the magic of play and its place in academic research and beyond.

13. I have been in two negative self-fulfilling prophecies

1. I addressed the assumption that play can help us be more creative, fighting the tendency to be analytical, over-productive and over-efficient. Although I also wanted to escape these things myself, I tried to prove this assumption using the current analytical way of working expected of me by university. So I feel that, like the main character of the movie Scarface I disastrously "got high on my own supply", trying to play while I needed to be analytical. I wanted to research play from an analytical perspective, but also research in a playful manner. Doing this I got caught in the struggle I tried to address in the first place: being lost in analysis, while I was trying to play the wrong way: by planning it. Play and efficiency mix not so well. Researching a topic and simultaneously implementing that topic in your research method is a very tricky thing to do.

2. During the project I often had the feeling that what I learned about play was not smart/good/clear enough in an analytical context, therefore I developed a barrier for writing my thoughts down quickly, which made what I wrote down very incomplete and unclear. I think that bad writing, caused by some kind of insecurity, made it difficult for my coaches to understand my processes and thoughts, which made it difficult to give positive feedback, which enlarged my feeling that the work I did or planned to do would never be clear or clever enough for an analytical audience.

14. If people easily believe you, feedback-quality declines

I've realized, both from experience and coach feedback, that my communication style leans towards storytelling/sales. The way I present results can greatly affect the feedback quality, especially when addressing those from different expertise zones. For instance, my design-style drawings, meant to convey rough ideas, were unfamiliar to the VONK team who typically use narratives or descriptions. This led them to perceive my ideas as near-final, resulting in feedback about implementation rather than the idea itself. Similarly, during a meeting, my presentation conveyed clarity and confidence, but this wasn't mirrored in my report. Thus, my presentation style can sometimes misrepresent the actual stage of my work.

6. End matter

6.1. Acknowledgments

Thanks to my coaches, Tomasz and Milene. Thanks to VONK's whole team and especially Gerard in guiding me. Thanks to friends and peers who helped me during this process. And thanks to all the people who took so much time for me to interview them. And sorry for not explaining my gratitude in more detail, but I just want to finish this report and be grateful that I am done. But honestly, thank you all a lot who were either actively helping me or experiencing me on the background of this project, it has been quite a personal struggle. But I if, in a few weeks, I will grow a feeling of pride instead of aversion to the whole experience of graduation, I need to thank you all for it.

6.2. Appendices table of content

The appendix is, due to its size, in a separate document. Below you can find the titles of the appendices. **! Note** that from a certain point the page numbers are not correct anymore, because I had to insert separate PDF files, which didn't follow my page numbering.

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6.3. Summary

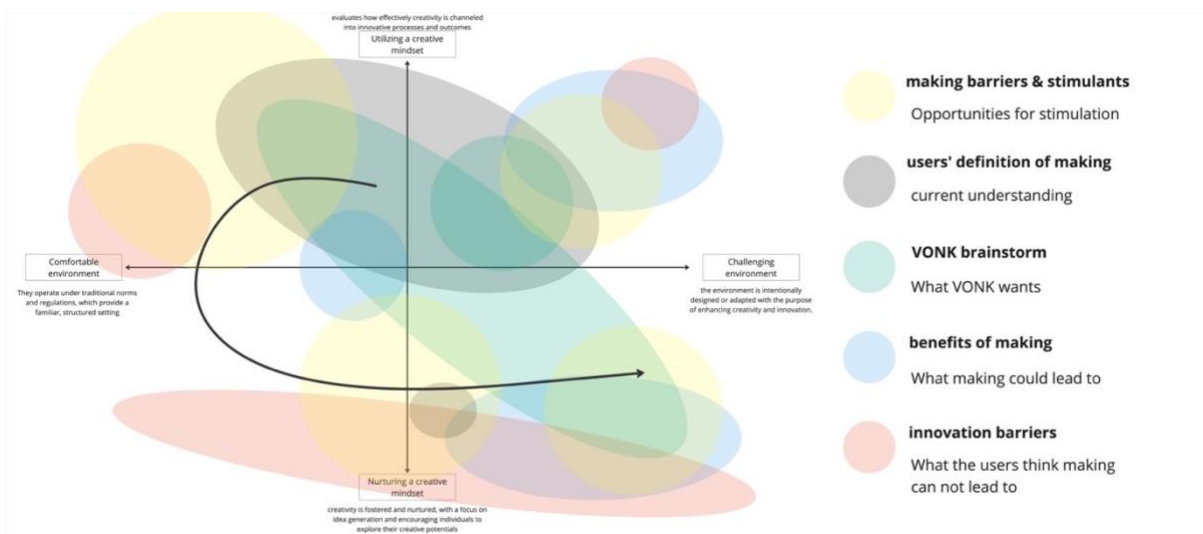
Introduction: Foundations and Project Approach During my initial visits to VONK, I observed a gap between the aspiration for vibrant discourse and the actual activation to perform innovative actions. This led to more discussions about innovation rather than tangible, creative engagement. My core study was based on two assumptions: a space designed for playfulness can ignite people's imaginations, and play, as a profoundly creative process, fuels the generation of exceptional ideas. The novelty of my research lies in the overlap of creativity, play, and innovation, especially within governmental organizations like VONK.



Theoretical Framework I delved deep into the concepts of play and innovation. Play, in its essence, serves no defined purpose; its value lies inherently in the act of playing. Studies have shown that play fosters confidence, creativity, problem-solving skills, a sense of belonging, cultural growth, and overall well-being.

Design and Research to Find and Test Barriers I designed a prototype to test barriers, researched the results from this prototype, and performed user research to find more barriers towards my hypothesis. The ideation phase was the initial step in creating the prototype. I identified barriers through literature on play and creativity and first-hand observations within VONK.

Strategies and Implementation for Achieving VONK's Vision To map out my final suggested trajectory, I synthesized all insights. I formulated the most effective approach to navigate towards the suggested direction. Recognizing the practical difficulties in making an instant leap from the current situation to the proposed future, I developed a more measured, step-by-step roadmap. This roadmap outlines a comprehensive journey towards fostering innovation and overcoming compartmentalization within the municipal ecosystem. The four distinct horizons proposed provide a structured approach to guide VONK's efforts and actions, gradually steering the organization toward enhanced collaboration, creativity, and value realization.



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