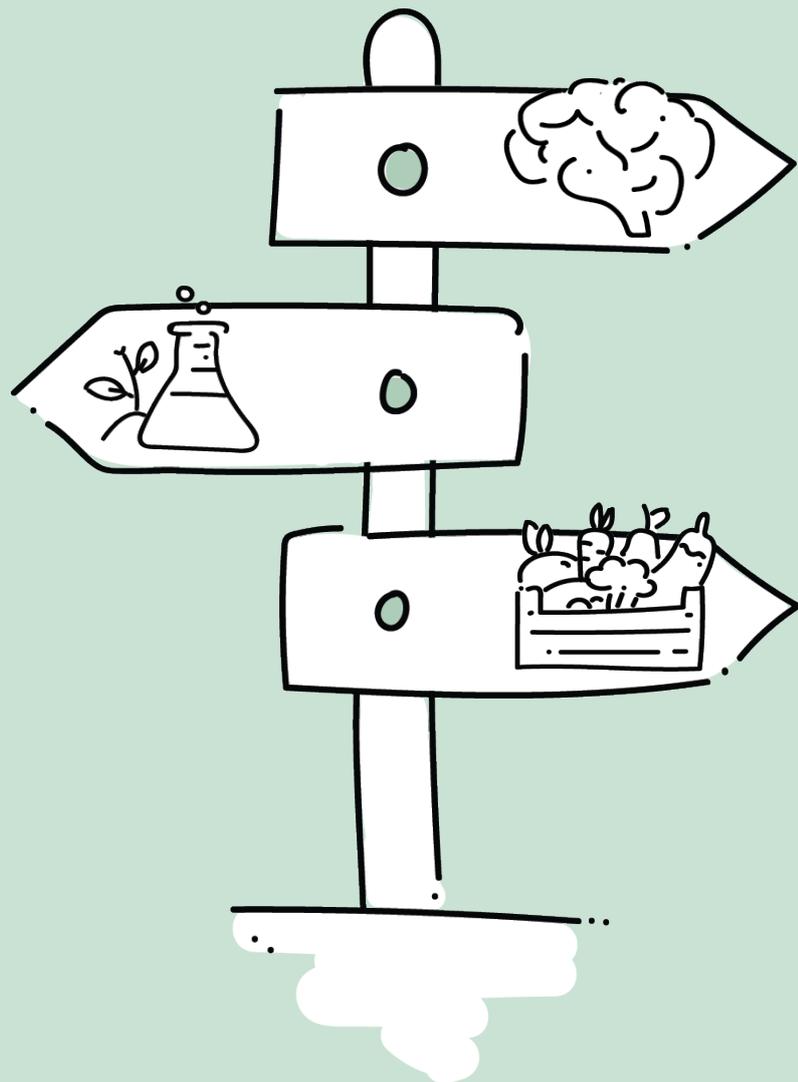


MASTER GRADUATION THESIS

FACILITATING PROCESSES IN THE FOOD INNOVATION NETWORK



FACILITATING PROCESSES IN THE FOOD INNOVATION NETWORK

MASTER GRADUATION THESIS
MSC Strategic Product Design
Faculty of Industrial Design Engineering
Delft University of Technology

DATE

11-10-2018

AUTHOR

Anne Brus
annebrus@gmail.com
Studentnumber: 4142586

GRADUATION COMMITTEE

Delft University of Technology

Chair: Christine de Lille

Mentor: Jan Konietzko

Company Mentor: Jaap van den Braak, Consult2Grow

COMPANY

The New Farm, The Hague

PREFACE

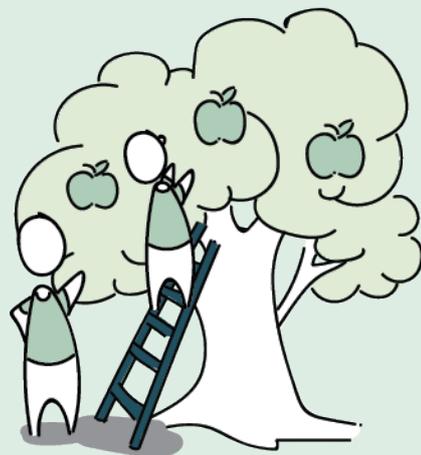
This report represents the final step for my master Strategic Product Design. I started this journey about seven years ago in Delft, with my passion for drawing, technology and creativity. The bachelor industrial design engineering taught me the basics of design and how its approach could create new opportunities. However, I felt that when you started a design project from a design brief, you were limited in your ability to solve underlying issues and to explore radically new directions. I had all the tools to develop a project brief into a suitable solution but still needed the practice to increase my ability to identify problems and opportunities at the heart of the issue.

These insights helped me select a suitable master program: Strategic Product Design. I wanted to challenge myself to be able to deal with the uncertainty of the first stages of the design process. Never genuinely having experienced this level of freedom I took the first steps in a mix of enthusiasm and nervousness. I rapidly learned new skills and gained the experience to reach an exciting new level of understanding design. Surprisingly, I didn't just learn the skills I needed but also rediscovered my passion for design and what it can do.

In my projects, I was genuinely able to help people with my ideas and support. Observing the effect my solutions had on people their lives moved me and ignited my passion for creating a better world for them one step at the time. Solving challenges that seemed impossible with simple solutions and by simply just trying them out energised the client and myself to reach new levels.

This graduation project was the final chapter of my studies and proved a whole new challenge. The setting was so new that anything was possible but also required tremendous effort to set up because even the basic facilities were not in place yet. I've had several setbacks but also eventually found a way to energise the people there, which was the best thing that could have happened in that setting!

This journey was only possible with the support from my friends, family and supervisory team. I would like to take this opportunity to thank everyone for keeping me on track, cheering me up when needed and celebrating my achievements with me!



SUMMARY

The world will become more and more pressed to deliver food to its population in a sustainable way [Global Harvest Initiative, 2017]. The Netherlands is one of the leading countries in the food industry and can drive innovation to produce food on a high-efficiency level while respecting the environment [Viviano, 2017]. However, to achieve the next step in innovation more holistic solutions need to be designed to have an impact on the whole food chain [Abdirahman, et al., 2014]. These observations resulted in the first steps to build a Food Innovation Network in 2018.

The New Farm (TNF) is an initiative of the municipality of The Hague to support new entrepreneurs and to provide a hub for innovation in the food industry. Funding was provided to repurpose an old Philips factory for this purpose and construct a greenhouse on the roof of the building. Plus, a team was installed to manage the facilities and attract new food initiatives.

Additionally, a new group was established by the Innovation Networks research group of The Hague University. The "Future of Food group" aimed to explore new food innovations in collaboration between researchers and entrepreneurs and could use TNF as a hub for their activities. The "Future of Food group" and TNF were the origin of the Food Innovation Network.

Gradually new initiatives settled in TNF and the first events, activities and developments took off. However, this also resulted in the identification of the first hurdles that had to be conquered. The community in TNF struggled to connect and create an energising atmosphere in the building. The isolated setting of the building prevented the community to support each other and threatened the ability to attract new entrepreneurs to improve the situation.

Similarly, the "Future of Food group" from The Hague University initiated its first meetings, but rapidly encountered issues to take the next step. The meetings with the group resulted in several fruitful ideas, for example, setting up a "Food Efteling" for children to explore and get used to new food solutions like eating bugs and healthy vegetables. However, members didn't take ownership of the ideas and no follow-up meeting to plan activities was initiated. The group lacked guidance and struggled to get out of the adopted meeting culture.

The Food Innovation Network was explored with an Action Research approach [Greenwood, Levin, 2007]. In which design interventions were proposed in the network to identify insights, while simultaneously assisting the network in their ambitions. The process was guided by the following question:

"How can the community of TNF generate innovation in the food industry".

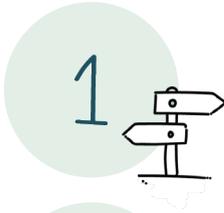
The findings from the research activities were used as inspiration to design several supportive solutions for the Innovation Network. The concepts aimed to aid the network in providing beneficial interactions in TNF to overcome the isolated setting and reduce the initial barrier to take collaborative action.

Three solutions were designed to aid the Food Innovation Network. Firstly, the Community Mural, which invited visitors and tenants of TNF to write their ideas and opinions on a blackboard to spark discussion and communication. Secondly, the Network Mural, which encouraged people visiting TNF to add themselves to the network by connecting their card to the system. These cards presented a visual representation of the network and invited people to contact new people. Lastly, the Collaboration Kit, containing several canvasses to guide the initial stages of collaboration was created.

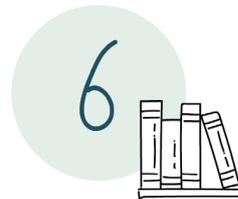
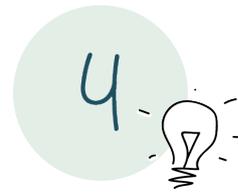
The Food Innovation Network has taken its first steps towards growing their network. New challenges will arise and will have to be conquered to make the network truly valuable. However, if success is achieved true value can be created by supporting initiatives, sharing knowledge and building holistic solutions for the whole food industry.



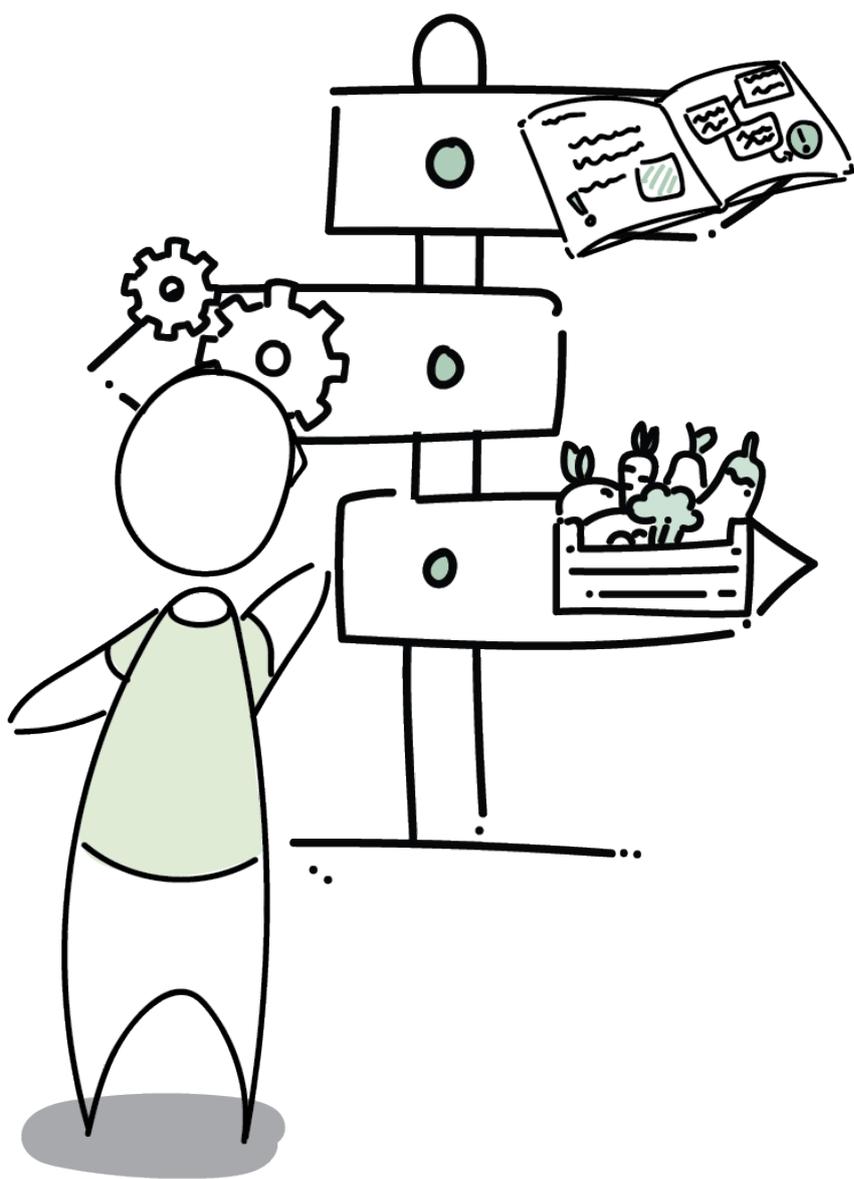
INDEX

	PREFACE	4
	SUMMARY	5
	INDEX	6
	1. PROJECT INTRODUCTION	8
	1.1 Report introduction	10
	1.2 Context introduction	12
	1.3 Problem introduction	14
	1.4 Project overview & Reading guide	16
	2. APPROACH	18
	2.1 General approach	20
	2.2 Data collection	22
	2.3 Data analysis	24
	2.4 Constraints & limitations	26
	3. RESEARCH	28
	3.1 Introduction	29
	3.2 Literature exploration	30
	3.2.1 Networked innovation challenges	31
	3.2.2 Collaboration mechanics	34
	3.2.3 New project processes	38
	3.2.4 Conclusion	45
	3.3 Research activities	46
	3.3.1 The New Farm: history & background	47
	3.3.2 Action research	50
	3.3.3 Conclusion	65
	3.4 Findings	66
	3.5 Key insights	78
	3.6 Conclusion	84

4. CONCEPT DESIGN	86
4.1 Introduction	87
4.2 Design direction	88
4.3 Ideation	92
4.4 Concepts	94
4.5 Concept evaluation	104
4.6 Concept redesign	108
4.7 Concept assessment	114
4.8 Concept recommendations	120
4.9 Conclusion	124
5. FINAL REMARKS	126
5.1 Introduction	127
5.2 Conclusion & discussion	128
5.3 Recommendations & limitations	130
5.4 Reflection	132
6. RESOURCES	134



1. PROJECT INTRODUCTION

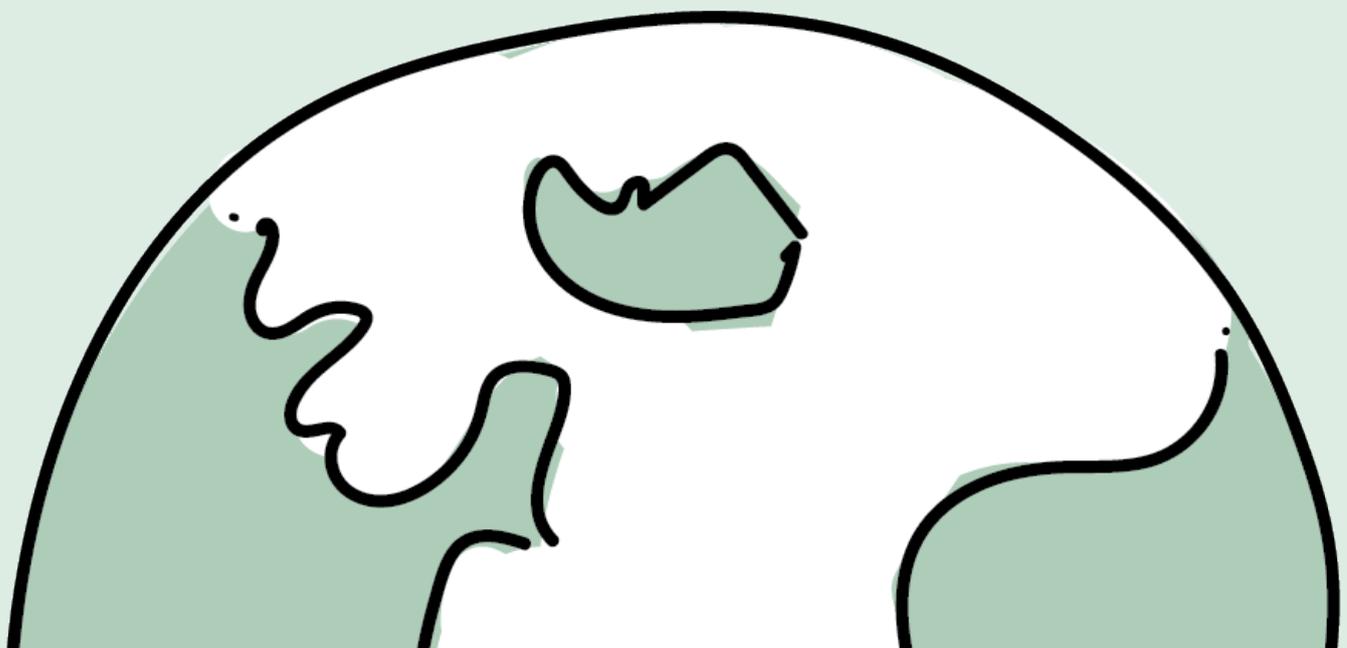
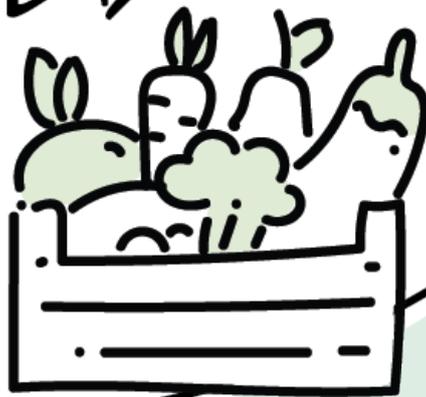


1.1 REPORT INTRODUCTION

In the coming years, the world will need to feed more and more people as the world population grows [Global Harvest Initiative, 2017]. The current production has to increase rapidly to be able to face this challenge. Several companies are working on innovations to increase the qualities of food, production efficiency and exploring new progressive solutions [Aerofarms, 2018; Astroplant, 2018; MetaLab, 2018]. People are also redefining the whole system by bringing the production of food closer to the cities in urban farms [UrbanFarmers, 2018; Freightfarms, 2018; Space10, 2018]. All these solutions have the common goal to explore new ways to get healthy nutritious food to the population in a more sustainable way.

These initiatives are on the right track to help change the way the world produces food, but it is immensely difficult to tackle the challenge of changing the mindset of the society by themselves. Changing the expected norm of food production and providing a more sustainable solution for our food system cannot be achieved alone and requires more effort than one person or company can provide. This is a wicked problem that can only be overcome in a joint effort where the different intentions unite to accomplish results that surpass any of the individual outcomes.

WE NEED
FRESH



1.2 CONTEXT INTRODUCTION

The New Farm (TNF) is a new concept in The Hague, the Netherlands, which wants to help by facilitating food innovation [The New Farm, 2017]. Currently, The New Farm is an entity which rents out office space to entrepreneurs to support new innovations. Their focus is mainly on entrepreneurs in the food industry, for example, *Urban Farmers* and *HaagseZwam* [UrbanFarmers, 2018; HaagseZwam, 2018;]. Additionally, they also provide offices to sustainable social initiatives like *i-did*, who recycle old fabrics and employ people with low career opportunities [i-did, 2018]. An overview of the current tenants is given in Figure 3. TNF is planning to expand their proposition by including more partners and investors and facilitating innovative projects and inspiring activities.

The New Farm invited *Consult2Grow* [Consult2Grow, 2018] to develop a concept and business plan to engage partners in future technologies and host events and activities. Consult2Grow is a small start-up with a focus on providing consultancy services for setting up a vertical farming. Their business has two employees: a vertical farming specialist and a general manager. The initial plan was to use a small vertical farm model in the TNF building on the fourth floor to do farming experiments and engage partners in the concept.

The New Farm is part of the Food Innovation Network that is steadily being shaped and mobilized, see Figure 2. New associations are organized between food industry partners, knowledge partners and governing entities. The "Future of Food group", an initiative from the innovation network research group from The Hague University, arranged the first meetings between these partners.

The Food Innovation Network is still in an early startup phase. Partners see the value of having close connections with other industry members. There is a need to start collaborative projects to create holistic concepts and add value to current solutions. However, they are also still searching for the right way to approach these type of interactions and how best to initiate a project in this unfamiliar setting.

This new context is an opportunity to design original ways to facilitate innovation in the food industry. There is a need for structure and an open path for new connections to establish a functioning network. It is an opportunity for The New Farm to aid this process and adapt to the needs of the network and the potential partners. Several companies have already shown interest in the concept and feel the need to connect with new industry partners [van den Braak, 2018].



FIGURE 02: Project context and stakeholders

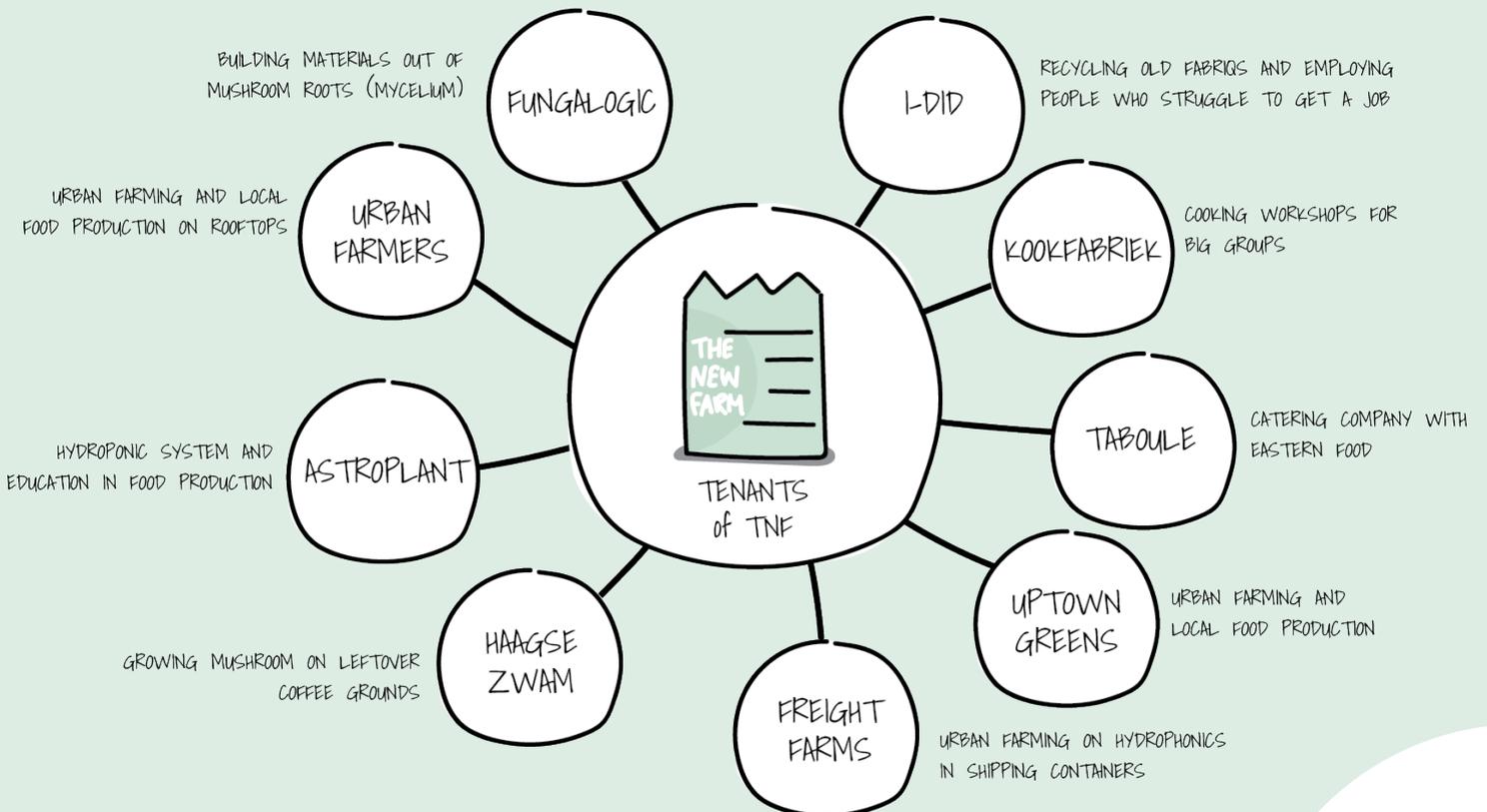
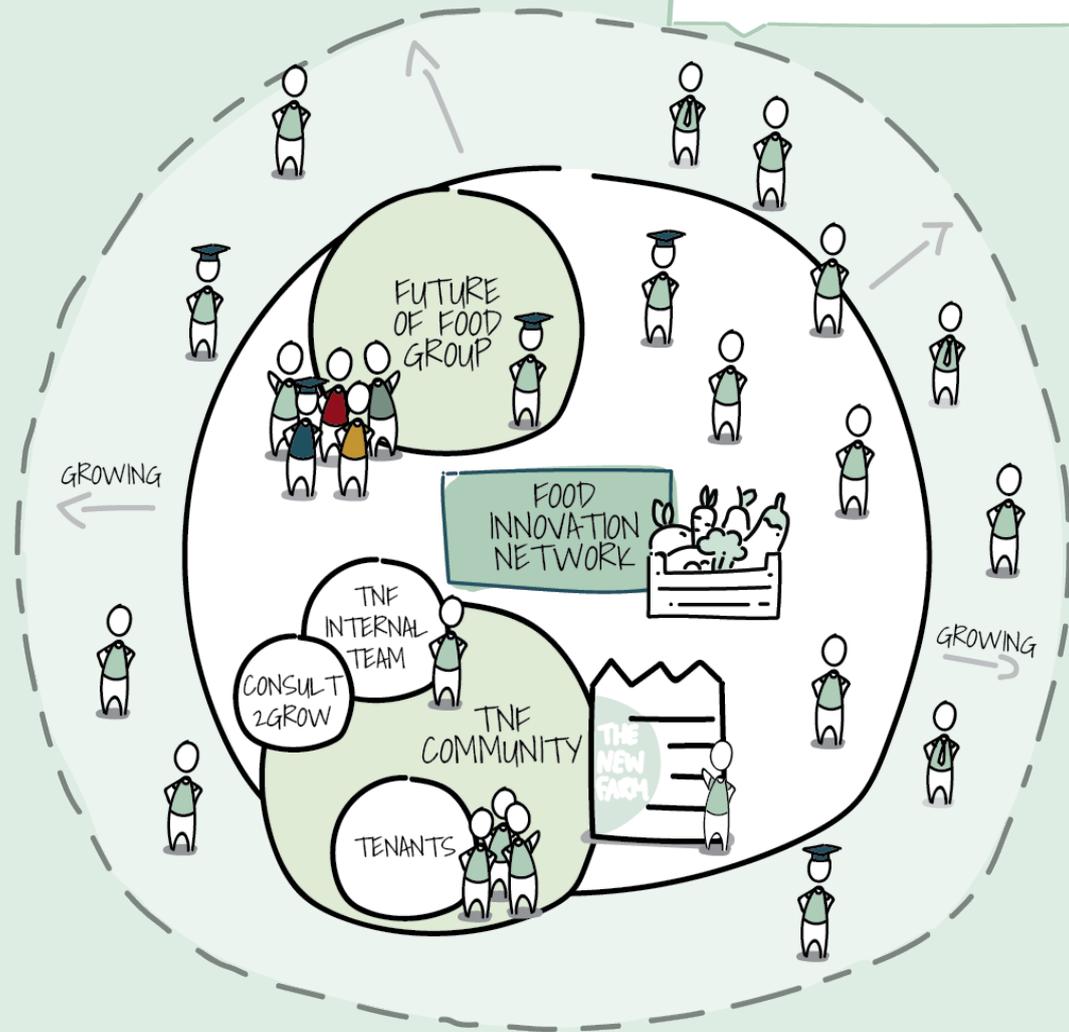


FIGURE 03: Tenants of The New Farm

1.3 PROBLEM INTRODUCTION

The plans for The New Farm are ambitious. Especially because the current context (the building, plan and working culture) still needs to be improved to be able to live up to the expectations from both potential partners and the original client/investor: the municipality of The Hague. Additionally, the team from Consult2Grow is struggling to realise their plans and to create the right proposition to engage potential partners.

These issues are known challenges for entrepreneurs and new ones will likely raise their heads along the way; for example, keeping a long-term focus, scaling up the system, staying critical and objective about the business and remaining true to a chosen vision [2010 Poptech Social Innovation Fellows, 2010]. Additionally, they are proposing a relatively unknown concept to potential partners, in which they are invited to collaborate with multiple partners in a networked ecosystem. This requires more energy to not only convince them of the concept but also thoroughly explain the idea to create the proper expectations.

Other known factors for concepts like collaboration, teamwork and innovation networks should be taken into consideration. The concept of exploring new innovative solutions in an ecosystem of partners could face many social challenges that need to be overcome in order to facilitate the process and create valuable results. Examples of collaboration and teamwork challenges are establishing trust between partners, managing expectations, dividing responsibilities, establishing effective communication and project leadership [Emerson, Nabatchi, Balogh, 2011; Bryson, Crosby, Stone, 2006; Ansell, Gash, 2008; Provan, Kenis, 2008; Berardo, Heikkila, Gerlak, 2014; Vangen, Huxham, 2012; Koschmann, Kuhn, Pfarrer, 2012]. The New Farm and Consult2Grow will have to overcome a number of these type of challenges to create a working concept for their business.

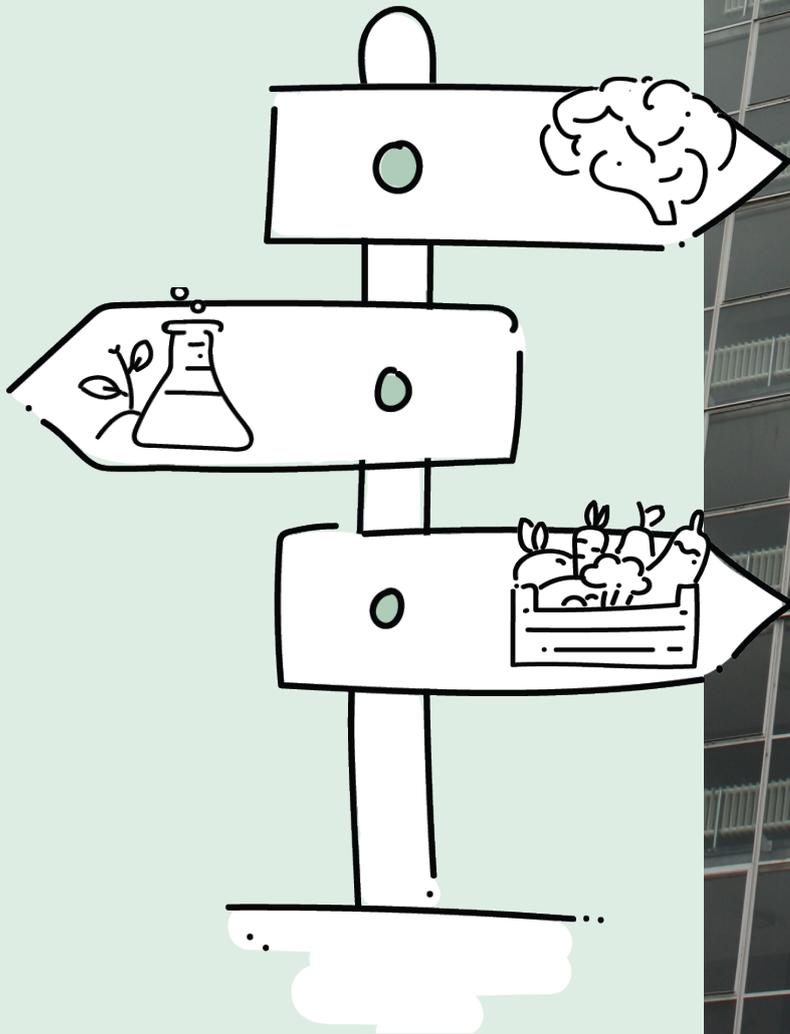
During this project the following question will be explored during this design project:

“How can the community of The New Farm generate innovation in the food sector?”

The goal of exploring this question is to discover insights into the context and determine what is needed to enable The New Farm and Consult2Grow to establish a solid concept and increase their ability to capture value. These insights will be the input to create a solution to overcome the current challenges in the network.

Several steps were taken to explore the different aspects that make up this context. Firstly, literature will be explored to discover known challenges and opportunities in similar situations. Secondly, an analysis will be conducted to gain insight in The New Farm and its situation. Finally, the uncovered findings will be summarised and further explored in design interventions. The knowledge gained from these three steps will be used to design a solution to support the community of TNF to generate innovative food solutions together.

FIGURE 04: The New Farm building



1.4 PROJECT OVERVIEW & READING GUIDE

This report is divided into several sections, which represents the project process. Firstly, the project approach, data collection methods and project constraints will be discussed. Secondly, the research phase will be described, as can be seen in the "discover" hexagonal in Figure 5. The research activities will be discussed, including the links between activities and findings. This phase will be concluded with the gained insights and identified problem areas, as can be seen in the hexagonal "define" in Figure 5. In the "develop" phase the ideation process will be described and three concepts will be composed. In the last section of the report, "deliver", advice will be given, including a design solution which can be used to overcome the determined challenges. The report is concluded with a conclusion, evaluation and an overview of the used literature.

In this report, some sections will be highlighted in a striped green box, as can be seen in Figure 6 on the next page. These boxes illustrate the essential information of the section and are used to guide the reader and gave an overview of the discussed topics.

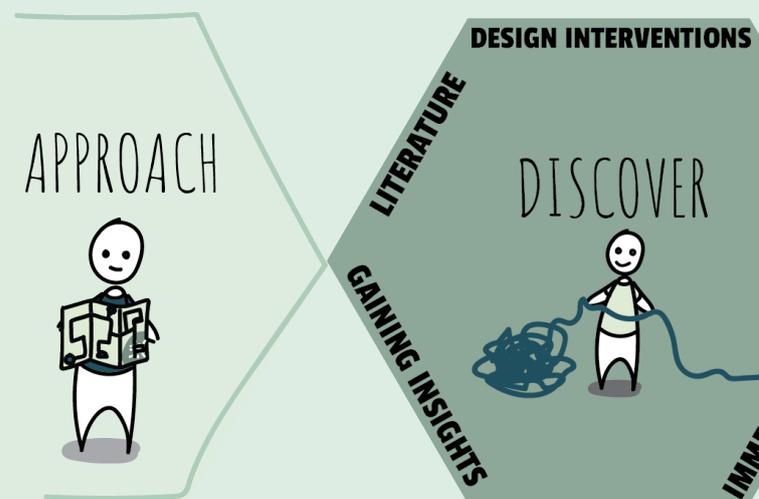
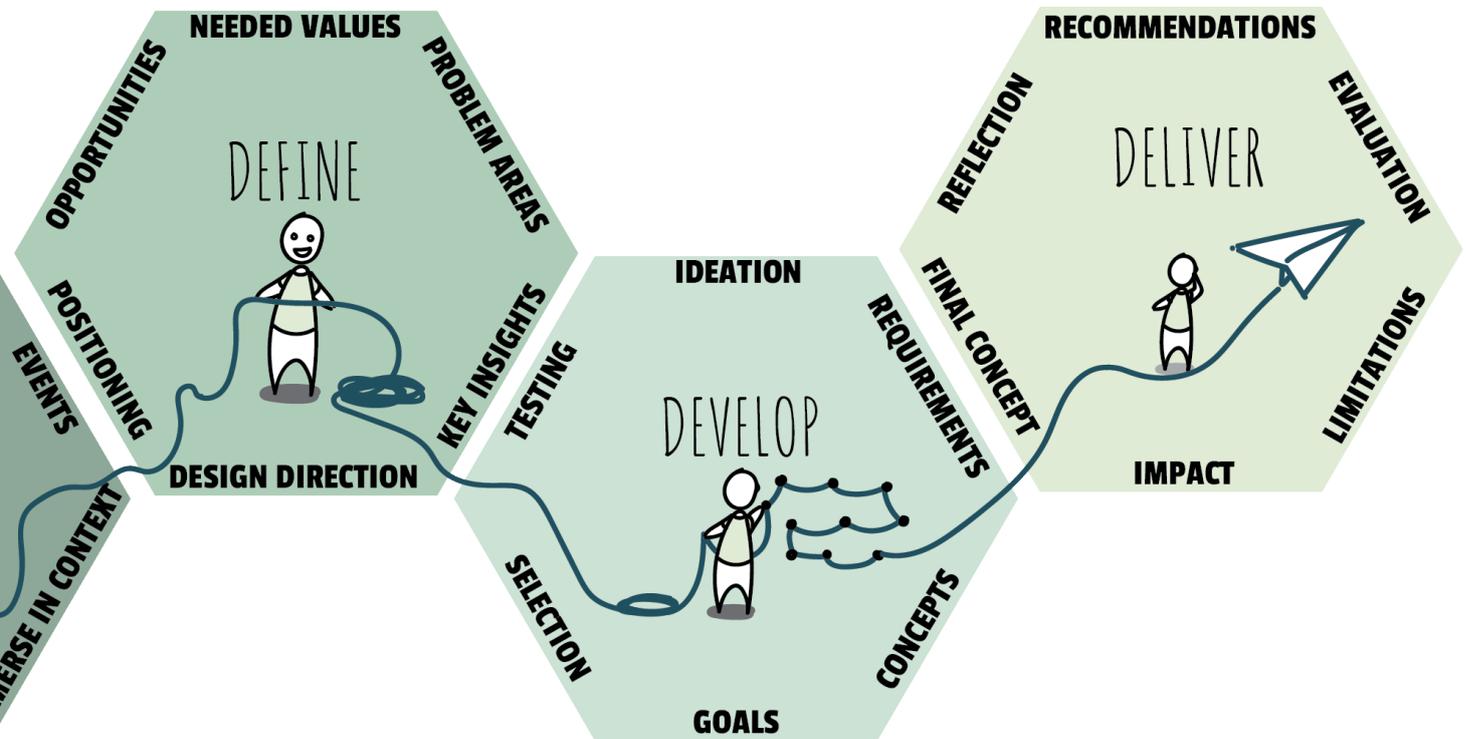


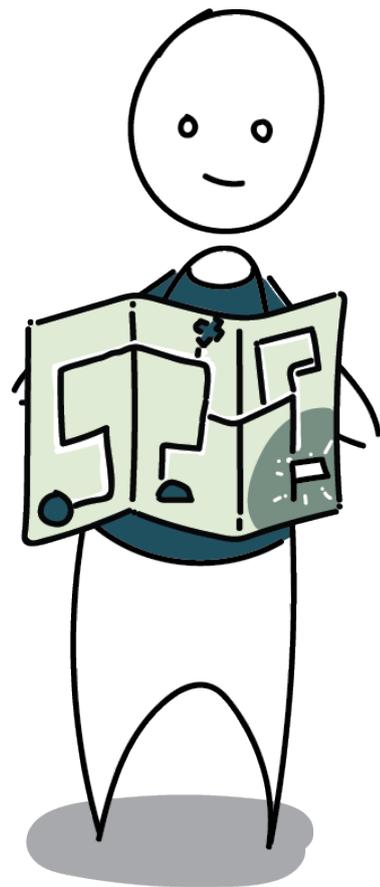
FIGURE 05: Project approach and activities.

FIGURE 06: Striped green block, used throughout the report to indicate key information.

KEY INFORMATION



2. APPROACH



2.1 GENERAL APPROACH

This project is set in an unusual context due to the early development stage of The New Farm (TNF) and because the people in the network are still searching for the best way to initiate action. TNF's position is uncertain, and they have to deal with constant changes and unexpected situations. However, it is also an opportunity to improve their setting and adapt to the needs and wants of the network and its stakeholders. The TNF team and the network can benefit from the support and solutions to aid them in this process. The findings from this design project can immediately be used to improve their context and help them grow. Thus, the project approach was chosen to assist them in their activities, while simultaneously discovering findings to design a solution for the context.

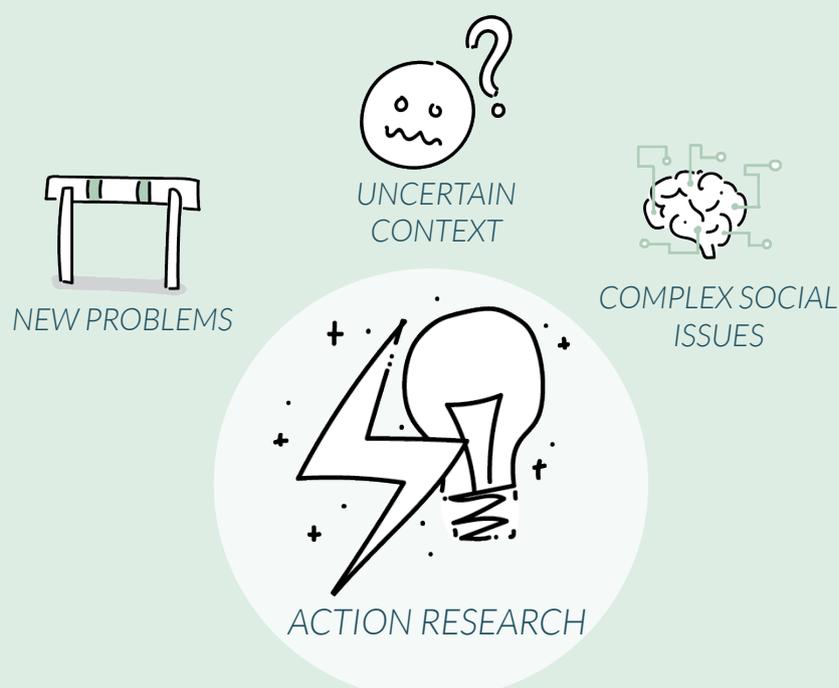
Approaches like design-led innovation [Price, Wrigley, Matthews, 2017], action research [Greenwood, Levin, 2007], design ethnography [Baskerville, Myers, 2015] and design anthropology [Gunn, Otto, Smith, 2013], have similar characteristics. They each view research as an opportunity to engage with the involved stakeholders and to conduct research while simultaneously improving the context, for example, through developing the capabilities of stakeholders and teaching new methods to enhance their position [Price, Wrigley, Matthews, 2018].

These approaches aim to go beyond merely doing observations and strive to engage with people in the field actively. Action research activities help to develop a deep understanding of the context and let them shape beneficial changes at the same time. The researcher becomes an active participant in the environment, or a design innovation catalyst [Price, Wrigley, Matthews, 2018]. By doing so, they can fully immerse in the context and gain trust to suggest new ways of doing routine things to boost the context.

An action research approach was chosen for the context of TNF because they can benefit from additional support in their activities and by exploring new opportunities. TNF is a highly uncertain which aims to solve complex social issues: developing solutions together to create more and healthier food. Due to their unpredictable situation and underdeveloped business, unforeseen complications emerge regularly. During these events, they can profit from additional support and advice to overcome the obstacles in their path.

Furthermore, their context resembles several characteristics which have been suggested in other research to benefit from an action research-based approach. The methods from action research have been noted to be useful in uncertain contexts [Price, Wrigley, Matthews, 2017], when essential problems arise [Baskerville, Myers, 2015] and for complex social issues [Greenwood, Levin, 2007].

In conclusion, an action research approach fits this context well. It is chosen to enable the community of The New Farm to improve their situation, while simultaneously collecting insights to create a suitable design solution.



2.2 DATA COLLECTION

In an action research approach, data is collected by immersing oneself thoroughly in the context. Findings are gathered by talking to the stakeholders, learning about the organisation and engaging them in activities. Results are tested and explored in more detail through activities and design interventions, from which more in-depth insights can be generated.

Data was collected in the context of TNF to distil insights and findings, which could be used to determine the needs of the community and how best to aid them. The methods which were used were informal conversations, observations and by attending internal activities, such as meetings and presentations. The events were documented in a research journal, with quotes, discussed topics, suggestions and opinions. An overview of this data can be viewed in Appendix A and B.

Additionally to the context of The New Farm a new initiative from The Hague University was explored: “The Future of Food group” (FoF-group). The FoF-group was established to explore new possible ways to boost innovation in the food sector by collaborating with members from different backgrounds: entrepreneurs (including The New Farm), researchers, food-retailers, food-producers etc. Currently, the group consists mainly of researchers from various universities. However, the goal is to invite more members from different sectors.

The context of the FoF-group was interesting to explore because they could be potential clients and users of the TNF building. TNF could host their future activities, such as meetings, projects and networking events. The activities and meetings of the FoF-group were attended to learn what they would need from TNF and from which support they could benefit. The meeting minutes of these activities can be viewed in Appendix D.

Observations and findings were further explored in design interventions. A design intervention can be, for example, an introduction of a new element to the environment or organising an activity together with the stakeholders. For example, hosting a brainstorm, setting up an event or introducing new rituals like having lunch with the community every Friday. These type of activities were organised during the project to test discovered insights and further explore the needs of the network. The organised design interventions were documented in the research journal. A summary, notes and photos can be viewed in Appendix E.

The chosen data collection methods helped to immerse in the context and gain empathetic insights of the diverse stakeholders and their needs, goals, ambitions and perceived obstacles. The techniques and action research approach aided in the process to go beyond observation and actively engage people in the field to generate in-depth insights while simultaneously supporting the context to improve during the project.



RESEARCH JOURNAL



PHOTOS



MEETING MINUTES



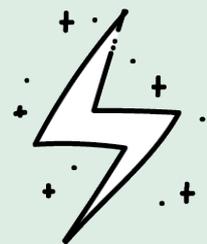
INFORMAL
CONVERSATIONS



OBSERVATIONS



ATTENDING MEETINGS &
INTERNAL ACTIVITIES



DESIGN INTERVENTIONS

2.3 DATA ANALYSIS

The insights from the research and activities were captured in a research journal. The data was analysed by looking for underlying causes and links between different observations. For example, how the internal atmosphere was created and sustained in The New Farm. The synthesis of the separate findings helped to uncover fundamental insights which would be crucial to address in further activities and the supportive design solution.

The discovered fundamental insights were further explored to gain a deeper understanding of the underlying causes. The findings were visualised in poster and discussed with stakeholders, for example, the internal team and the tenants in the building. Reviewing the visualisation helped to gain further insight into the problem and grasp the perspective of the stakeholders on the discovered issue.

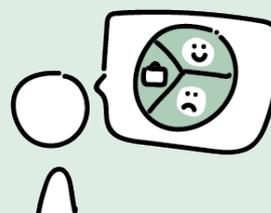
The findings helped to uncover several needs and desires from the stakeholders in the network. Central to the design objective was to explore these to learn how to create a supportive solution to overcome the perceived challenges in the network. An overview was constructed in a value proposition canvas to inspect the goals, needs and obstacles from the different stakeholders of the network. The framework helped to discover potential areas in which they could benefit from additional support to enable them to make the next step.

The network is a complex system of stakeholders, which could create valuable results together for the food industry. The New Farm in this context could be considered a platform to host the activities of the network. This notion was further explored in a platform design toolkit [Platform Design Toolkit, 2018]. This toolkit gave insight into the exact roles and services that The New Farm and the LivingLab could play for potential users and partners in the system. One fundamental notion arose by combining the needs and wants from the context into a significant gap in the network structure. The New Farm could translate this need into a potential service to overcome this gap to their stakeholders. The results will be discussed in Section 3.4.

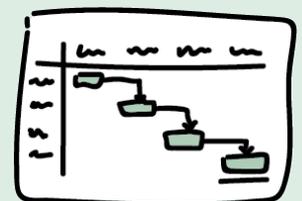
These analysis methods helped to gain a deep understanding of the fundamental causes that affected the context of The New Farm. Furthermore, they helped to make sense of the discovered findings to formulate fundamental insights which have to be addressed to enable them to create innovative food solutions together. The results will be used to design a concept to support the activities of the network and the TNF community.



RESEARCH JOURNAL



VALUE PROPOSITION



PLATFORM TOOLKIT

2.4 CONSTRAINTS & LIMITATIONS

Several limitations and constraints need to be considered for this project because they might have affected the process and results. Different strategies and research activities were used to surpass these. However, they still impacted the development and results. For example, crucial information was only later discovered because a full interview couldn't be conducted at the start of the project due to the time pressure of the stakeholder. Not being able to collect insight from the stakeholders significantly hampered the research phase, and it took time to discover the subtle nuances in the context by piecing together multiple observations. The next paragraphs discuss the most significant limitations and constraints.

Firstly, it was not possible to interview potential clients and partners of TNF and the LivingLab. The potential future partners were still in negotiation over the terms and specific goals of their partnership. Intervening in this process could significantly affect the outcome and would be unpredictable and hard to control. In light of this, it was not allowed by TNF to contact potential partners, and in-depth research couldn't be conducted into their needs and wishes.

The research activities were chosen to discover the needs and wishes of the network and other potential clients, without contacting the current potential partners of TNF. For example, the meetings from the "Future of Food group" from The Hague University helped to learn what people in a network would potentially need, and the tenants of TNF were engaged in conversations to determine what they expected from TNF and the environment.

Secondly, TNF couldn't share the documents related to the negotiations with potential clients, due to the delicate situation. Not being able to access the documents hampered gaining more insight into this process and learning what potential partners were asking of TNF. Knowledge about the potential partner's wishes and demands were mainly obtained through informal conversations with the involved members of Consult2Grow. Furthermore, the concept presentations of the LivingLab could be shared and were used to develop insights. Reviewing the presentations helped to gain some understanding of the process and overcome some of the constraints.

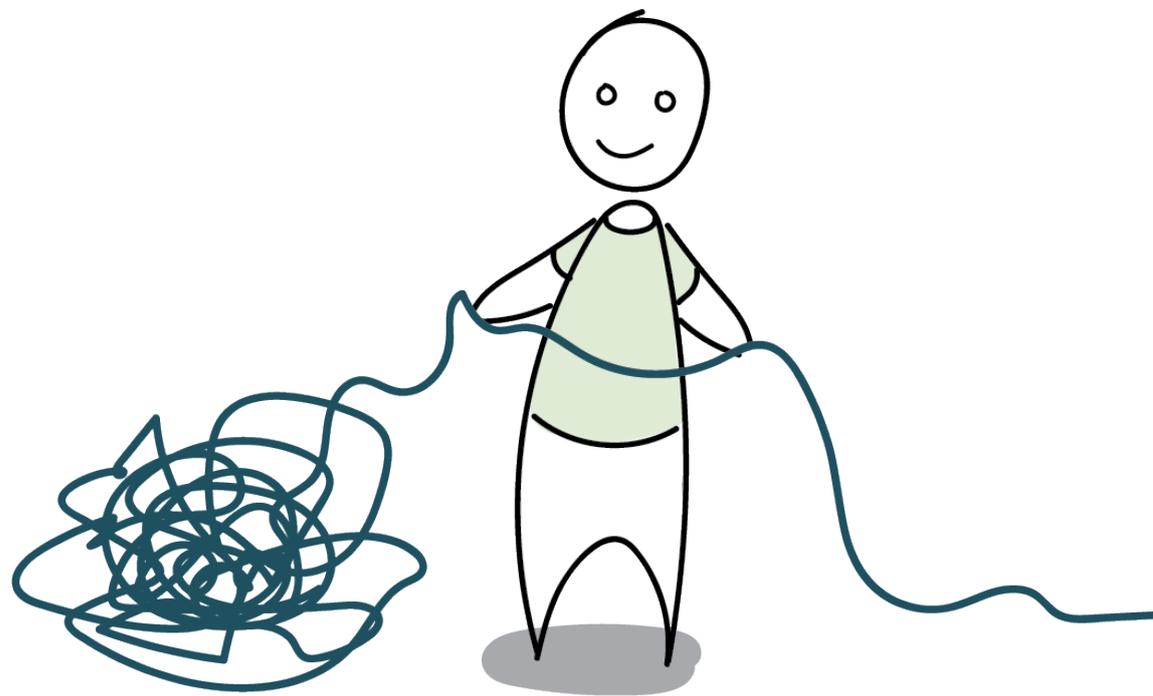
Thirdly, it was difficult to contact the internal team of The New Farm because they are under high pressure and in high uncertainty. They need to deliver on their promises to investors and have only limited time to do so. Due to this, it was difficult to reach them, and they had little time for interviews or other usual methods. Because of these constraints, the research focussed more on informal conversations, rather than formal interview methods. This strategy helped to gain the needed information without pressuring the team for the extra time.

Fourthly, during some of the conversations, audio was recorded. However, due to the informal nature, no consent forms were used to verify the use of the interaction as data in the research. Using official consent forms was avoided because it would interrupt the genuine conversations with the stakeholders and undermine the immersion of the researcher in the context. As also mentioned in the article of Price, Wrigley and Matthews (2018), "*building trust and immersing oneself in the setting by becoming part of it is vital for action-based research*". Continually having to interrupt conversations and signing consent forms would disrupt the natural flow and the gathering of valuable observations. Thus, audio recordings were not used in the research or analysed to collect findings from these conversations.

However, the conversations were recorded in a research journal to overcome this. The interactions, observations and topics were recorded in the journal to be analysed and used in the research. The written observations helped to review the data later and collect insights from these conversations.

Overall, it was pursued to handle the constraints of the context by obtaining sufficient information to collect findings. The restrictions were managed by using more flexible methods, like informal conversations and observations of the setting and interactions. The flexible techniques required less time from the stakeholders and thus made it easier to collect insights in this high-pressure context. Next, to preserve genuine interactions with and between stakeholders, no consent forms were used to record them. However, this was tried to overcome by capturing valuable data from the conversation in a research journal after the interactions. The recordings helped to analyse the collected insights later.

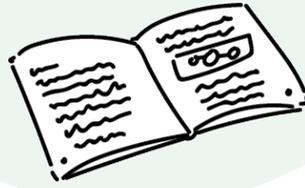
3. RESEARCH



3.1 INTRODUCTION

In this chapter, the discovered insights and findings will be presented, as well as how these were identified. The aim was to explore the context of The New Farm to determine its needs, wants, goals and problems. As explained before a “design by doing” approach was chosen to aid the context during the research activities and learn and observe during these actions. These greatly enhanced the insights, helped to immerse further into the business and supported achieving a deep understanding of the context.

The aim of the discussed topics in this chapter is to give a thorough understanding of the context and its dynamics. Firstly, literature related to innovation networks and social dynamics will be explored. Secondly, the field observations and interactions with stakeholders will be discussed. Lastly, the design interventions will be explained, and the gained insights from these activities. The goal of these interventions was to test the discovered findings from the field observations and gain a deeper understanding of its underlying problem. The chapter will be concluded with the synthesis of the acquired conclusions into key insights, which will form the basis for in the suggested advice and proposition for The New Farm.



3.2 LITERATURE EXPLORATION

Articles and literature will be used to explore known factors and challenges related to innovation networks, the associated social dynamics and potential helpful practices for this context. These topics were selected to collect valuable insights to advise The New Farm and Consult2Grow on their business concerns and tailor the design solution to incorporate useful practices. These subjects will be reviewed in separate paragraphs after which the fundamental insights from each will be summarised.

LITERATURE SELECTION

Literature was selected based on gaining a thorough understanding of the known challenges and which practices have been used to overcome them. Firstly, a definition will be given of the topic to establish clarity when they are mentioned in this report. Secondly, the literature on known challenges will be reviewed to gain a broader understanding of the potential issues that might arise in the context. Thirdly, the adopted strategies to overcome them will be discussed to potentially incorporate good practices and learnings in the developed design solution for The New Farm.

3.2.1 NETWORKED INNOVATION CHALLENGES

DEFINITION

Increasingly complex social and global issues rise and the internal competences of companies are not adequate to respond to these demands [Berasategi, Arana, Castellano, 2010]. These problems can not be tackled by one entity alone, and it is testing to instigate a change or transition in a system when many stakeholders are involved. Innovations are needed to change the system, but solutions fall short when not enough stakeholders are engaged in carrying out this revolution [Stroh, 2015]. Networked innovation is a solution in which multiple stakeholders can be involved in developing a holistic answer to complex multi-layered issues.

The term innovation network is not unanimously defined, and different terms have been used to point out this phenomenon. For example, an innovation ecosystem [Adner, 2006] and open innovation [Chesbrough, Crowther, 2006]. Several different definitions are used in literature to illustrate the term innovation networks. For example, Bergema defines innovation networks as: "It is the activity of actors from different organisations working together, on a reasonably equal footing, in order to innovate. They all have different knowledge that is needed in the joint project." (2015). Another definition that has been used is "A collaborative arrangement through which firms combine their individual offerings into a coherent, customer-facing solution" [Adner, 2006]. What they have in common is that partners are dependent on each other's activities and work together to create value that could not be achieved alone. Thus, the following term innovation network will be used in this report:

"An innovation network is a group of diverse partners working together to create value, which could otherwise not be achieved alone."

KNOWN CHALLENGES

Innovation networks can help to solve complex social or global issues. However, the process also comes with its own problems and issues. The partner structure between businesses can get increasingly complex due to disagreements in intellectual property, clashing with social interaction and different business cultures. In the following paragraphs, several different topics will be discussed to illustrate the known challenges in networked innovation.

The first obstacle that will be discussed for networked innovation is the reluctance to share intellectual property, knowledge resources and project results between businesses. Usually, these are carefully controlled in contracts and companies tend to be protective of their (unique) assets. However, this is not always beneficial for collaboration in networked innovation and will undermine the building of shared trust between partners [Malhotra, Lumineau, 2011; Bergema, 2015].

Related to the protectiveness of intellectual property is knowledge sharing. Knowledge flow is essential for networked innovation [Huggins, Johnston, Thompson, 2012; Valkokari, Paasi, Rantala, 2017]. Because, effective knowledge sharing creates transparency in a business relationship both on partners strategic intent [Valkokari, Paasi, Rantala, 2017] and in their ability to manage projects effectively and create the most value [Bergema, 2015]. The transparency in the relationship can also help each member to measure if the rewards of a project are equally divided. An imbalance in the rewards could provoke conflicts and hurt the partnership [Shaw, Burgess, 2013].

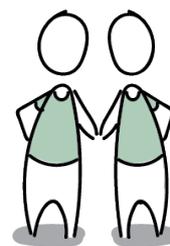
Overall, sharing resources and knowledge is essential to create transparency in collaboration. It helps to achieve balance and trust in the relationship. These need to be built to overcome the initial protectiveness of a firm of their assets.



KNOWLEDGE
SHARING



PARTNERSHIP
BALANCE



TRUST & TRANSPARENCY

The second challenge for networked innovation is the social dynamics of the teams. The involved people and their teamwork affect how well a project can be executed. Factors related to the individual team member skills are, for example, personality and expertise of the individual, team member relations, management skills and mindset or willingness to learn across boundaries [Bergema, 2015]. Factors based on team dynamics are, for example, creating chemistry between team members, trusting each other and managing expectation [Bergema et al., 2011]. Additionally, these characteristics are closely intertwined with the general project culture, for example, the way goals are set, the chosen process and how disagreements are settled.

The social dynamics in a network need to be actively managed to obtain a high level of operational performance and team feeling. Effective project culture needs to be established by balancing the individual, team and project dynamics [Berasategi, Arana, Castellano, 2011].

Generally, the social dynamics, teamwork and project culture should be taken into account when working in an innovation network project. The different factors should be explored and made transparent to enable the team to have productive interactions.

The third challenge can be identified when looking at a joint project on a business scale. The individual business cultures affect the networks ability to sync and align plans. Factors related to this are, for example, organisational hierarchy, different ways of working and internal project structures [Bergema, 2015]. Additionally, the in-house business mindset and intra-entrepreneurial temperament influence the partnership [Berasategi, Arana, Castellano, 2011].

These factors all affect the team's ability to make decisions independently from their companies, for example, the organisational hierarchy of one business might force team members to check project decisions with superiors, while the members in the team from another company are empowered to make such a decision by themselves. Different working styles could cause delays in the project and create friction in teamwork.

Adding to these factors is also the level of flexibility a company has. For example, it might be easier for a smaller startup to adapt to a new project structure since their business is on a smaller scale it is easier to manage changes. However, a more developed enterprise might struggle with changes because they have a broad organisational approach for projects. These would be more rigorous to adapt and align with new ventures. Thus, the bigger company will need to exert power over the chosen approach for a joint project [Swan, Scarbrough, 2005].

Overall, business cultures and power structures from the individual companies can form obstacles for networked innovation. The different cultures and mindset affect the networks ability to execute projects and sync and align approaches. Larger companies might exert power over smaller companies if they have a more rigid structure.

In conclusion, if projects are launched in a networked innovation setting, considerable challenges have to be overcome to make it useful. Problems arise if the firm is not willing to share knowledge and information with partners. However, if this is done well, trust can be built and effective communication can be established. Other challenges can be discovered in project team management and social dynamics. The individual members' personality, expectations and skills influence the project and need to be managed to achieve team feeling. Lastly, some challenges are recognised in the individual business cultures. A firm's level of flexibility and approach can affect the decision-making process of the team.



SOCIAL DYNAMICS



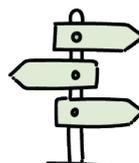
TEAMWORK



BUSINESS CULTURE



PROJECT CULTURE



INTERNAL FLEXIBILITY



DECISION MAKING

STRATEGIES

Several approaches have been used to overcome the discovered challenges in networked innovation. However, no concrete methods can be easily identified. There is a current lack of suggested methods and ways to overcome them [Bergema, 2015]. Usually, people approach challenges intuitively and make decisions when they arise to attempt to avoid them. Each person makes choices based on their expertise and on the subtle dynamics of being in a partnership. The following paragraphs discuss the strategies that could be identified in the literature.

One of the possible approaches is the use of face-to-face contact to build a better understanding [Bergema, 2015; Shaw, Burgess, 2013; Berasategi, Arana, Castellano, 2011]. Face-To-Face contact was observed to increase trust, and it makes it easier for team members to pick up on slight nuances in the teamwork. Additionally, it helps to build a team feeling and social support or social capital [Huggings et al., 2012]. The sense of being part of a team with a similar goal helps to overcome disagreements and improves communication.

Another approach is to develop a clear governance and orchestration mechanism to organise the project [Berasategi, Arana, Castellano, 2011]. For example, through guidance structures (adopting a working structure or setting goals) and rules (intellectual property and intended strategies) [Valkokari, Paasi, Rantala, 2017]. These strategies can provide clarity to a group to make decisions and manage the expectations of both the firms and the team. However, this governance structure shouldn't be too rigid and allow flexibility to enable efficient decision making.

Concrete strategies to manage the symmetry of rewards were not identified. However, some basic approaches can be noted, for example, pursuing transparency in the project results and making the strategic intent clear of each firm [Valkokari, Paasi, Rantala, 2017]. Additionally, the balance in the rewards can be achieved if a bond is built between firms. A relationship between the two parties will aid the businesses to be more supportive of each other's goals and strengthen the partnership [Swan, Scarborough, 2005]. These approaches cannot be considered specific strategies to manage the symmetry of rewards. But, they do point out goals that can be pursued in a collaborative relationship.

Overall, it is difficult to precisely pinpoint adopted strategies and methods for overcoming challenges in networked innovation. However, some approaches can be acquired to aid the process: facilitating face-to-face contact and fostering a clear governance structure for a project. The increase in transparency in knowledge sharing and intentions can assist in building a team feeling and develop a bond between the firms.

CHALLENGES

Sharing resources and knowledge is essential to create transparency in collaboration and trust needs to be built to overcome the initial protectiveness of a firm towards assets.



KNOWLEDGE SHARING



PARTNERSHIP BALANCE



TRUST & TRANSPARENCY

The social dynamics, teamwork and project culture should be taken into account when working in an innovation network project. The different factors should be explored and made transparent to enable the team to have effective interactions.



TEAMWORK

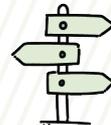


SOCIAL DYNAMICS



PROJECT CULTURE

Business cultures and power structures can form obstacles for networked innovation and have to be taken into account in order to overcome them.



INTERNAL FLEXIBILITY



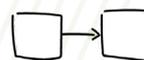
BUSINESS CULTURE



DECISION MAKING

STRATEGIES

Strategies that can be adopted to overcome some of these challenges are: face-to-face contact, structures and rules and building team feeling.



GUIDANCE STRUCTURES & RULES



FACE-TO-FACE CONTACT



BUILD TEAM FEELING

3.2.2 COLLABORATION MECHANICS

Reviewing the known collaboration mechanics can give valuable insights into one of the significant factors in innovation networks. As also discussed in the previous section, social dynamics and teamwork affect the effectiveness of collaboration in innovation networks [Bergema, 2015; Huggings et al., 2012; Shaw, Burgess, 2013; Berasategi, Arana, Castellano, 2011].

The literature on collaboration was selected to gain a thorough understanding of the different known factors and the interconnections. The research was conducted by exploring the developed frameworks for collaboration mechanics, their known challenges and adopted strategies to conquer them. These insights will be taken into consideration in the later phase of this project in which advice and a solution will be formulated to aid the community of The New Farm, Consult2Grow and the Food Innovation Network in generating innovation in the food sector by supporting collaborative processes between partners.

DEFINITION

Collaboration is a complex process, and different terms can be used to indicate various forms of collaboration. In this case, it can be defined as cross-sector collaboration: "The linking or sharing of information, resources, activities and capabilities by organisations in two or more sectors to achieve jointly an outcome that could not be achieved by organisations in one sector separately." [Bryson, Crosby, Stone, 2006]. Collaboration can also be referred to as a strategic alliance: "Cooperative agreements in which two or more separate organisations team up in order to share reciprocal inputs while maintaining their own corporate identities." [De Man, Duysters, 2003].

Overlapping in these definitions are the notions that collaboration can take place between two or more organisations, that knowledge and resources are shared. In this report, the following description will be used:

"Collaboration is the act of two or more organisations sharing knowledge and resources to achieve a shared goal."

COLLABORATION DYNAMICS

Extensive research has been conducted to explore collaboration and its dynamics [Bryson, Crosby, Stone, 2006; Emerson, Nabatchi, Balogh, 2011; Thomson, Perry, 2006; Ansell and Gash, 2008; Provan, Kenis, 2008; e.d.]. Several different factors have been identified to affect the collaboration process. Bryson, Crosby and Stone (2015) combine these factors from multiple studies into eight main themes: (1) general antecedent conditions, (2) initial conditions, (3) drivers and linking mechanisms, (4) collaborative processes, (5) leadership and governance, (6) collaboration structures, (7) endemic conflicts and tensions and (8) accountabilities and outcomes. These themes will be discussed in depth to gain insight into the specific factors that could affect the collaborative process in The New Farm. The framework of Emerson, Nabatchi and Balogh (2011) will be extensively used in this research since it gives an overview of the underlying mechanics and discusses strategies for facilitating such processes. Figure 7 gives an overview of their model with some small additions from other relevant literature.

Consequential incentives, similar to the general antecedent conditions (1) in Bryson's model, refers to the initial change that instigated the idea to start a collaboration [Emerson, Nabatchi, Balogh, 2011]. These can be negative (a problem, social issue or change) or positive (funding or change in potential opportunities). For problem incentives, it is vital that the timing and pressure are correct and that further ignorance will have increased negative impact on the situation.

The general antecedent conditions (1) are part of the initial conditions (2) and can discourage or facilitate the collaboration between partners [Ansell, Gash, 2008]. The factors that promote the initiation of a partnership can be called drivers (3). These drivers can be divided into three themes: leadership, interdependence and uncertainty [Emerson, Nabatchi, Balogh, 2011], as can be seen on the left side of the visual in Figure 7.

Leadership, one of the main initial drivers (3), refers to the person who has taken the first initiative to start the collaboration. This person connects the different members and can enable the members by providing the early resources to reinforce the activities. This person might also take up a role of project director or coordinator and profits from a diverse set of skills: authority, vision, long-term commitment, integrity and relational and political skills [Bryson, Crosby, Stone, 2015].

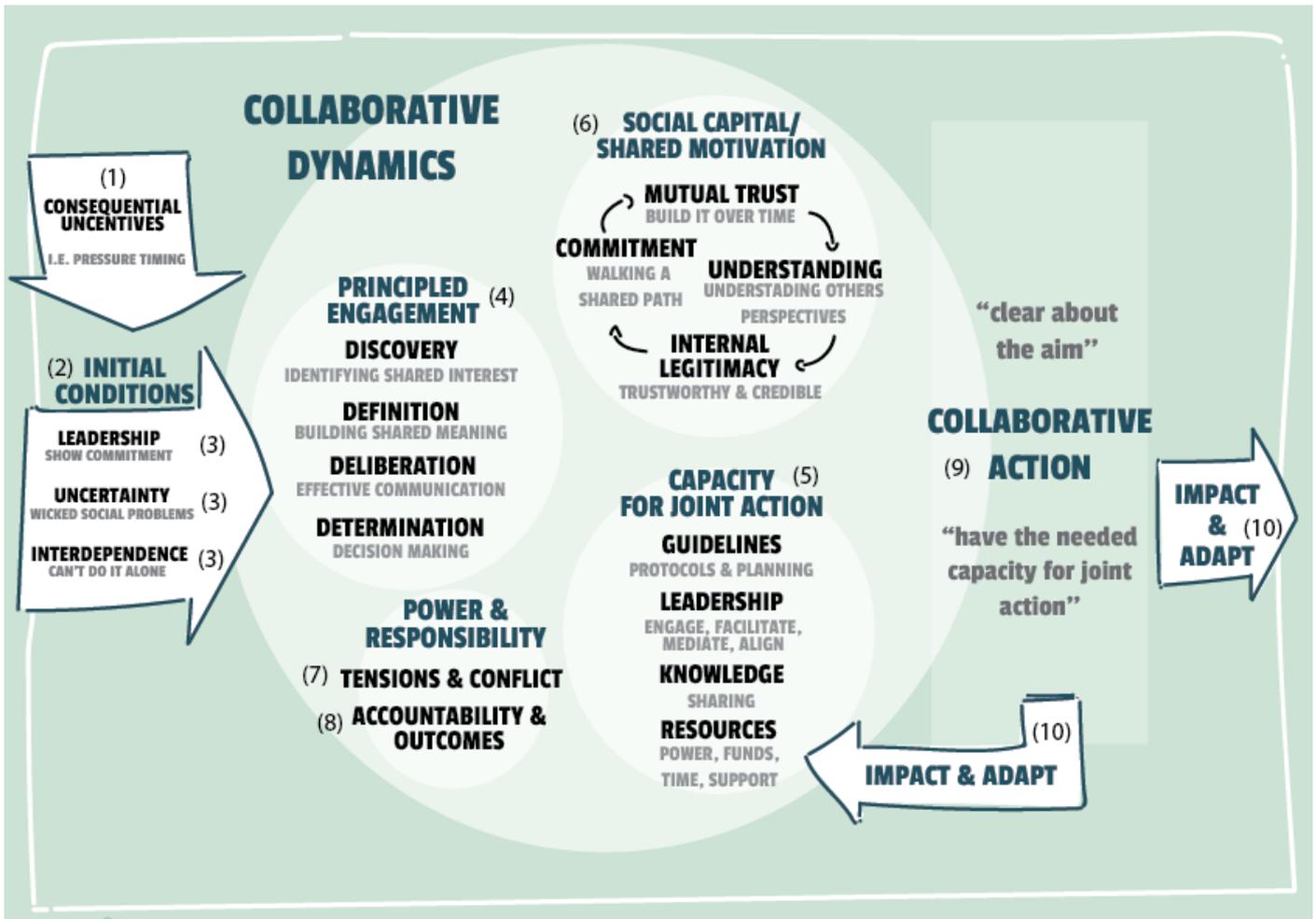


FIGURE 07: Dynamics of Collaboration

Interdependence and uncertainty, two of the initial drivers (3), refer to the complexity of the issue. Due to the complexity, the individual companies can not instigate a change on their own and thus there is a real need to put in the extra effort to collaborate [Thompson, Perry, 2006; Bryson, Crosby, Stone, 2006]. The aspect of uncertainty stresses that one company hasn't obtained all the needed knowledge to tackle the complex problem. Thus, there is a gap in their capabilities to deal with it. They are uncertain how to proceed and address the issue.

During the early phases, a shared understanding (4) has to be achieved to make the conditions and goals of the collaboration concrete [Emerson, Nabatchi, Balogh, 2011]. This process is part of the collaborative dynamics and is called principled engagement in the model of Emerson et al. They define it as follows: “The way people across sectors and other boundaries solve problems and create value” [Emerson, Nabatchi, Balogh, 2011]. The main dynamics are summarised in the principled engagement circle in Figure 7. In this process, the partners identify their shared interest in the project, define a shared sense of the meaning of the results, create a plan and make decisions based on their agreements.

During a joint project, the collaborative processes and structures (6) are developed [Bryson, Crosby, Stone, 2006]. These refer to the social dynamics and shared beliefs that are developed throughout a project [Emerson, Nabatchi, Balogh, 2011]. The metrics can be seen in Figure 7 in the social capital/shared motivation circle. The development of shared beliefs and working together towards a goal build trust over time and mutual understanding of each other's perspectives. Furthermore the teams' norms, rules and practices are developed [Ansell, Gash, 2008]. Establishing these dynamics can later help to overcome conflicts and enable more effective communication [Bryson, Crosby, Stone, 2015].

During the collaborative process conflicts and tensions may arise between partners (7). These issues have also been discussed in the previous Section 3.2.1 on challenges in innovation networks. Bryson, Crosby and Stone (2015) refer to power imbalances and the firm's ability to be flexible as reasons for conflict in collaborations as well. Emerson et al. do not include these tensions in their model, however, in Figure 7 they have been added as a separate dynamic: "power & responsibility".

There are accountabilities and outcomes (8), which refer to for example formal media (contracts) and informal agreements (shared beliefs) [Bryson, Crosby, Stone, 2006]. These are closely related to project outcomes and how they can be used. It is especially sensitive when similar partners are involved. These dynamics were not explicitly included in the model of Emerson et al. However, they have been argued to impact the process of collaboration when miscommunications arise [Bryson, Crosby, Stone, 2015]. Thus, they were added as a separate dynamic in Figure 7 in the power & responsibility dynamic (8).

The integrative framework of Bryson, Crosby and Stone (2015) doesn't explicitly incorporate the building of capacity to take action. However, there are some similarities between their mentioned factors for leadership and governance (5). The model of Emerson, Nabatchi and Balogh includes it more distinctly in their governance model. Both articles suggest the capacity of joint action (circle in Figure 7) as well as how all the different mechanics lead to activities and potential impact (right side of the model in Figure 7).

Several factors can be considered for building the capacity for joint action: guidelines, leadership (5), effective knowledge sharing and the needed resources. These circumstances help create the structure and required conditions to take the intention for collaboration to the level of actually taking action.

The block for collaborative action (9) is linked with the capacity for joint action. Collaborative action can only be achieved when the required level of capability is achieved. The block for collaborative action also contains the factor "clear about the aim", lack of clarity and alignment between partners can create confusion. Thus, the desired impact (10) might not be achieved if it isn't managed.

Collaborative action was not included in the model of Bryson et al. However, it was explicitly mentioned and included in the model by Emerson et al. Moreover, taking action is one of the main goals of the Food Innovation Network. Thus, their findings have been included in the visual in Figure 7.

Two feedback loops are included in the model (10). These showcases that the achieved action in collaborative dynamics changes the context as well as the dynamics of the collaboration itself. The processes might need to be adapted, or new strategies might need to be adopted to achieve further collaborative action.

Overall, the mechanics of collaboration are complex and constantly changing depending on the situation. The factors can enhance the collaborative process or undermine them depending on how both partners manage them. The effectiveness of the collaboration depends on the relationship dynamics between partners, the agreements they make and the way the process is handled.

STRATEGIES

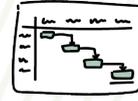
Several different factors can positively influence collaboration mechanics. The following can potentially help to align people, build capabilities and create transparency.



WRITING &
AUTHORITATIVE TEXTS



FACE-TO-FACE
CONTACT



FREQUENT
MEETINGS



INVOLVING
MULTIPLE
STAKEHOLDERS



OPEN MINDEDNESS



STRATEGIC
PLANNING &
TEAMWORK

STRATEGIES TO MANAGE COLLABORATION MECHANICS

Several approaches are mentioned in literature to handle the mechanics of collaboration. These will be discussed in more detail per sub-theme: relationship dynamics, managing agreements and the collaborative structures.

Being aware of the relationship dynamics, also referred to as shared motivation [Emerson, Nabatchi, Balogh, 2011] and collaborative processes [Bryson, Crosby, Stone, 2015], enable good collaboration. They are challenging to manage and develop over time [Emerson, Nabatchi, Balogh, 2011]. They improve by building trust, commitment and mutual understanding through sharing knowledge, sharing resources, showing good intentions and building empathy between members. Recommended is the use of face-to-face interactions and frequent meetings [Bryson, Crosby, Stone, 2015].

Managing agreements are made during the initial phase of collaboration and can later be adapted to changes in the project [Bryson, Crosby, Stone, 2015]. Arrangements can be formal and informal, but both can be managed by making them more explicit in, for example in “authoritative texts”. By making them explicit, overarching goals can funnel as a guide for decision making and solving disagreements that occur over time [Emerson, Nabatchi, Balogh, 2011].

Lastly, the adopted structures during collaboration can build the capacity to take action [Emerson, Nabatchi, Balogh, 2011]. Essential for collaboration is the ability to share knowledge, clear guidelines for planning and protocol and having a leader which can facilitate, mediate and align partners when needed. Key competencies that can help with this are the ability to work across boundaries, analyse and involve multiple stakeholders, strategic planning, teamwork and having a shared concern for the common good [Bryson, Crosby, Stone, 2015].

Overall, the collaboration mechanics can be managed by adopting several different strategies. Maintaining relationships between partners are most effective by engaging in frequent meetings and face-to-face interactions. Agreements between partners can be handled by making them explicit and writing them down in a text. Building the capacity for joint action can be done by developing fundamental competencies in the team or company. For example, the ability to work across boundaries and teamwork practices.

3.2.3 NEW PROJECT PROCESSES

Made famous in recent years is the term agile project management. Agile methods are project structures which have been created to allow more flexibility, easier decision making and rapid testing of assumptions [Ries, 2011; Blank, 2013]. The characteristics of agile project management could potentially enhance the processes and aid the factors discovered in the previous Sections on 3.2.2 collaboration and 3.2.1 innovation networks. For example, by improving communication, allowing flexibility, supporting decision making and early involvement of stakeholders. Thus, several agile processes, its origin and core characteristics will be explored in more detail. These could potentially be included and enhance the advice and solutions for the community of The New Farm and the Food Innovation Network.

The findings from exploring agile methods will be further enhanced by examining other principles. Design principles under the name of Design Thinking have also recently been adopted by businesses to aid companies in capturing value and delivering it to their customers. For example, the KLM's X-gates project [KLM, 2017] and ING's Pace working structure [ING, 2016]. Design methods have end-users as its focus and support an open and genuinely curious mindset. Putting the user at the centre of activities helps to gain a profound understanding and build the capabilities to create solutions to overcome complex problems [Dorst, 2011]. The design methods and mindset can potentially enhance the context of The New Farm, by incorporating these principles and aligning internal activities by putting the user at its heart.

Literature was selected for this section to gain insight into the different mechanics of the agile project structures and design thinking principles. Furthermore, the particular principles will be discussed they were based on and the correlated mindset. These topics will be researched by examining several popular agile methods to explore overlapping principles. Additionally, the design approach and mindset will be investigated to learn how an open and explorative mindset can be facilitated through structures. The gained insights will be used to enhance the solution for The New Farm community and the Food Innovation Network with agile and design principles.

DEFINITIONS

Agile methods and processes are hard to define but share similar principles. People have developed procedures and practices to work with over the years to give them structure and overview. However, these first processes lacked flexibility and fostered a culture of working in silos in an organisation. Projects were planned upfront, and when it goes through the stages, for example in a waterfall model, decisions that were made in the beginning can't be changed later [Hass, 2007]. Planning projects upfront assumes that it is predictable and all the elements are known. However, this is usually not the case, and unexpected events drastically change the course of projects [Ries, 2011].

Agile methods harness the ability to respond to changes as they come and adopt a flexible approach which can sharply change the essence of projects. They do this through rapid iterations by testing assumptions quickly. See, for example, the general steps in an iteration in Figure 8. During these stages, they solve questions like: "Does the user actually need this value?", "What are the minimal viable product attributes to satisfy the user?" and "How much is the user willing to pay for a solution for their problem?". By answering these questions at an early stage, future mistakes can be prevented, and a better solution can be built. Agile processes focus on rapid iterations and flexibility in adapting to new needs and findings. The following definition will be used in this report:

"Agile processes are working principles which assist in responding to unpredicted changes and project requirements. They aim to quickly test project assumptions and learn through an iterative process."

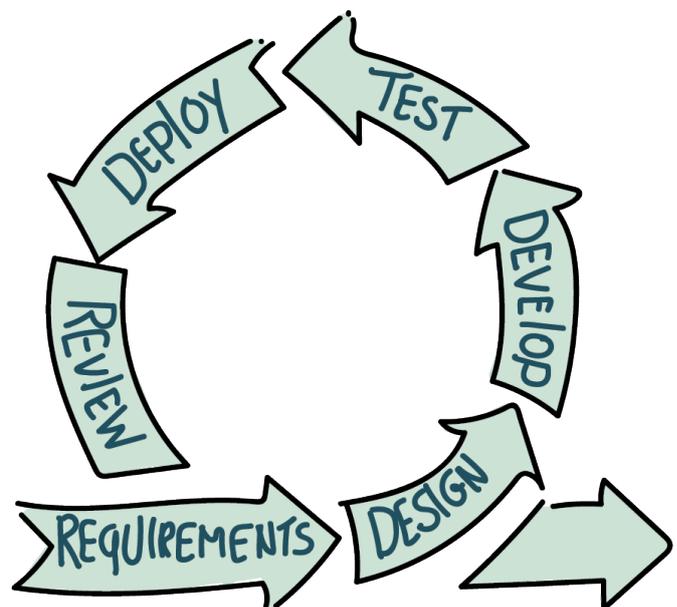


FIGURE 08: Example of an iterative agile process cycle.

The second theme that will be explored is Design Thinking. Design methods and principles can help to solve complex problems and build solutions that are created with the user as its heart [Brown, 2009]. It does so by using methods to develop an empathetic and deep understanding of the user, its context and other influencing factors. Designers use intuition and sensemaking to derive insights from these factors to guide solutions and create truly valuable products for the user [Plattner, Meinel, Leifer, 2011]. The general steps during a design iteration can be reviewed in Figure 9.

The term design thinking or designerly thinking has been used to describe this explorative mindset and ability to capture insights. Designers use this skill to create value and tailor solutions to the needs of the user. In this report the following interpretation will be useful for design thinking:

“Design thinking uses design methods and tools to gain a deep understanding of the user and create valuable solutions. It is an approach which fosters an explorative mindset and enables the practitioner to translate learnings into products, services and strategies.”

FIGURE 09: Example of an iterative design cycle



CHARACTERISTICS OF AGILE

Agile methods were born in the software development industry. Software development companies were frustrated with carefully building products and realising at the end that the client wanted something completely different. New methods were born which tested features with their client early in the process, before the whole product was designed and coded, to learn what was genuinely needed and to deliver the desired results [Fowler, Highsmith, 2001]. Features were coded in single feature code blocks (Feature-Driven Development), which could be tested by itself, improved and later integrated with the full product. It enabled software development companies to measure their client's responses to features at an early stage and learn which were essential and what needs they answered [Hass, 2007].

The fundamental principles of agile were encompassed in a manifesto with the following themes: customer focus, incorporating changing requirements, quick delivery and testing, connecting stakeholders, quick decision making and enabling teams to be self-organising [Fowler, Highsmith, 2001]. Other industries noticed the value of this approach and wanted to learn and adapt their businesses to incorporate them.

However, incorporating a new way of working in a business is not easy, and making these changes is complex [Nerur, Mahapatra, Mangalaraj, 2005; Gothelf, 2014]. People started developing concrete methods to use in their business and to teach others how they could incorporate Agile principles in their business and projects [Ries, 2011; Blank, 2013; Knapp, 2016; Schwaber, 2004]. The approaches like the lean startup, scrum and sprint have several characteristics in common, for example, quick testing, customer focus and validated decision making. The central learning from these is: test your assumptions early.

Every project and business is built on assumptions made by the people behind it [Blank, 2013]. These people tend to think that their reasoning is logical, sound and are blind to other possibilities. However, usually, there is much more to learn when making assumptions about people's behaviours. For example, assuming that the features of a product you are designing are valued by the potential customer [Ries, 2011]. Testing these assumptions is vital to learn if these are true and if you can create and sell a product based on them.

Ries (2011) incorporated his learnings in a simple model: "Build-Measure-Learn"-iterations, as can be seen in Figure 10. Working with this model a team would build a simple prototype of their idea, to measure the potential user's expectations and learn from these experiences to build an improved prototype, etc. This way assumptions get tested early on, and the project team can learn during the development. These learnings can also be a key point for projects or businesses to decide to "pivot or to persevere", or in other words to choose to turn around (pivot) the project into a new direction or to stick to the current approach (persevere) and keep improving the solution.

Practitioners of the lean startup method learn to value learning what users genuinely want over building a full functioning product immediately. In Ries's approach, the project or business is continuously challenged to verify assumptions and make decisions based on the discovered insights.

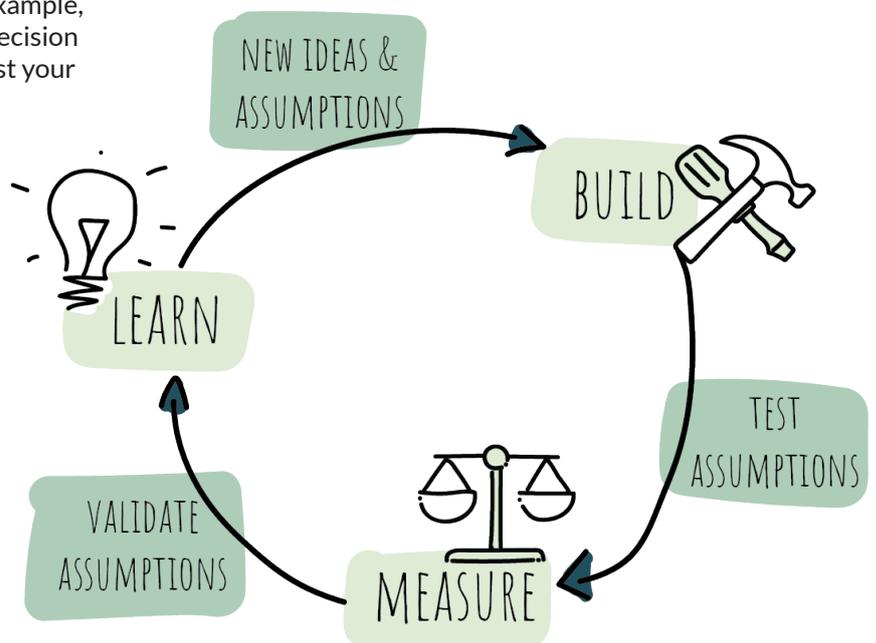


FIGURE 10: Example of an iterative agile process cycle.

Another way to test assumptions quickly is in a short project iteration. The sprint method from Knapp (2016), uses this principle to go through a whole product development cycle in one week. In five days the team goes through five stages: setting the goal, ideation, idea selection, building and testing. They use several methods to enhance the process: expert interviews to gain a thorough understanding of the context, one key decision maker to speed up difficult decisions, one location for all the activities to capture insights on walls and paper, simple “fake” prototypes to save time, encouraging to ask questions and keep capturing ideas.

The sprint method challenges the traditional way of taking years to develop a product and enables project teams to gain results and insights quickly. It helps organisations to work efficiently and make meaningful ideas come to life within a week.

These suggested methods can help an organisation to apply some of the agile principles and potentially adapt and improve their processes which fit with the organisation. The New Farm community or new Innovation Networks can also possibly learn to incorporate these type of principles to enable learning, effective decision making and eventually derive a structure that works for them and their network.

CHARACTERISTICS

These characteristics from agile approaches can enable practitioners to build better and more meaningful products by quickly learning and integrating insights through testing.



CUSTOMER FOCUS



QUICK DECISION
MAKING



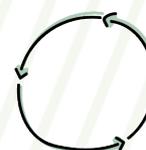
SELF-ORGANISING



TESTING ASSUMPTIONS



LEARNING > PLANNING



ITERATIVE PROCESS

CHARACTERISTICS OF DESIGN THINKING

Design thinking has gained popularity in recent years as businesses start to realise their need to update their processes and increase their ability to create new valuable innovations. Companies were accustomed to rely on analytical thinking and focus on raising efficiency and predictability in the industrial era [Valkenburg, Sluijs, Kleinsmann, 2016]. However, to stay competitive and reach new levels, they turned towards design thinking.

Tim Brown (2008) the CEO from one of the biggest design firms, IDEO, was one of the first to explain and increase awareness of design thinking and its possibilities. He highlights the potential of what genuinely gaining a thorough understanding of the (end-)user and their context can do for the design of products and how businesses can use this ability. Using design methods and tools can help gain this understanding since they have been used for years for this exact purpose.

Design focuses on exploring the context by being sincerely curious about people [Valkenburg, Sluijs, Kleinsmann, 2016]. The designer gains a thorough understanding of the world of the user through the use of an empathetic mindset and putting oneself in their shoes. These insights can be translated and integrated to create products, services and businesses which help the user in their goals, take away obstacles or increase their experience. Similar to this designers also can aid firms to improve their employees' world, boosting capabilities from the inside [Yee, Jefferies, Michlewski, 2017].

Businesses have an internal culture which contributes to the firm's ability to create value and have a stimulating and engaging environment. Motivated and engaged employees are better able to create value for a firm and create products and services with passion [Hyacinth, 2018; Yee, Jefferies, Michlewski, 2017].



EMPHATY & USER FOCUS



BOOSTING BUSINESS CULTURE



EMPOWERING EMPLOYEES



ABDUCTIVE REASONING



COMPLEX AND AMBIGUOUS PROBLEMS

Design and its methods can empower employees in several ways. Firstly, products and services employees use can be improved by redesigning them integrated with the insights of the employees' world. This way you view the employee as the end-user of the product. Secondly, the internal processes and way of working can be improved by incorporating methods that empower the employee, for example, by breaking restricting hierarchical structures [Yee, Jefferies, Michlewski, 2017]. Lastly, the business can embrace a full change in perspective and change its internal culture. Modifying a firm's culture usually requires adopting new methods, processes, internal frameworks and general approach to doing business. Embracing new structures demands a high level of commitment at all levels of the company and if not intrinsically sensed will be challenging to achieve. However, the value of creating a beneficial business culture can make the firm genuinely empowering, and employees intrinsically motivated to create incredible value together.

What skills do designers have that helps them to do this?

Several researchers have explored the way designers approach problems [Cross, Dorst, Roozenburg, 1992; Lawson, Dorst, 2009] and which skills help them to explore and solve them [Valkenburg, Sluijs, Kleinsmann, 2016; Calabretta, Gemser, Karpen, 2016]. One of the abilities that have been used to explain what makes designers unique is abductive reasoning [Dorst, 2010]. Abductive reasoning can be used to solve complex problems of which limited information is known. In this approach, only the end goal is, and the other elements still need to be defined. The other components are the "what" (object, service, system etc.) which will help to gain the value and the "how" or working principle that is known to lead to the value. When both are unknown, it's difficult to overcome the problem since there is no principle to fall back on nor a product to adjust. Abductive reasoning is used to explore and imagine different combinations of "what" and "how". The solving of complex and ambiguous problems, in spite of incomplete information, is used often to depict design [Valkenburg, Sluijs, Kleinsmann, 2016; Dorst, 2010; Brown, 2009]. The general stages in the problem-solving process from a design point of view can be seen in Figure 11.

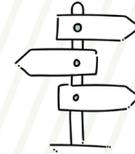
Other skills that have been used to explain the designer approach are their skills to zoom in and out of context, relying on intuition, deal with uncertainty, integrate insights, challenge the status quo and translate findings in visuals and prototypes [Valkenburg, Sluijs, Kleinsmann, 2016]. These skills help to discover findings, integrate them in the bigger picture to show the effects and coherently communicate them to take other people along in their story. This way they uncover the needed knowledge to build the “what” and “how” together with the company, which will lead to the desired value.

Designers can communicate their findings effectively to other people which helps them to include clients in the process. One of the last designer abilities that will be highlighted here is their skills to take people along. By effectively communicating findings, solutions and vision they can inspire people to follow their lead or to align divided people to a similar approach [Calabretta, Gemser, Karpen, 2016; Valkenburg, Sluijs, Kleinsmann, 2016]. Furthermore, this can help to teach people to adopt a designerly approach and enable them to solve complex problems in the future [Price, Wrigley, Matthews, 2018].

Overall, design thinking offers many possibilities to enhance processes and adopting its approach can help to solve complex problems. Furthermore, design has skills that could greatly benefit the context of innovation networks, because they help to align people and make sense out of high complexity. Additionally, it can enable people to create valuable concepts with the end-user as a focus and support effective communication and translating findings to the bigger picture.

TOOLS

The following tools and skills are used by designer to gain a thorough understanding of the context. The insights can then be integrated in products and services and communicated to others.



DEALING WITH COMPLEXITY



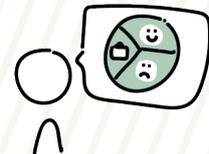
ZOOM IN & OUT OF THE CONTEXT



DEALING WITH UNCERTAINTY



CHALLENGE STATUS QUO



TRANSLATE INSIGHTS

RESULTS

Designers can achieve the following results in a firm by using design thinking. If a firm uses them well they can increase their ability to build meaningful products.



ALIGNING PEOPLE



EMPOWERING EMPLOYEES



BUILDING EMPATHY & USER FOCUS



BOOSTING BUSINESS CULTURE

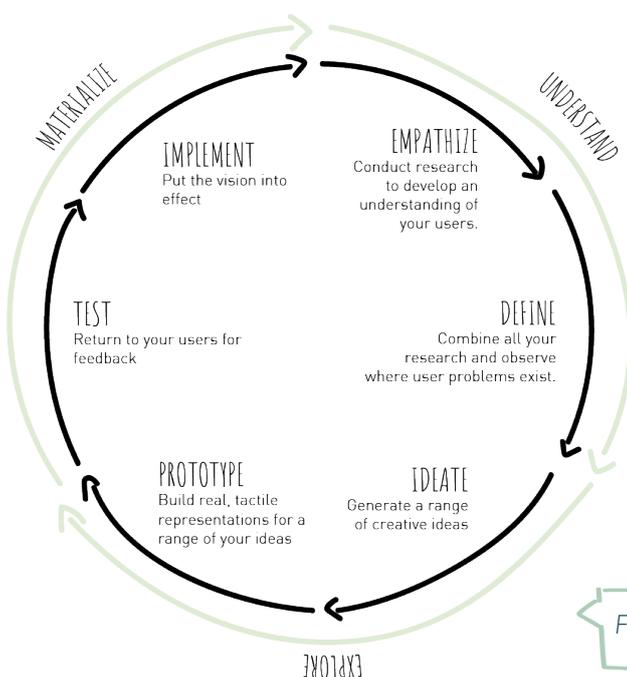


FIGURE 11: Example of an iterative design cycle

CHARACTERISTICS

The following characteristics can be developed when adopting agile or design thinking approaches. These can help to build the goals in the block below.



TESTING ASSUMPTIONS



QUICK DECISIONS
MAKING



TRUST IN THE APPROACH



UNDERSTAND
THE END USER

OVERLAPPING CHARACTERISTICS & USES FOR THE NEW FARM

Agile processes and design thinking can both help to adopt a way of working which enhances a firm's ability to understand the end-user better. Understanding the end-user can enable them to build better products and services. Thus, creating higher value and improving their business.

Several similarities can be noticed between the two approaches. For example, handling (quick) decisions with incomplete information, questioning assumptions/ the status quo, trusting the methods and of course the user-centred approach. Next, they both can aid a firm to update their practices by adopting flexibility and enabling innovation.

The New Farm could benefit from adopting such processes or adjusting the aspects to tailor it to their specific needs. The Food Innovation Network they are part of is in a complex structure and chooses to solve a sizeable global issue: providing more and healthier food to feed the world more sustainably. Design thinking and its methods can enhance the ability of TNF to aid the network in tackling this problem and approach it holistically.

Next, the Food Innovation Network has to deal with multiple stakeholders which they need to align and engage together. Using the communicative skills of design can help TNF to support this. Additionally, testing assumptions and validating with real products, similar to agile approaches, could help the network to pin down issues and develop a plan. Lastly, adopting a user-centric approach can help to gain a thorough understanding of the end-user and how to integrate solutions into their world.

FIGURE 12: Representation of the process through design and agile methods.

GOALS

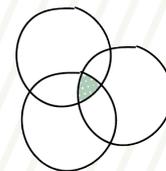
These goals can potentially be achieved by The New Farm (or innovation networks in general) by adopting agile and design thinking approaches.



BUILDING MEANINGFUL
PROJECTS



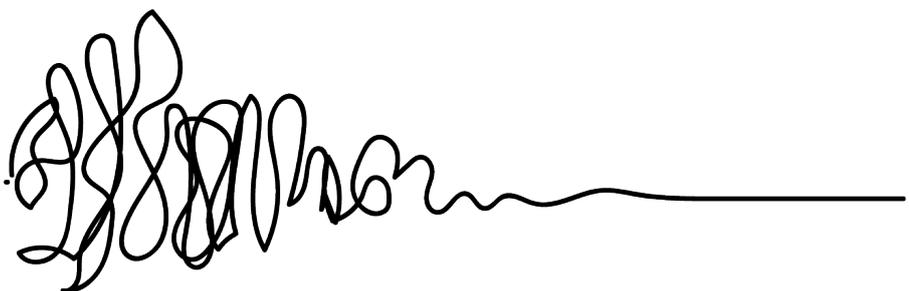
TACKLE COMPLEX
PROBLEMS



DEVELOP A
HOLISTIC PLAN

UNCERTAINTY/PATTERNS/INSIGHTS

CLARITY/VISION/FOCUS



3.2.4 CONCLUSION

The following topics were explored in the literature: networked innovation and its challenges, collaboration dynamics and agile processes and design thinking characteristics. The difficulties discovered in networked innovation helped to gain insights into the likely problems The New Farm would experience in the future.

Literature revealed the following subjects as essential challenges for Innovation Networks: knowledge sharing, communication, teamwork, decision making, business culture, partnership balance and trust. The more in-depth exploration of the collaboration dynamics gained further understanding of some of these factors, for example, teamwork, knowledge sharing and decision making. It was discovered that current research has little advice on how to overcome these challenges, although there were some suggestions to have face-to-face contact, writing down arrangements in authoritative texts, using project structures and building team spirit. Two approaches have been explored to gain more solutions for these challenges. An agile approach can be borrowed to help with decision making processes and project structures. A design thinking approach can be used to align people, build team spirit and focus projects. These findings will be used to support The New Farm community and the Food Innovation Network to develop their capabilities and overcome future challenges.



3.3 RESEARCH ACTIVITIES

In this project, an action research approach was used to gain insights into the context while simultaneously enabling The New Farm community to improve their internal dynamics. The different design methods and skills aided

The New Farm community and Consult2Grow to set up internal activities.

These activities supported the research in gaining more in-depth findings and exploring discovered insights in more detail. The added knowledge will help to determine the best approach to support The New Farm community in the future and will be used to create a solution to support them in their activities.

This section describes the discovered observations and findings in the research and how they were developed into key insights. The following sections will be discussed. Firstly, a general explanation of The New Farm is given to provide additional context. Secondly, the chosen methods and activities will be outlined. Including, the reason why each was selected. Thirdly, the process and how the observations and insights come together into key insights will be explained. The impact of these discoveries will be discussed and how they relate to the discovered subjects in literature from Section 3.2. Lastly, this chapter will be concluded by using the key insights to answer the leading question: "How can the community of The New Farm generate innovation in the food sector?".

3.3.1 THE NEW FARM: HISTORY & BACKGROUND

In this section, some extra background information about TNF will be presented. This information helps to put the observations in perspective of its context and to give an impression of the internal dynamics and nuances in the business.

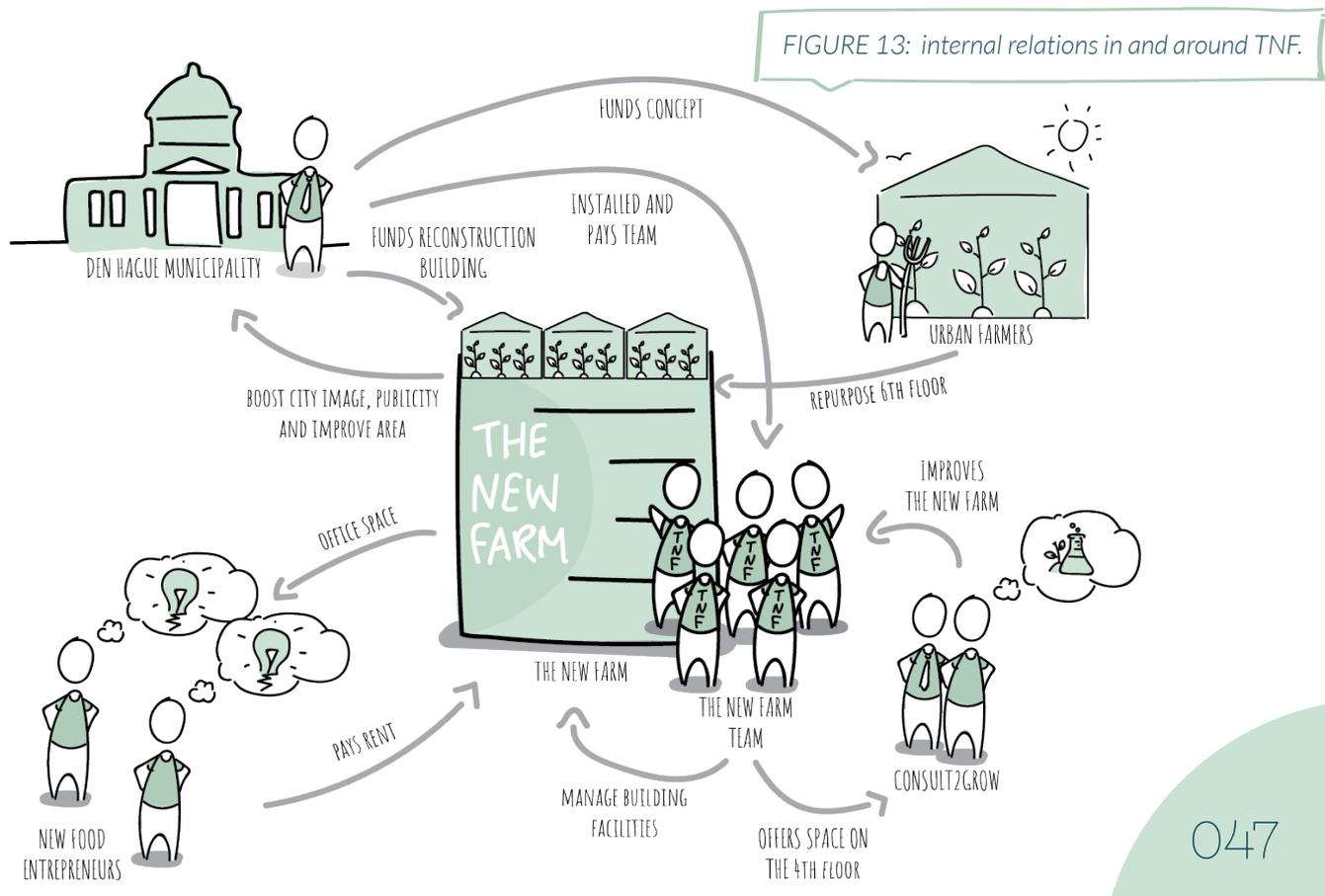
The concept of The New Farm was conceived at the end of 2013, through a challenge set by the municipality of The Hague [AGF, 2014; Sustainable Urban Delta, 2015]. The goal was to repurpose an old Philips factory in the neighbourhood Moerwijk with new urban farming businesses. The winning concept was the idea of Urban Farmers to repurpose the building to one of the worlds biggest urban farming concepts with a full rooftop greenhouse. The municipality would finance the operation with 2,6 million euros, making it the biggest city agriculture project in the world [Architectenweb, 2014]. The city would further support this concept with the installation of a team to manage the building, including the other urban farming startup tenants.

The municipality hired a team to manage the buildings construction, tenants and general facilities for the startups. This team consisted of individual freelancers, and each was appointed to do a specific set of tasks in the building. The team was made out of: The director Eveline Braam, the concept developer Peter de Groot, facility manager Mark van den Broek, construction and building manager Michel Koppen, management assistant Vivian Mutlu and event manager Annick Beukers. Later,

this team acquired Consult2Grow as a partner to create a concept for the fourth floor of the building, as can be seen in figure 19 on page 49. The idea for the fourth floor was to facilitate interactions and experimentation with urban farming and vertical farming concepts. This concept would be called the LivingLab.

The Livinglab was set up as an independent entity from the whole concept of The New Farm. The project would be a separate business model and managed by Consult2Grow. Consult2Grow consists of two members, general manager Jaap van den Braak and vertical farming specialist Reinier Donkersloot. Together, they designed the concept and business model for the Livinglab. The goal of the project was to facilitate interactions and projects between different industry partners and collaborate on experimenting with new food innovations. A vertical farm would be placed on the fourth floor to do hands-on experimentation and be an inspiring centrepiece. Furthermore, workshops and project areas would be installed to support the concept.

The LivingLab and The New Farm are still developing their concept and figuring out how best to improve their ideas. They need to quickly respond to changes in their environment and develop the skills to provide value to their stakeholders. The internal relations affect their context and how The New Farms grows. An overview of the relationships of the mentioned stakeholders is given in the infographic below.





FIGURES 14: Rooftop greenhouse from Urban Farmers



FIGURE 15: Concept design for The New Farm.

FIGURE 16: Vertical herbs station from Urban Farmers



FIGURE 17: Multipurpose area on the roof at Urban Farmers for events and their cafe



FIGURE 18: Urban Farmers shop to buy freshly picked herbs

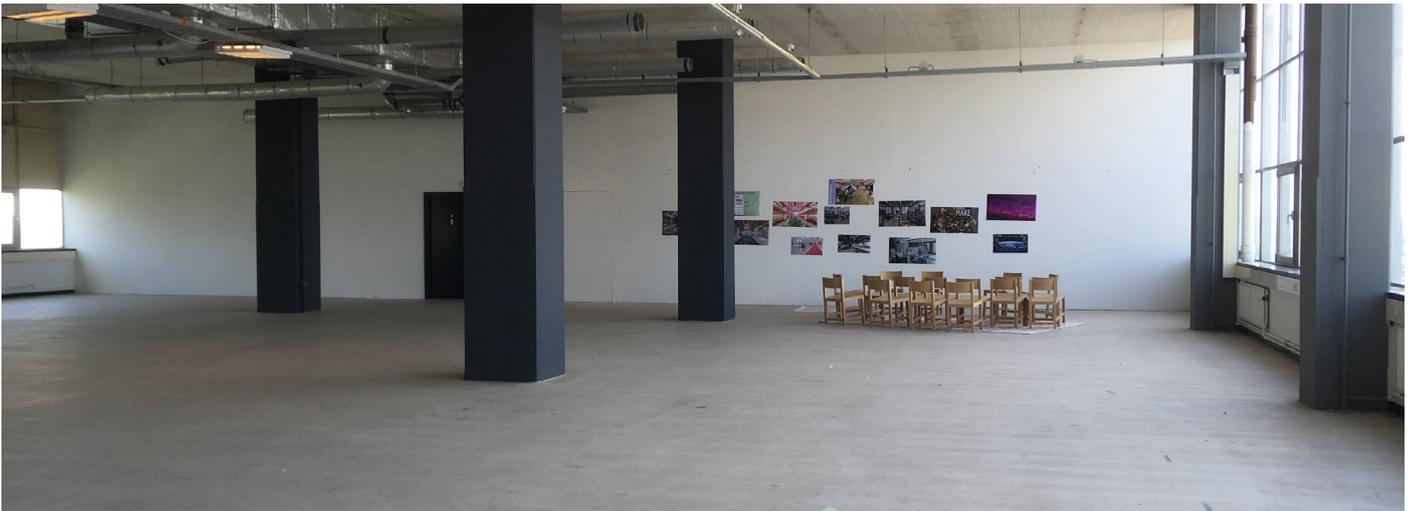


FIGURE 19: The fourth floor is currently still empty and still needs to be reconstructed.



FIGURE 20: The building entrance.

FIGURE 21: Leftover set-up used for a presentation of the LivingLab.

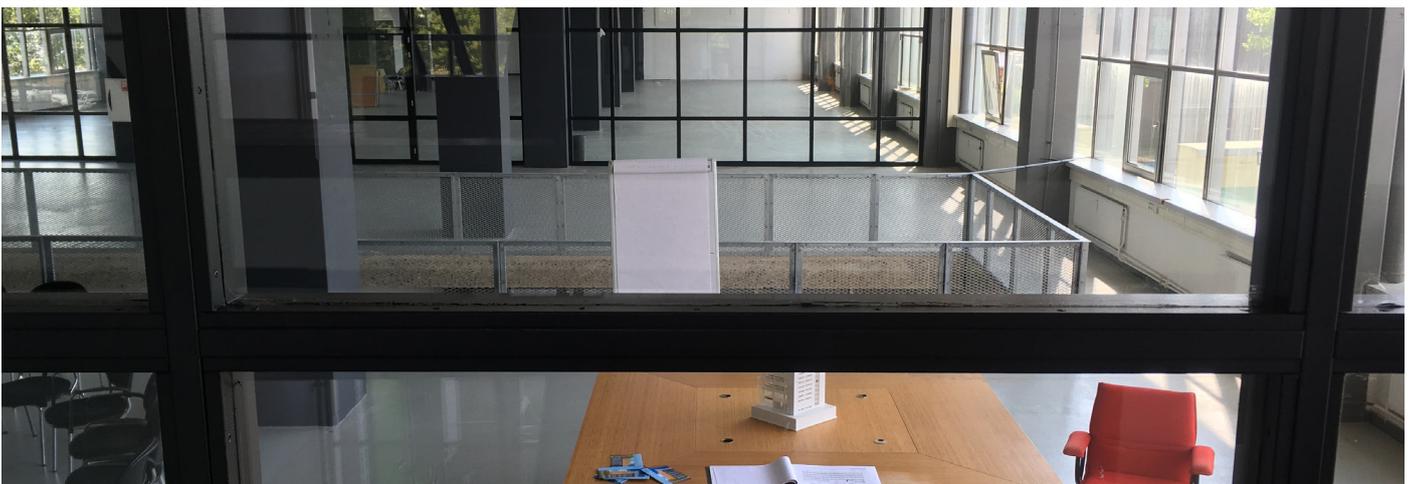


FIGURE 22: Multipurpose open space on first floor. Used for presentations and meetings.

3.3.2 ACTION RESEARCH

The methods and activities were chosen to discover the needed insights and gain a deep understanding of The New Farm. Different ways were selected to observe several situations and explore diverse topics. The following paragraphs give a short explanation of each method and their purpose. An overview of the topics and insights are shown in the striped green insight boxes. The acquired observations from being inside TNF are reviewed after Section 3.3.2.2. The general network and collaboration observations are summarised after Section 3.3.2.5. All the insights and findings will be compiled in key insights in Section 3.4.

3.3.2.1 OBSERVATIONS & INFORMAL CONVERSATIONS

The internal dynamics were observed by immersing in the context of The New Farm and talking to the stakeholders. An in-depth understanding was achieved by being present in the TNF building and working at the flex workspace on the second floor, as can be seen in Figure 23 and 24. Being easily available invited the stakeholders of TNF to chat or have a break together and discuss the internal developments.

This approach was informal and was adopted to overcome the time limitations of the stakeholders. Regular interviews were attempted. However, it was difficult for the internal TNF team and the entrepreneurs in TNF to free up time in their schedules. Focussing more on informal conversations and observing interactions in the building helped to work around this limitation. The observations and discussions were documented in a research journal; these can be viewed in Appendix B.

The primary goal of the observations was to gain insight into the nuances of the internal dynamics and grasp the social rules of TNF. Comments were documented on the internal social constructs. For example, the internal priorities, availability of the team and interactions with tenants. Furthermore, notes were composed to record findings from the general mood in TNF.

The investigations helped to learn internal nuances, for example, how TNF interacted with student teams and how emerging issues were handled. It also supported learning and adopting the social rules to fit in with the culture.

These observations were supported by informal conversations with the diverse stakeholders in TNF. The goal of the discussions was to learn how the stakeholders viewed TNF and which aspects of TNF they valued. These conversations were natural and most of the time started by the stakeholders during a break or because they were interested in the graduation project.

Especially the tenants of TNF sought interaction to discuss the developments of the building and to voice their complaints since they experienced several let-downs during their time there. The picked open setting on the second floor was an invitation to chat and facilitated the discussions. It was easier for the tenants to engage in conversation here, rather than go into the office of the internal TNF team to voice their complaints there. They didn't often go into the internal TNF team office due to the secluded setting, as can be seen in Figure 25. The informal discussions with the tenants helped to uncover many issues with the building, the environment and the internal team itself.

Overall, the observations and informal conversations facilitated acquiring insights into the internal dynamics and situation of TNF. Furthermore, it helped to overcome the time limitations of the stakeholders through the relaxed nature and using the time that they had available. An understanding was gained of the social rules, internal problems and how developments were handled.

MAIN SEARCH AREAS



FIGURE 23: Second floor workspace



FIGURE 24: Multipurpose open office space on the second floor.

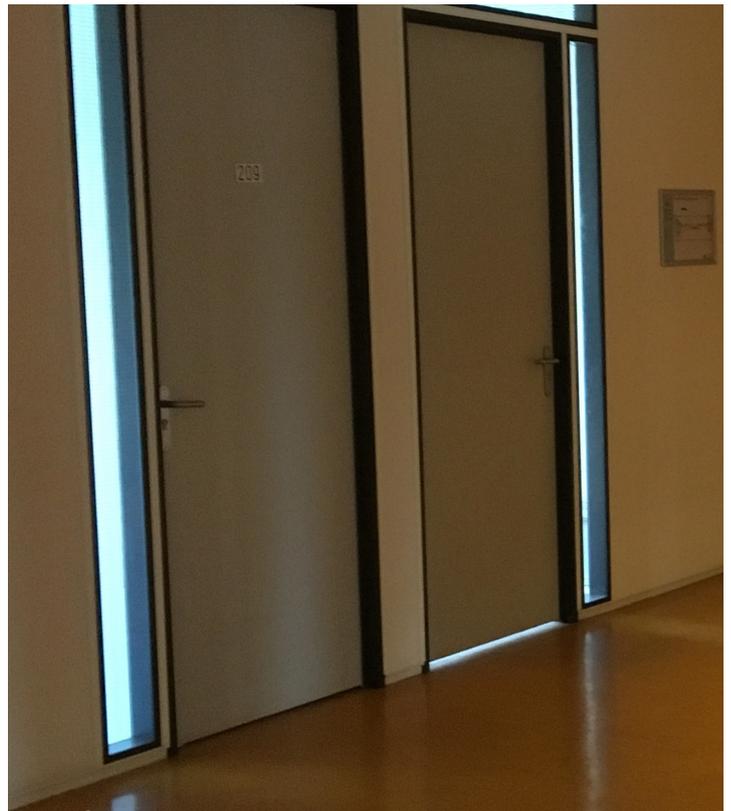


FIGURE 25: Isolated office spaces on the second floor.

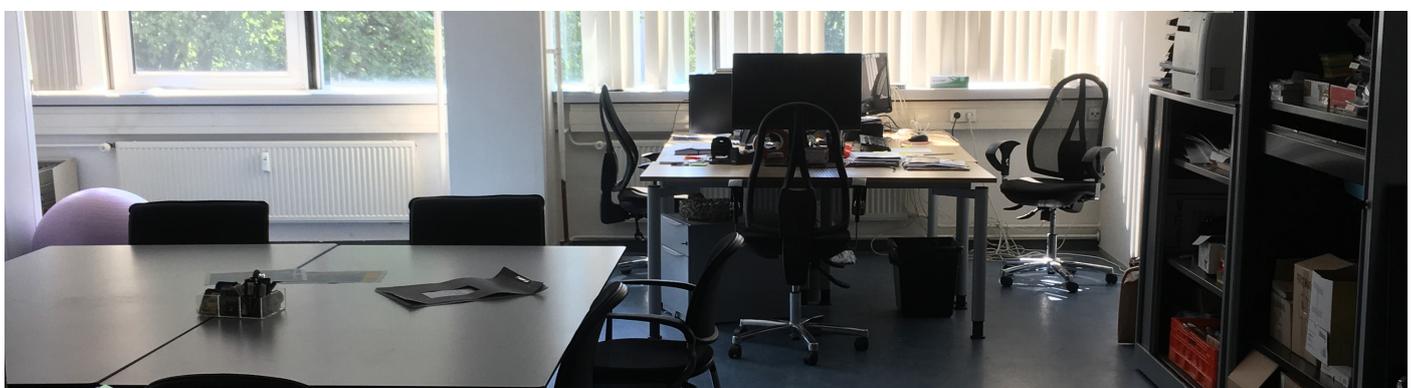


FIGURE 26: TNF internal team office

3.3.2.2 MEETINGS & PRESENTATIONS

One meeting of the internal team of TNF was attended as a guest. Plus, two internal presentations were frequented, the first as a guest and the second as one of the speakers. These were in a slightly more formal setting, compared to the informal conversations from Section 3.3.2.1. Being present at these activities supported gaining more in-depth insight into the internal dynamics of TNF.

Being present at regular internal activities achieved in-depth insight on how processes were handled. For example, meeting structures, how events were planned, the power balance between internal TNF team members, expressed frustrations and how they responded to new suggestions. Observing these dynamics gave insight into the latent needs and problems of the TNF community and how the team was handling changes. A more in-depth account of these activities can be reviewed in Appendix C.

INSIGHTS & FINDINGS



FIGURE 27: Presentation location on the rooftop of Urban Farmers.







FIGURE 29: presenting ideas during the FoF meeting

FIGURE 28: drawing during the FoF-meeting



FIGURE 30: plenair discussion during the FoF meeting

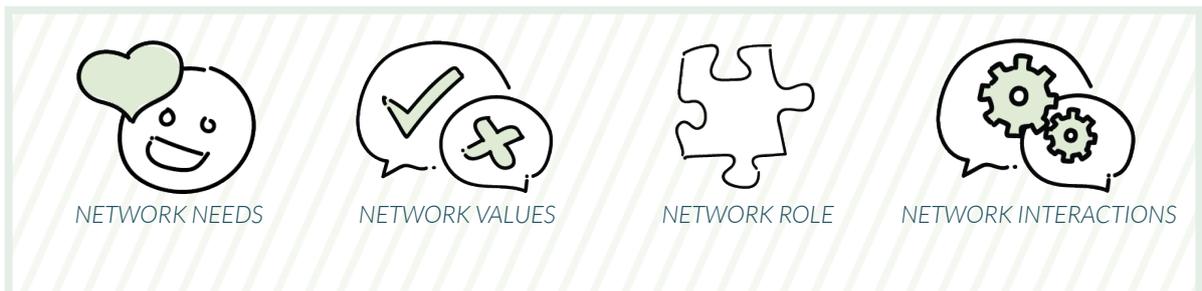
3.3.2.3 FUTURE OF FOOD MEETINGS

The "Future of Food group" (FoF-group) was initiated by Christine de Lille of The Hague University as part of her research on innovation networks. Their purpose of the meetings was to connect different stakeholders in the food chain as well as new projects and research in the food industry. This would enable the initiation of more holistic projects and development in the food sector. The meetings of this group were attended to learn their needs and perceived value in belonging to such a network.

Three official meetings were attended to observe the interactions, interact with the stakeholders and make suggestions for projects. An overview of the stakeholders can be seen in the Figure on the next page. Furthermore, the meetings were documented and a report was constructed after each with a summary to send to all the members. These reports were included in Appendix D. These meetings gave insight into the potential role of the FoF-group and how they relate to TNF.

The FoF-group could potentially become one of the users of the TNF building by using it as a hub for projects and activities. The developed goal of the FoF-group: "Feeding one million citizens healthy and sustainable food", would greatly fit with two of the three TNF and LivingLab themes: "Sustainable Food Production" and "Future Food, Health and Education" [van den Braak, 2018]. The meetings helped to gain insight into the needs of the group to start their plans and the needs of the different stakeholders in the network to be connected to such an initiative.

INSIGHTS & FINDINGS



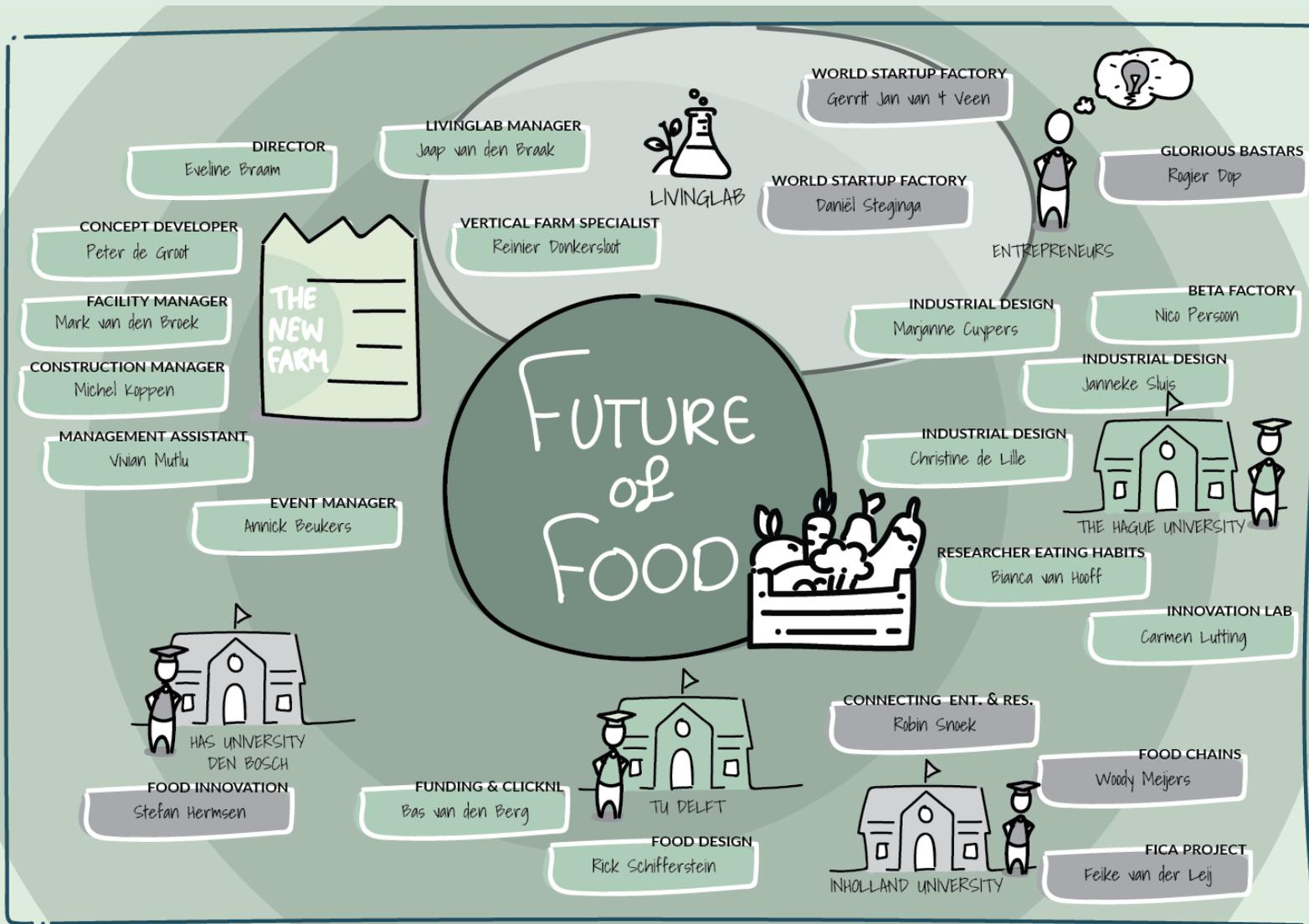


FIGURE 31: Members of the "Future of Food group"

3.3.2.4 EVENTS

Several events were attended for different purposes. One, to gain specific insight into the job needs of entrepreneurs and to determine their general views on collaborating on new projects. Some, to observe how other interactive, collaborative or entrepreneurial spaces were designed and set up. Others, to study internal change and how it was attempted in other businesses. A total of four events were attended

The first activity was part of the International Festival of Technology (IFoT). It facilitated a lecture about the current developments in feeding megacities. The following topics were discussed: how the blockchain might help to create a decentralised system [van Kooten, 2018], how biomimicry can help the system [Gallo, 2018] and how improving the nutrients in food can help an ageing population [van der Leij, 2018]. These presentations were given by several researchers and helped to gain insight into the current developments in improving the food industry.

The second event was the “WUR & Creative Industry matchmaking event” [ClickNL, 2018]. The goal of this event was to facilitate a connection between entrepreneurs and the creative industry. During this event, several entrepreneurs were interviewed about their view on collaboration (with another startup or industry partner) and the factors they would consider. These discussions helped to gain further insight into the entrepreneurial needs of the network.

The third set of events that were attended were the Creative Mornings in Rotterdam. The goal of this initiative is to inspire designers or other creative professionals with field stories and experiences. The events are hosted in several entrepreneurial spots [Creative Mornings, 2018]. The locations of Creative Mornings were used as an opportunity to explore other settings with a similar purpose of TNF. The following venues were visited: BlueCity, V2_, Het Rotterdam Collectief, and Aquent. These venues gave insight into the facilities they offered and the kind of interaction that was encouraged in the setting.

The fourth event that was attended was “Facilitating Knowledge Sharing in Big Corporations” which was part of the meetup group Pop-Up Creativity Hub. In this event, the developments in the company Exact were discussed in improving interactions and knowledge sharing among employees. Several of their solutions and projects were presented during the first half of the event. In the second half, a workshop was facilitated to think about how Exact could further improve their ideas. This event helped to gain insight into how larger corporations are handling knowledge sharing activities and their encountered problems related to this. It also facilitated discovering in which elements seemed to work to enable knowledge sharing and which elements failed to do so.

Overall, the findings are interesting to consider because similar needs have been observed in TNF. Thus, the learning from these events can support the development of beneficial solutions for the community in TNF. For example, several factors that entrepreneurs consider essential in collaborations, inspiration to set up a collaborative environment in the LivingLab of TNF, how interaction can be promoted in a room and how knowledge sharing can be facilitated when the community and the network grow.

INSIGHTS & FINDINGS



3.3.2.5 DESIGN INTERVENTIONS

Several of the previously discovered insights were tested more in-depth in design interventions. These helped to uncover latent needs and examined how the internal TNF team would respond to carrying out such activities. Four different design interventions were conducted, two in TNF and two with the "Future of Food group". A summary of the events is given in the next paragraphs, and they are described in more detail in Appendix E.

FARM LUNCH

The first design intervention was the start of the reoccurring tenant lunch in TNF: Farm Lunch. It invited all the tenants of TNF to have lunch together once a month and, from September 2018, once a week. The primary goal was to facilitate new social interactions in the building. But, it also had the potential to enable new business connections and to share knowledge of entrepreneurial experiences in an informal setting.

As observed before, the interaction between the different businesses in TNF was minimal. They had little contact and were not naturally inclined to visit each other in the building. Thus, the Farm Lunches were set-up to facilitate social interactions and help to uncover potential factors that could further aid this goal for the TNF community.

The first lunch was designed for entrepreneurs to introduce themselves and share the current obstacles they were facing for their business. The short pitches cleared the way for the tenants to share their experiences and potentially help each other with suggestions. Furthermore, it allowed them to connect officially for the first time.

The first Farm Lunch resulted in new connections between the tenants, sharing of several ideas and solutions for new business activities. For example, Urban Farmers suggested tours and tastings to create awareness for the business and several entrepreneurs shared their experience to gain more clients and sell their products. The Farm Lunches also helped to gain insight into the ability of Consult2Grow to initiate these type of meetings and facilitated this process.

The second lunch aimed to connect the new Foodstars program with the other initiatives in TNF. The Foodstars group consisted of new entrepreneurs who joined from all over the world to gain new connections in the food industry. The Foodstars program facilitated this process and was supported by TNF. Thus, they were invited to connect with the other entrepreneurs during the Farm Lunch.

The second Farm Lunch was similar to the first. People introduced themselves and their business and voiced their interests and current business goals. However, afterwards little interaction was noticed between the different members, possibly because the pitch time was longer than expected due to the high number of people and participants quickly left. Although at the start of the lunch, people seemed to connect before the pitches started.

The Farm Lunches have been helpful to observe interactions in the building and measure the responses of stakeholders to these activities. Furthermore, it was interesting to study how Consult2Grow handled the events to learn the required level of support they will need in the future to set up similar activities.

INSIGHTS & FINDINGS



FIGURE 32: Pitches during the first Farm Lunch

Consult2Grow organised a one-day event in TNF: the High Tech/Low Tech Food Lab as part of the Border Sessions Event. He was supported by two members from the "Future of Food group" and the researcher to plan and manage the event. The event was focussed on facilitating an inspiring day at TNF for people who were interested in food and the food industry. Additionally, connecting with new food enthusiasts and networking was assisted during the day in an interactive activity.

As an interactive way to connect, participants were invited to stand on and draw on a 4x4 brown paper, during the day. In the morning they were encouraged to sketch their own "footprint" and later during the day record their experiences. Afterwards, they were invited to connect with other people by drawing lines between the footprints, creating a network of interactions. It was also observed that two people were offered to enlist for one of the presented projects from an entrepreneur.

The event tested whether TNF and Consult2Grow could facilitate networking in food innovation in the building. Their support included the space, the activities, the facilities and general management. Additionally, the event helped to determine if the network would benefit from such an event or similar activities.

The Border Session event provided several insights into the ability of TNF to enable networking and social interactions in the building. It was observed to be challenging for Consult2Grow and TNF to manage such an event and plan the activities adequately. The perceived hurdles were the result of several circumstances.

Firstly, most members of the internal team of TNF didn't get involved in the planning of the event nor were present during the day. The absence of support meant that Consult2Grow solely managed the day.

Secondly, some skills and capabilities are still missing in TNF to carry such an event. For example, experience in event management and (creative) facilitation skills. Thus, support was needed from the Future of Food network to facilitate activities and plan the event.

Overall, the Border Sessions Lab provided several new insights. Firstly, if TNF would like to organise similar events in the future, they would need to acquire new capabilities. Alternatively, they could hire people with the required skills to facilitate such activities. Secondly, the network benefitted from the event, and it assisted in forming new connections between participants.

INSIGHTS & FINDINGS



FIGURE 33: Making connections on the brown paper.

FIGURE 34: Drawing of the "footprint" in the morning.



FIGURE 35: Yuri Verbeek (professional chef) sharing ideas with Annelies from Haagse Zwam.



FIGURE 36: Mingling and drinks in the afternoon



FIGURE 37: Final result of the brown paper

FUTURE OF FOOD WORKSHOP - ROADMAP BUILDING

In the third meeting with the "Future of Food group" (FoF-group) a workshop was facilitated to support the group in planning their activities. In the previous meetings, several projects were suggested, but none were developed into concrete plans. It was attempted to overcome this obstacle by facilitating the process and helping the members plan their activities with a road-mapping activity.

Cards were developed for this meeting which would be used to build a timeline. The cards were named: obstacles, goals and dreams, to facilitate creating steps on their timeline. The members were split up into sub-themes each with the intention to plan and choose activities and use the cards to do this.

The time for the workshop was minimal because the earlier discussions took longer than expected. Due to this, the instructions were short and the cards were interpreted in different ways. Some groups didn't go further than brainstorming for ideas and didn't choose one goal nor plan their activity. There was little to go more in-depth in their chosen goals because most members had to leave early due to other obligations.

The circumstances and time limitations resulted in less impact for the FoF-group. The aimed result of set goals, plan activities and instigate action in the group was minimally achieved during this workshop. Nonetheless, it did showcase the height of this hurdle that has to be overcome. Plus, it helped to explore opportunities and activities for the group.

Despite everything, one of the results from this workshop was the involvement of two members with the Border Sessions Event, as explained in the previous section. They included the Border Sessions Event in their designed timeline in the workshop. Thus, were motivated to help TNF and Consult2Grow to plan and manage the event.

The results and observations from this workshop can be considered in future activities for the FoF-group. Furthermore, they could aid TNF and Consult2Grow in choosing what kind of events to provide to the network if the FoF-group becomes a regular user of TNF.

INSIGHTS & FINDINGS

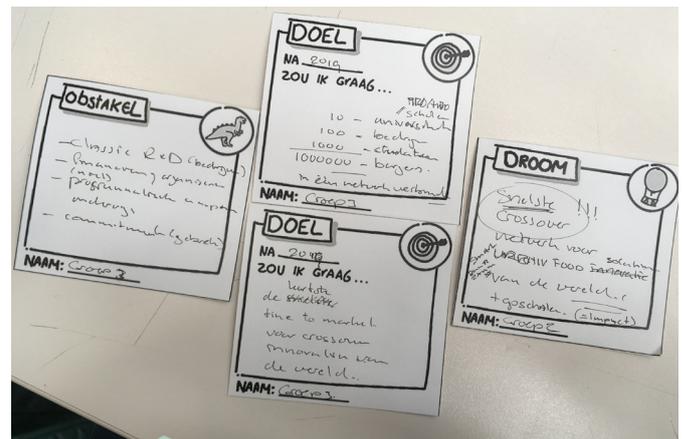


FIGURE 38: Used workshop cards with the goal to build the quickest crossover network.

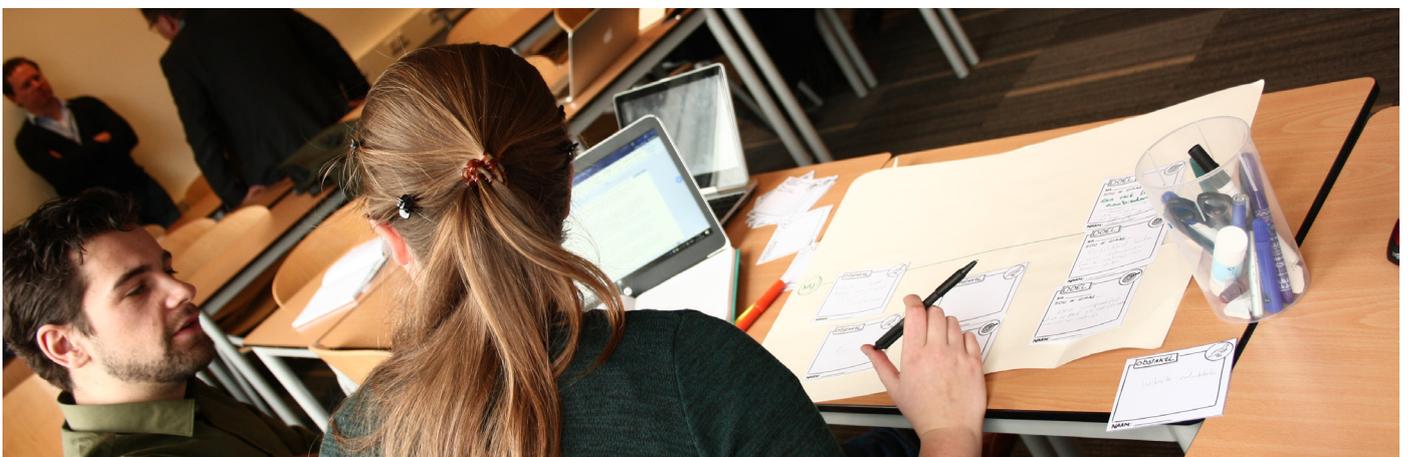
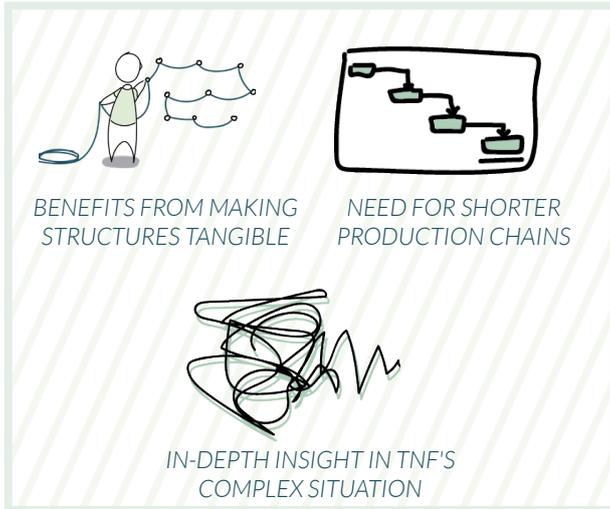


FIGURE 39: constructing a roadmap to realize the idea of a entrepreneur/research contact point.

INSIGHTS & FINDINGS



FUTURE OF FOOD WORKSHOP - NETWORK CAPABILITIES

An half-a-day workshop was planned for the FoF-group to explore the current skills of the network and the resources that still needed to be obtained. The event was facilitated with the help of one member from the FoF-group who specialises in creative facilitation.

In the workshop the participants were asked to choose from three foodchain topics: "product", "production" or "consumption" and discuss the current challenges. Afterwards, they were invited to select a problem and present their sources to aid in this issue. They visualised their network and resources through a Lego Serious Play kit.

Several useful insights were gained from the workshop. For example, the need to bring production and consumption closer together to create transparency and the required new solutions to develop more sustainable packaging. Furthermore, Reinier from Consult2Grow also joined the workshop and provided a thorough explanation of the predicament TNF is in through his Lego Serious Play model.

Overall, organising such a workshop helped to visualise and make the notions the network considered significant tangible. It made it easier to discuss and see new connections between the different models that were constructed. Furthermore, it aided in explaining a complicated situation like that of TNF. Similar techniques can be used in the future for a comparable purpose by the TNF community or the network.



FIGURE 40: Using lego to visualise their personal network.



FIGURE 41: Reinier explaining the situation of TNF to the other participants.

VALUE PROPOSITION CANVAS

An overview of the stakeholders in the Food Innovation Network was created in a Value Proposition Canvas [Strategyzer, 2018]. The canvas helped to outline the values and needs of the members of the network. Plus, it helped to explore how the various members could cater to each other's needs. The discovered insights from the previous activities were used to build the different canvases, see Appendix F.

After breaking down the different stakeholders into their tasks, pains and gains, an infographic was created. An overview was designed to showcase how partners could support each other in the network. Figure 42 on the next page was constructed to visualise these interactions. The positioning of TNF was chosen to facilitate and host the interactions between the different stakeholders. The following paragraphs discuss the roles of the stakeholders in the network.

TNF could support synergy and accommodate the network in the building. It became clear that interactions have to be guided to enable progress in the "Future of Food group", promote communication in the TNF community and boost the Food Innovation Network. The TNF team is already facilitating space for the tenants and their activities in TNF, and it would increase their positioning to host the events of the network. Thus, accommodating the network could be the role of TNF in the network, which already harnesses their current capabilities and enhances their positioning.

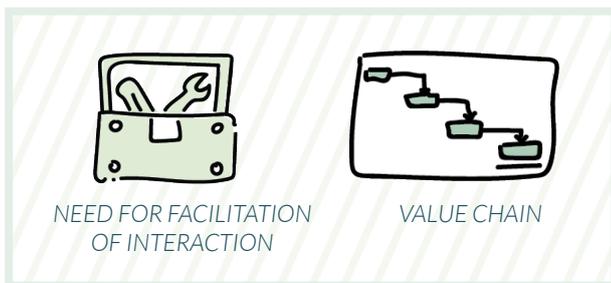
The municipality now funds several food innovation projects. Their goal is to boost the city image and create support for new entrepreneurs. Furthermore, they can provide a better quality of life for their citizens by focusing projects on problem areas and potentially providing better nutrition through the food projects.

The entrepreneurs can gain knowledge and help from students and educational entities. Startups are hoping to boost their business through new connections and improving their product through projects and solutions. Educational entities can help provide this advantage and in return have inspiring projects for their student and a testing environment for discoveries.

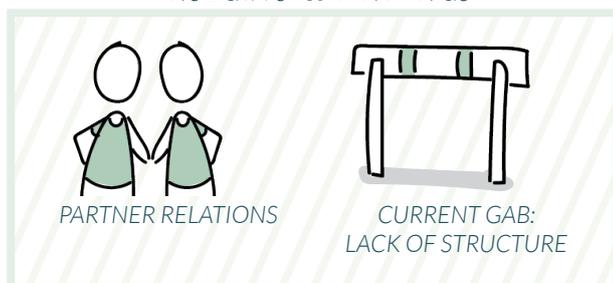
The partners from the food sector are searching for new innovative solutions and knowledge. The educational entities can provide new insight and in return gain more inspiring environments for students and researchers to execute their work and experiments. Additionally, the partners in the food sector gain publicity and potential new consumers by being connected to an innovative project and showcasing their effort to more sustainable solutions.

Overall, the stakeholders in the network can provide value to each other and each gain and provides services if they combine forces. This synergy could be the beginning of a future system with TNF as a hub for innovation.

INSIGHTS & FINDINGS



INSIGHTS & FINDINGS



PLATFORM DESIGN TOOL

The Platform Design Tool [Platform Design Toolkit, 2018] can be used to develop a platform system with platform owner, partners, peer producers and peer consumers. The toolkit was used to explore which service TNF could provide for the network and how they could facilitate this. The full toolkit can be viewed in Appendix G.

The toolkit goes through several phases. Firstly, naming the stakeholders in the system and determining their fundamental role. Secondly, the services the platform should provide and which resources are needed. Lastly, how the different partners deliver these services and how they relate to each other.

In the final canvas of the platform design toolkit, the experience learning canvas, the interactions are linked with the different values the stakeholders provide. A fascinating insight from this canvas is that Consult2Grow could fill a gap that is currently experienced by the system: the lack of structure, methods and tools to initiate and carry out a project. As previously noted they could combine encouraging interaction between different stakeholders and make the start of a project more straightforward for the network with their services.

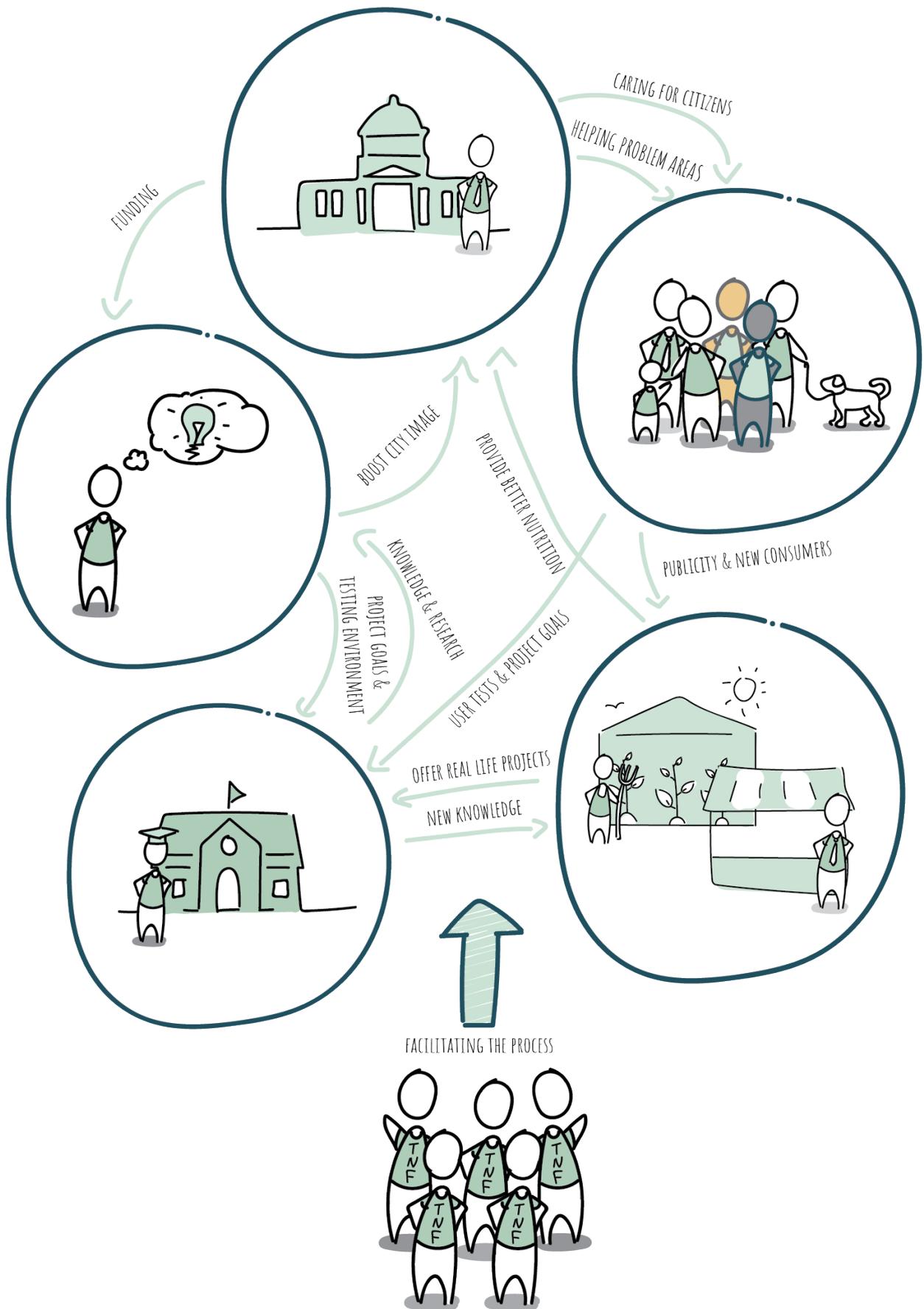


FIGURE 42: Potential relations between partners and stakeholders of TNF

FIGURE 43: TNF sign on the building.



FIGURE 44: Mural on the at Urban Farmers and herb picking station.



FIGURE 45: Weekly Farm Lunch hosted by Tabouleh on the fifth floor.

3.3.3 CONCLUSION

Section 3.3 illustrated the research activities that were initiated to gain an in-depth understanding of TNF, its community and the Food Innovation Network. The activities helped to identify the needs of the stakeholders, the perceived value of the network and current struggles and issues. This knowledge will be critical to design appropriate solutions for the TNF community to generate innovation in the food industry. The single observations and learnings will be merged into findings in the following chapter which will guide the next steps of the graduation assignment.



3.4 FINDINGS

The observations and knowledge from the research activities will be integrated into findings. Three different areas will be discussed: Internal Dynamics of TNF, Network & positioning and Social Solutions. Firstly, The internal dynamics of TNF will help to determine the needs of TNF to become a hub for innovation. Secondly, The findings from the network will evaluate the needs and value of the network and how TNF could facilitate this. Lastly, the explored social solutions and requirements for collaboration will decide which factors might help the context. The insights in these topics will help to design tailored solutions for TNF that will enable the community and the network to generate innovative solutions for the food industry together. The identified insights will shape a plan of action to assist them in their developments and aid them to overcome current obstacles.

3.4.1 INTERNAL DYNAMICS TNF

The internal dynamics of TNF have been thoroughly explored in informal conversations with the stakeholders and observing the internal interactions. A more in-depth understanding has been achieved by attending internal activities of the TNF internal team. For example, meetings and internal presentations.

These research activities gave insight into the culture, issues, processes and operations in TNF and how the different stakeholders perceived it. These areas will provide insight into the motivation, obstacles and current procedures for networked innovation in TNF. The findings will be discussed per topic in the following sections and are summarised at the end of Section 3.4.1.

WORKING CULTURE & INTERNAL ISSUES

The internal working culture and the general atmosphere in the building affect how people feel, how they interact and what is possible in the context. The current internal culture is influenced by several elements: the internal TNF team, the activities in the building, the office set-up and general atmosphere. Firstly, the internal team of TNF can support new activities or suppress them. Secondly, the social events in the building can help to unite people and improve communication. Thirdly, the set-up of the building can encourage social interaction or solitary activities. Lastly, the overall atmosphere can boost motivation, the general mood and feeling of the building for visitors. In the following paragraphs, each topic will be discussed.

The internal team can encourage new activities by providing space, resources or support during events. However, they can also suppress them by, trying to control new initiatives, setting high requirements or slow decision making. Due to the high pressure on the internal team from investors and the municipality they have been observed to be more likely to stifle activities and limit the ability of stakeholders to improve their surroundings.

For example, a group of students was planning an event and requested TNF to be able to host it in their building. The TNF team rejected this offer before exploring the possibilities thoroughly because they perceived that hosting the event would cost a high amount of their available time. However, they could have explored other options or requested if the entrepreneurs in the building might be interested in helping the student team to overcome this limitation.

The internal team struggles with their internal limitations and this clashes with the needs of the stakeholders. For example, their limited time, funds and energy. The team can only carry out the necessary tasks for the building and is limited in their ability to achieve genuine long-term progress due to these constraints. The minimal progress leads to frustrations and lowers their motivations. The team is disheartened and is not able to improve their situation due to the limitations. This vicious cycle sucks up all the energy and leaves no room to answer to the needs of the stakeholders. The cycle is visualised in Figure 46.

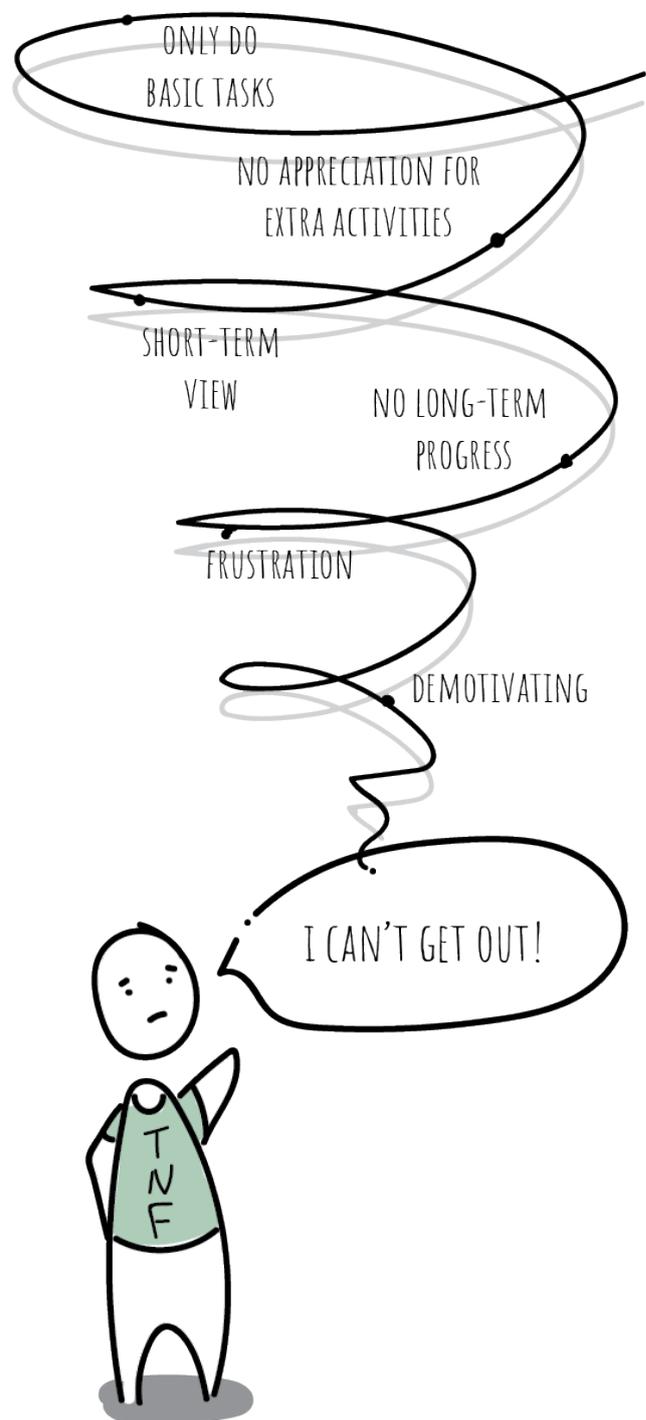


FIGURE 46: Vicious cycle of the TNF team which absorbs their energy.

The set-up of the building is further hurting the atmosphere and social interactions. The office setting is closed-off, and visitors aren't able to view if people are present in the building, as can be seen in Figure 48. For example, the offices have only a small blinded window to the hallway through nothing is visible. Several tenants complain about this set-up and struggled to initiate interactions with the other residents of the building due to this situation.

Furthermore, due to the limited potential for interaction the feeling of the building is bleak and disheartening. Several tenants explained that they didn't feel connecting with the others and wished to interact more with the other tenants but felt blocked due to the atmosphere.

Additionally, it is challenging to get into the building as an external visitor. The entrance is closed, and you need to call a person in the building to open the door for you, as can be seen in Figure 47. The tenants expressed their dislike for this due to several reasons. Firstly, it feels unfriendly to their visitors to have to wait outside until someone can come to collect you. Secondly, the tenants felt isolated from the area and wished for more interaction with the neighbourhood. Thirdly, they have to walk downstairs every time someone needs to be in the building. For example, for construction workers, packages, interested visitors, friends or their clients.

Overall, the culture in TNF is currently limiting the ability of the community to connect. Furthermore, it limits the ability of stakeholders to improve the building and boost the building to become a hub for innovation.

FIGURE 47: Tenant signs at the entrance of TNF.

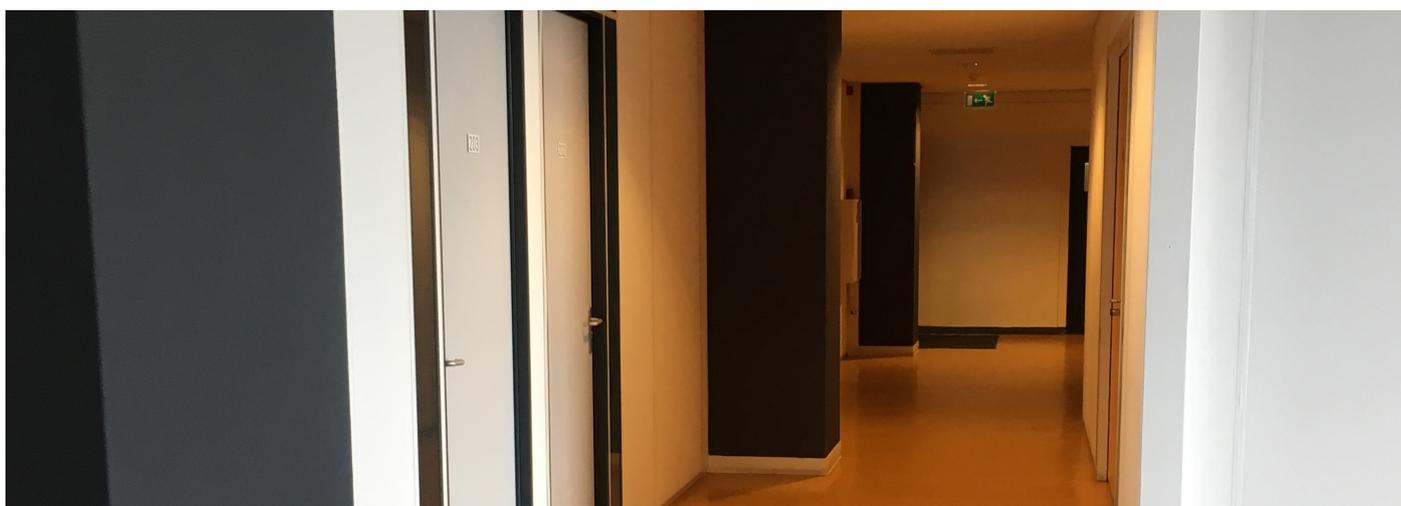


FIGURE 48: Closed off office set-up.

PROCESSES & ACTIVITIES

The processes and activities explore how the community of TNF and the internal team manage their plans, activities and events. These influence how new solutions might fit in with their current strategy or how they might improve the structure. For example, current internal communication methods, project management, meeting structures and priorities.

There are currently no established arrangements in place to communicate in the building. For example, a WhatsApp group, message board or periodical meeting. Thus, regularly opportunities or information fails to reach people. For example, the TNF team arranged for a national symposium to be hosted on the 26th of November. However, the tenants of the building were not notified and only learned of its existence through external parties a week before the event. The lack of communication frustrates the tenants and causes them to feel uninvolved with the building developments.

Additionally, the tenants expressed their current dislike for how the facilities are managed and lack of communication why they are not improved. For example, for several months mail got lost in the building due to the lack of postboxes, and the bike-garage can't be accessed because the lock is broken. The TNF team isn't available to discuss these requests nor able to respond to them.

The TNF team currently lacks the resources and capabilities to deal with all the requests, and this leads to tensions in the community. The challenge of justifying decisions to investors, dealing with the municipality, responding to claims of tenants and aiming to improve the building long-term is more than the team can handle. Thus, the questions of tenants are not prioritised by the internal TNF team because the other requests are more pressing to address.

Furthermore, the long-term goals have been neglected by the internal team as well. The internal team first addresses the most pressing issues. For example, contracts with partners, internal data structures and the planning of the construction of the building. However, long-term purposes are forgotten during these activities. For example, building relations with tenants and partners, facilitating social activities and obtaining feedback to learn how to improve the overall concept of TNF. These might enable them to incorporate small improvements in their current operations to improve the situation of TNF steadily.

Overall, the processes and activities in TNF need to be improved to facilitate a beneficial environment for innovation. Effective communication has been identified as an enabling factor for collaboration in Section 3.2.2. Furthermore, it limits the community to interact, spread information and share knowledge. The internal team currently lacks the capabilities and resources to deal with these shortcomings adequately. Thus, the tenants are unsatisfied with the current facilities and the setting. Moreover, the lack of support results in focus on short-term objectives and neglect of long-term goals. For example, signing contracts quickly over building long-term relationships and learning what is needed in TNF.

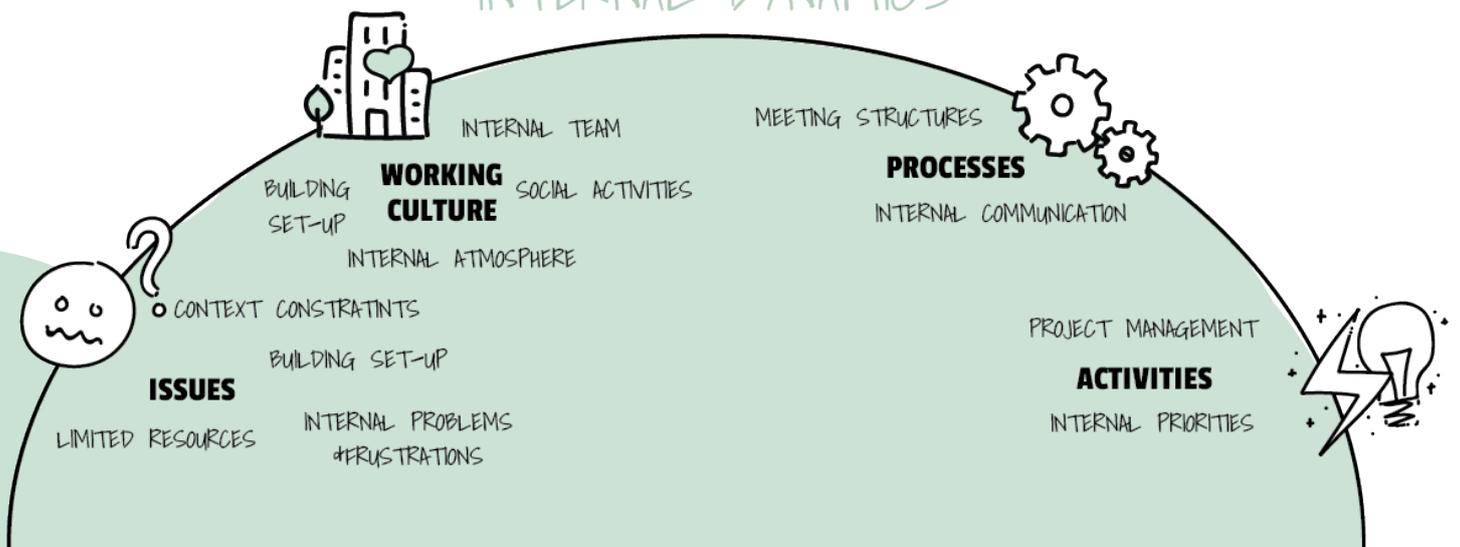


FIGURE 49: Tenants long for more social activities like the Farm Lunch.

OBSERVATIONS



INTERNAL DYNAMICS



3.4.2 NETWORK & POSITIONING

The Food Innovation Network currently consists of the community of TNF, the "Future of Food group" (FoF-group) and other connected individuals and partners. The network members have been analysed to discover the emerging network structure, their needs and the perceived value of the partners. These aspects were investigated through, for example, the FoF-group meetings, value proposition canvas and design interventions in the network. The findings will help to design a beneficial solution to enable the network to explore innovative food solutions by tailoring it to their needs, enhancing the value of the network and integrating it into the network structure. The topics will be discussed in the next sections and summarised at the end of Section 3.4.2.

NETWORK STRUCTURE & NEEDS

The following factors will be investigated: the internal culture, adopted communication methods, connected stakeholders and social interactions. These factors will help to explore the network structure, its needs and current limitations. The findings will help to determine how TNF might aid the network further. If TNF is unable to support the network, which is likely due to the limited available resources, the findings can help to design a solution for the network itself rather than TNF.

The network is still starting up and exploring how best to develop itself. For example, through acquiring more members, initiating new projects and obtaining funds. The network examined these in the FoF-group meetings hosted approximately once a month. During these meetings several topics are discussed, for example, potential projects, next steps and food technology developments and focus areas. The meeting notes can be viewed in Appendix D.

The meetings resulted in several potential joint project ideas and plans for the FoF-group. The most noteworthy plans are the "Weck de Wekpot" and "Food Efteling". The "Weck de Wekpot", or "awaken the weck jar", was aimed to raise awareness for the ability to preserve food with old-fashioned methods. The goal was to educate people about its properties and reintroduce it as a common practice in households. The second project "Food Efteling" (Efteling is a Dutch entertainment park for kids) was focussed on inspiring kids to explore and enjoy food in new ways. For example, by teaching them new flavours, how to prepare food and how to stay healthy through diet. Both ideas would use several of the educational and entrepreneurial partners to collaborate and explore the possibilities of these ideas.

However, these ideas have not been taken to the next step. The current activities were focussed on meeting structures, and members undertook little action outside of the meetings. Furthermore, all the sessions were facilitated by one member of the group. The other members didn't feel responsible for the progress of the group and had to insert little effort in the initiative. The low level of input required resulted in little activity outside of the meetings and discouraged members to take the initiative.

Additionally, the network was limited by the chosen information structure. Several e-mail chains were formed with different members of the group, which resulted in confusion. Plus, it was difficult to add new members and communicate past progress because they had to go through several different e-mail chains. Furthermore, it was difficult to keep an overview of the connected members because no standard mail list existed to reach out to everyone.

Another limitation of the network is the current diversity of members. The network consists of mainly educational partners. For example, The Hague University, TU Delft and InHolland University. The entrepreneurs and industry partners are underrepresented in the network, and this results in a slight research focus. A balance needs to be achieved if the network wants to connect different industry members and initiate projects from multiple perspectives. The balance will enable them to create more holistic solutions and incorporate various aspects of the different steps in the food chain.



FIGURE 50: Third meeting with the "Future of Food group".

NETWORK VALUE

It is interesting to explore the value of the network and their current focus areas to make an impact. The findings might help to learn how their goals can be supported or how additional advantages can be created. Furthermore, the focus areas help to determine how the network is developing, what is in their scope and how this impact their positioning.

Diverse topics have been explored during the "Future of Food group" (FoF-group) meetings. A list of subjects can be viewed in the notes from the second FoF-group meeting in Appendix D. One overall goal was determined and the topics related to this aim. The goal was to feed one million citizens healthy and sustainable produce. The goal resulted in the following sub-topics: sustainable food solutions, healthy food solutions, food education, shortening the food chain and a consumer focus.

Several examples were discussed to explore the focus areas in more detail. For example, pop-up stores to test an idea and a stand in the train station to explore consumer adoption of healthy fast food solutions. New technologies have also been discussed for example 3D printing food, substituting insects for meat in diets and rooftop farm initiatives. Educating children from a young age was a reoccurring theme as well. The group realised the importance of making an impact at a young age to teach people how to eat the right nutrition to stay healthy and adopt values to eat sustainable food solutions with low environmental impact.

These topics give insight in what areas the FoF-group and the network want to have an impact in the future. These can be taken into consideration when attracting new partners and developing a plan to generate and obtain the right resources to explore these areas in the network.

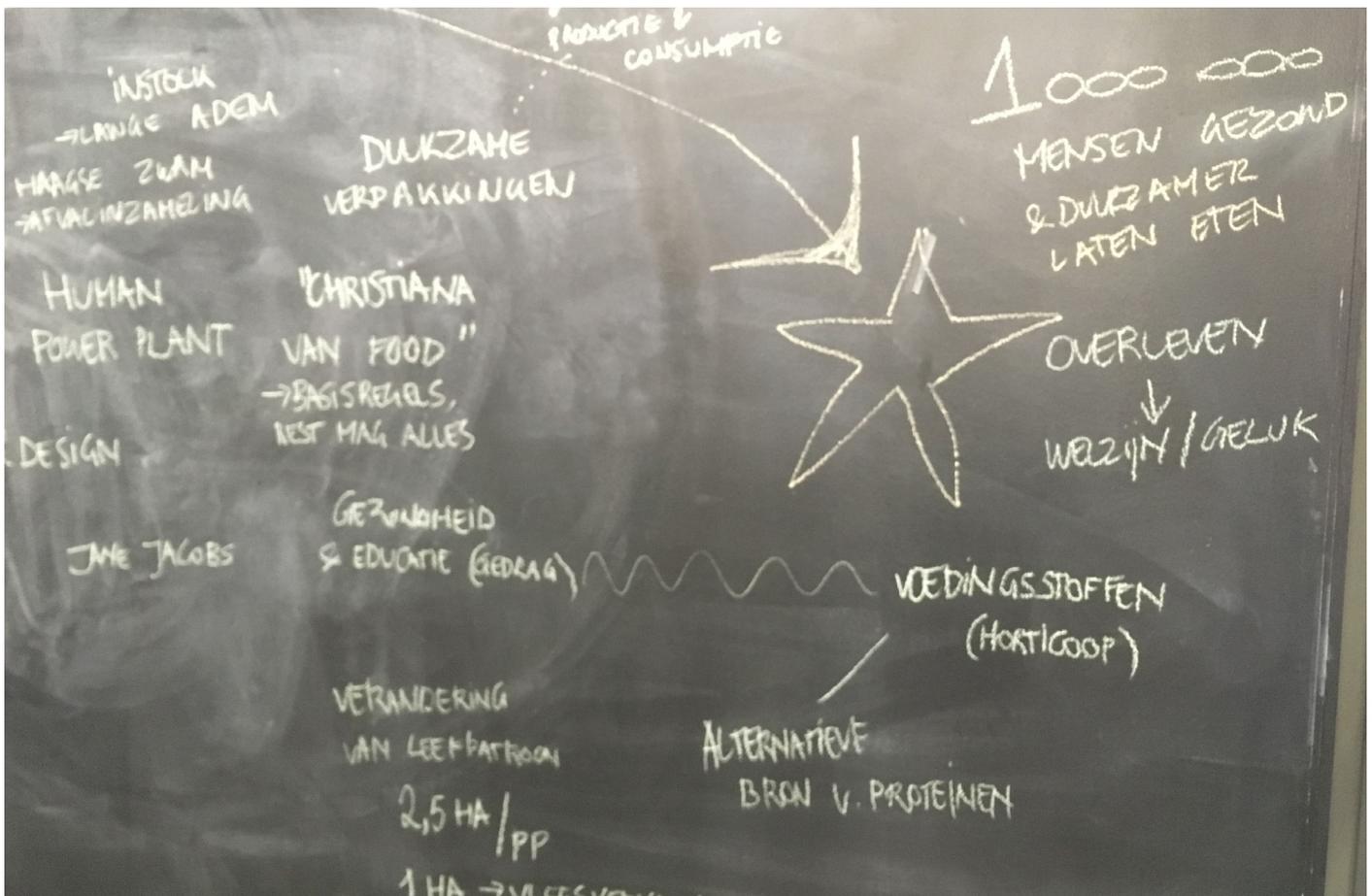


FIGURE 51: Explored topics during the second Future of Food meeting, including the group ambition in the right top corner.

OBSERVATIONS

NETWORK STRUCTURE



NETWORK CULTURE	THE NETWORK ADOPTED A MEETING STRUCTURE, MAKING IT DIFFICULT TO TRANSITION TO ACTIVITIES
COMMUNICATION	MEETINGS ARE FACILITATED AND REQUIRE LITTLE EFFORT FROM THE REST OF THE PARTICIPANTS
CONNECTED STAKEHOLDERS	INEFFICIENT COMMUNICATION IN MULTIPLE E-MAIL CHAINS, RESULTING IN CONFUSION AND SPARSE INFORMATION SHARING
CURRENT INTERACTIONS	LITTLE DIVERSITY IN MEMBERS, RESEARCH/EDUCATION IS DOMINANT

NETWORK NEEDS



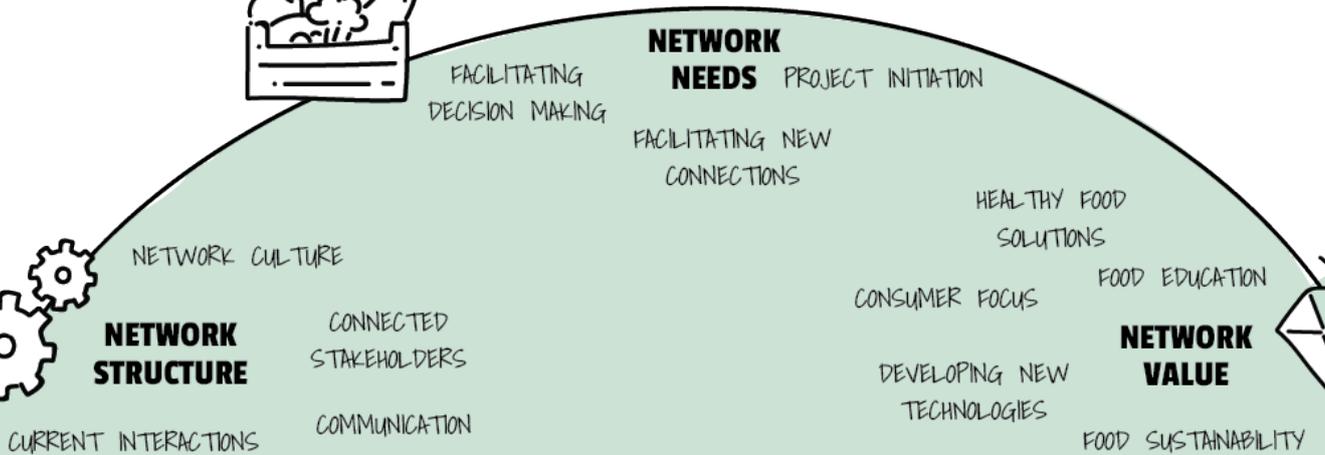
PROJECT INITIATION	THE NETWORK WANTS TO TAKE ACTION, BUT IT IS DIFFICULT TO TRANSITION TO TAKING ACTION
ENABLE INFORMATION SHARING	THE CURRENT INFORMATION SHARING METHODS LIMIT THE NETWORK
FACILITATING DECISION MAKING	THE NETWORK NEEDS TO ACQUIRE DIVERSE PARTNERS TO ENABLE THEM TO CREATE HOLISTIC, FOOD-CHAIN WIDE PROJECTS

NETWORK VALUE



HEALTHY FOOD SOLUTIONS	THE NETWORK WANTS TO EXPLORE NEW HEALTHY AND SUSTAINABLE FOOD SOLUTIONS
FOOD SUSTAINABILITY	THE NETWORK SEEKS TO BRING CONSUMER AND PRODUCTION OF FOOD CLOSER TOGETHER
FOOD EDUCATION	THE NETWORK AIMS TO EDUCATE CHILDREN TO HAVE AN IMPACT AT AN EARLY AGE
DEVELOPING NEW TECHNOLOGIES	THE NETWORK WANTS TO TAKE INTO CONSIDERATION CONSUMER ADOPTION AND CHANGING PERCEPTIONS
CONSUMER FOCUS	

NETWORK & POSITIONING



3.4.3 SOCIAL SOLUTIONS

The previous findings from the internal dynamics in TNF and the Food Innovation Network showcased the demand for improved communication, social activities and joint project initiation. The discovered solutions in literature to overcome these challenges might aid and provide focus to solve these issues. Several topics from Section 3.2 will be repeated to relate them to the discovered challenges for the Food Innovation Network.

KNOWLEDGE SHARING & INTERACTION NEEDS

Two themes that were identified as challenges in both the context of TNF and the "Future of Food group" (FoF-group) were communication and desiring more interaction with the community.

Firstly, both settings hadn't adopted effective communication methods. For example, TNF has not initiated a channel yet to inform the community, and the FoF-group adopted ineffective and confusing e-mail chains to discuss their plans. Effective communication was identified as one of the vital elements to enable collaboration and create transparency in projects.

Thus, adopting a solution to communicate in the network could boost activities and make it easier to inform members of developments or opportunities. Services that could facilitate this are, for example, Slack [Slack, 2018] or Discord [Discord, 2018]. However, it might take time for network members to adopt a new communication app. Thus, it might be easier to start with a WhatsApp group to boost social interaction and communication. Although it isn't ideal for document sharing, nor can it be easily structured like the other solutions.

Secondly, it was observed that people from TNF and the FoF-group struggled to initiate new projects. There were several ideas in the FoF-group for new projects, but none were developed into a project. It was perceived as an obstacle to take ownership of the project and to take action. It might help to adopt a set structure to guide this process and make it easier for participants to estimate how much of their time would be required to develop the project.

Furthermore, the structure might incorporate learning and testing in its process. These aspects were identified as beneficial for joint projects from the literature on collaboration and agile project processes. Thus, consciously incorporating them in the networks project processes could help them to create value.

Thirdly, interaction in the network needs to be facilitated to initiate action and connect people. For example, the Farm Lunch in TNF was necessary to invite the tenants to meet each other, and the meetings for the FoF-group had to be facilitated to enable interactions in the network. More communication might be achieved by, for example, planning regular meetings, appointing a community manager to prepare activities or divide tasks to be managed in the network.

Lastly, the complexity of the network will increase over time and could undermine initiatives. More members will join the network, and it might become more confusing to get an overview of the different efforts. The current members are already disoriented and people do not know who can be considered part of the network and who is not. The chaos will only increase when the system grows.

The complexity could undermine activities because people are unaware of the available knowledge in the network or the potential to collaborate with partners. The goal of the system is to connect and collaborate with industry partners to create innovative new solutions. However, this can only be achieved if it is clear to members who they could potentially work with. An overview of the available members would need to be created and updated over time to grasp the power of the network.

COLLABORATIVE SOLUTIONS

The discovered collaborative solutions that might aid the community of TNF and the "Future of Food group" will be repeated from the literature exploration from section 3.2.2.

The factors that have been identified as beneficial and could potentially help the network were the ability to self-organise teams and build a shared understanding of the goal and project.

Firstly, helping teams to work autonomously might help them to make it easier to instigate action. It will empower a group who is, for example, building the "Food Efteling" idea from Section 3.4.2, to decide which steps are necessary and to take the actions required to realise it.

Secondly, it is vital to thoroughly explore what people mean and create a shared understanding to prevent miscommunication. For example, project terms might be used differently by people, or they have different ideas when discussing industry terms. It might help to clarify specific words at the start of the project to have clarity during the project.

OBSERVATIONS

KNOWLEDGE SHARING



FOCUS ON LEARNING & TESTING

BETTER INFORMATION SHARING AND COMMUNICATION NEEDS TO BE ACHIEVED TO BOOST KNOWLEDGE SHARING AND COMMUNITY BUILDING

ENABLING EFFECTIVE COMMUNICATION

A GENERAL PROJECT STRUCTURE COULD BE SELECTED TO AID THE EARLY STAGE OF THE PROJECT AND INCORPORATE TESTING AND LEARNING PRACTICES

INTERACTION NEEDS



DEAL WITH COMPLEXITY

COLLABORATION WORKS BEST IF TEAMS CAN WORK AUTONOMOUSLY

FACILITATING INTERACTION

BUILDING A SHARED UNDERSTANDING OF THE PROJECT PROVIDES TRANSPARENCY AND CLARITY IN A PROJECT

COLLABORATION

SOLUTIONS



SELF-ORGANISING

COLLABORATION WORKS BEST IF TEAMS CAN WORK AUTONOMOUSLY

BUILDING SHARED UNDERSTANDING

TEAMS IN INNOVATION NETWORKS NEED GUIDANCE AND LEADERSHIP TO REACH A HIGH EFFICIENCY

BUILDING A SHARED UNDERSTANDING OF THE PROJECT PROVIDES TRANSPARENCY AND CLARITY IN A PROJECT

SOCIAL SOLUTIONS

COLLABORATION SOLUTIONS

SELF-ORGANISING



BUILDING SHARED UNDERSTANDING

DEAL WITH COMPLEXITY

INTERACTION NEEDS

FACILITATING INTERACTION

ENABLING EFFECTIVE COMMUNICATION

KNOWLEDGE SHARING

FOCUS ON LEARNING + TESTING

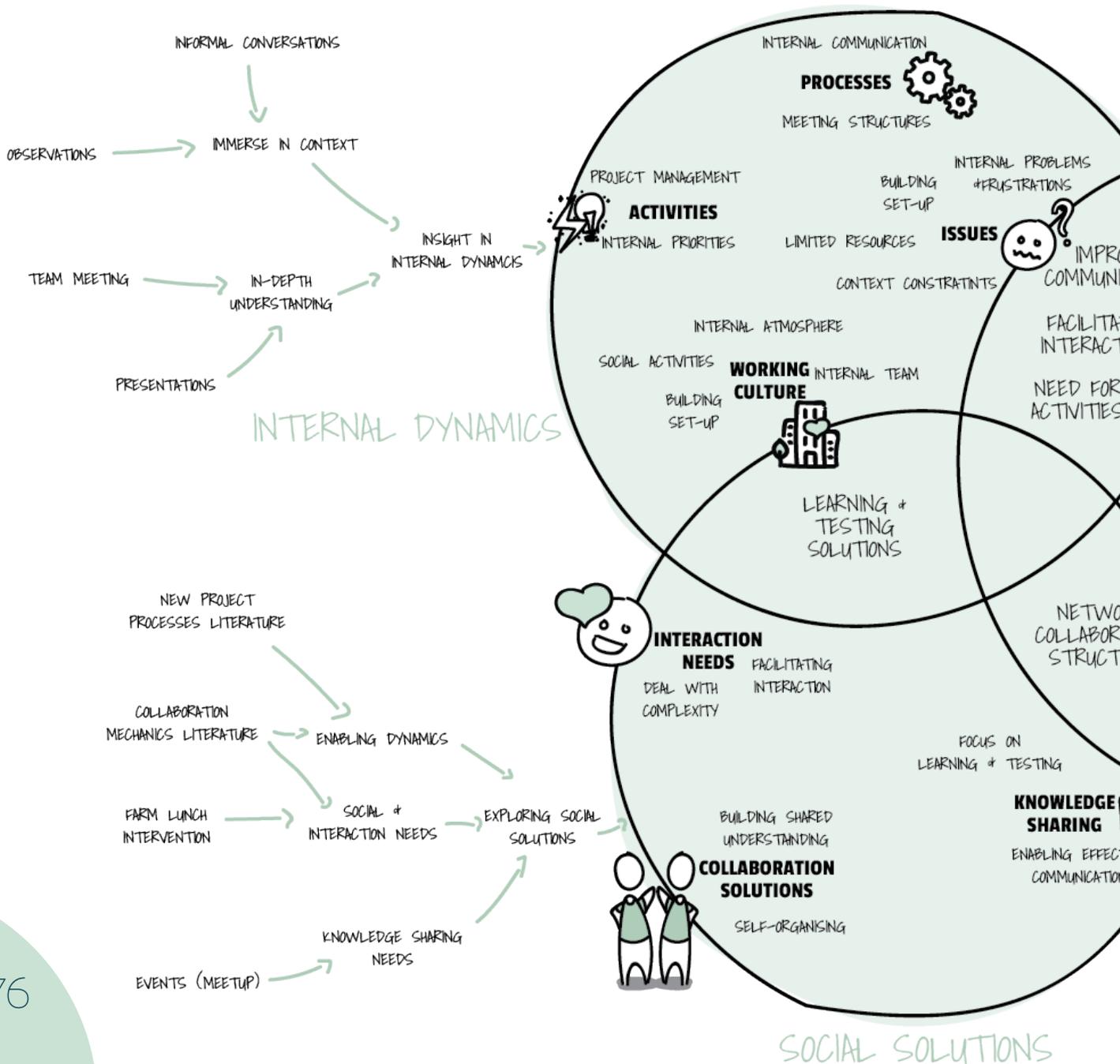


3.4.3 CONCLUSION

The research activities helped to gain insight into diverse areas. An overview of the activities, findings and discovered factors can be seen in Figure 52. It is divided into the three sections: internal dynamics of TNF, social solutions and network & positioning. Each research activity is linked by arrows to the topics it explored. The following paragraphs describe the items.

Firstly, the internal dynamics of TNF were explored through informal conversations, observations, attending a team meeting and visiting internal presentations. These activities helped to immerse in the context and develop an in-depth understanding. The knowledge helped to grasp the internal processes, issues and working culture. Furthermore, it unearthed frustrations, priorities and project constraints. These insights will be used to develop a suitable and tailored solution for the community of TNF.

Secondly, the factors for social solutions were identified through the Farm Lunch intervention, an event that was attended on knowledge sharing in corporations and the literature on collaboration mechanics and new project processes. These activities assisted in exploring the interaction and knowledge sharing needs, as well as the potential solutions to overcome them. The findings resulted in several indications that might aid the context. For example, focussing on learning and testing, building shared understanding, enabling self-organising of a project team, adopting knowledge sharing solutions, enabling effective communication and facilitating interaction. These notions can be used to develop solutions which can guide the network and support the community of TNF.



Lastly, the current Food Innovation Network and the positioning of its members was explored. These were examined through attending the Future of Food meetings, facilitating the workshops, attending the clickNL event, designing the Border Sessions intervention and discovering the challenges for networked innovation documented in the literature. Furthermore, the value transaction in the network was inspected through the Value Proposition Canvas and the Platform Design Toolkit. These tools helped to gain insight into the current network structure, as well as its values and needs.

The TNF team could potentially aid the network in some of the identified factors. For example, through project management and by promoting communication in the community of TNF. For example, aligning the goals of the network, mediating collaboration views, facilitating the making of new connections and providing support during project initiation. However, they would need to consider which are within their current ability and which are outside of their scope.

Overall, the research activities helped to determine the vital areas and needs of the community of TNF and the Food Innovation Network. The overlapping sections in the visual below show the need for improved communication, project structure and to launch new activities. TNF could provide support to advance these factors. The insights will be discussed in more detail in the next chapter.

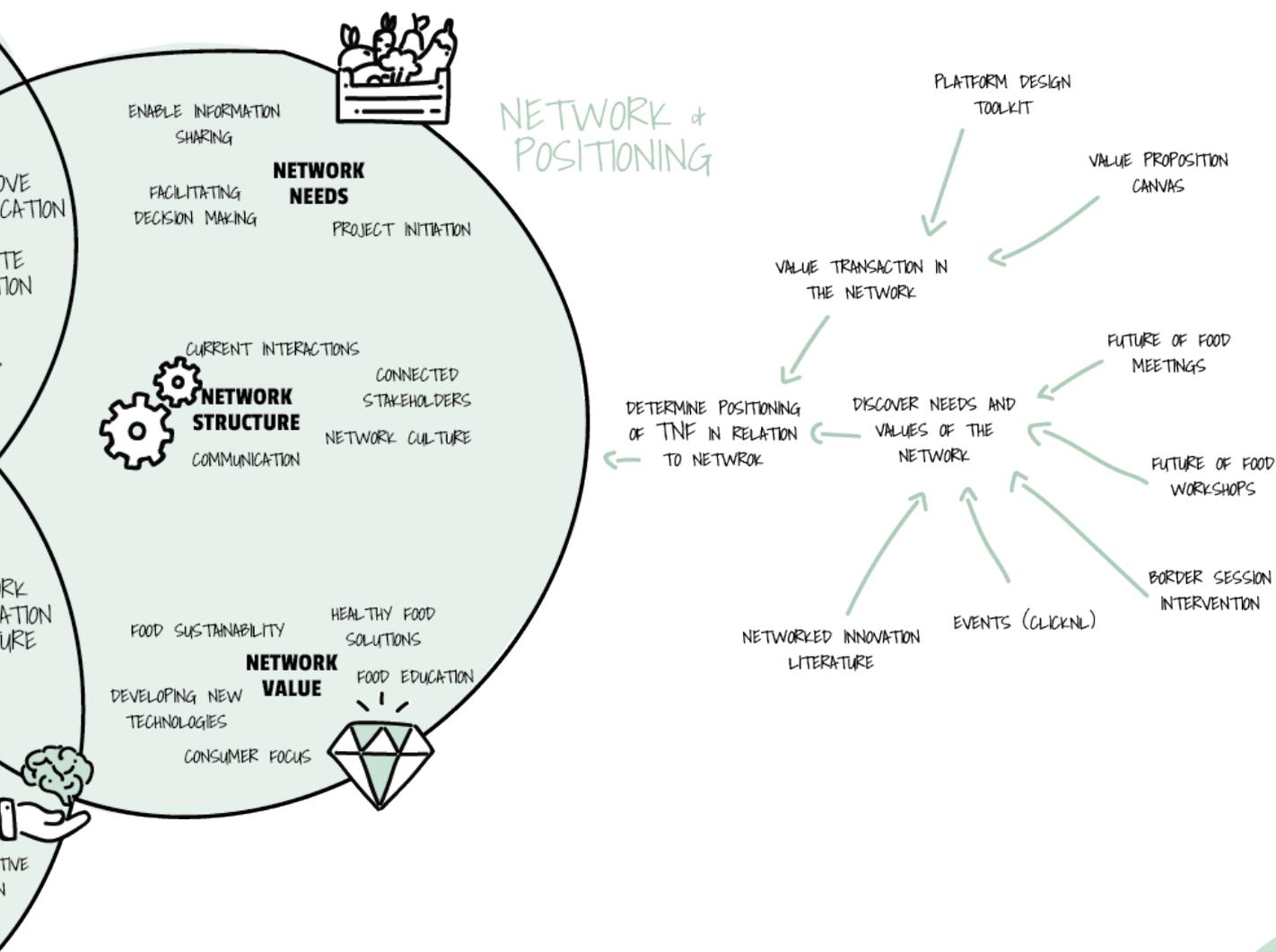


FIGURE 52: Overview of research activities and findings.



3.5 KEY INSIGHTS

The previously identified findings will be used to identify key insights to guide the next phases of the graduation project. Several similar causes can be determined in the conclusions that affect the community of TNF and the Food Innovation Network. These factors can help to establish a plan of action and a starting point to design ideas to aid the community of TNF to create innovative solutions together. The following factors will be discussed: the need for community and communication the need for action and activities and, finally, the need to create a beneficial atmosphere for collaboration.

3.5.1 NEED FOR COMMUNITY AND COMMUNICATION

One of the first needs that were identified in research was the need for community. The tenants expressed their displeasure with the isolated set-up in the TNF building, the bleak atmosphere and lack of communication. TNF could overcome these obstacles if more social relations were formed between the stakeholders of TNF. A sense of community could help establish shared activities to overcome the isolated setting, for example, by sharing lunch or coming together for Friday afternoon drinks. Creating habits and regular activities could boost the atmosphere to be more welcoming and invite tenants to communicate.

In the other groups of the network, the needs for social connections and building relationships was observed as well. The "Future of Food group" (FoF-group) wants to share their knowledge and resources to build joint projects. However, trust and a sense of community have to be formed between members to create the feeling of a partnership and overcome future obstacles for collaboration. For example, to keep improving a project when results don't meet expectations or when they need to make tough decisions.

When the network grows and the community expands it is vital to have effective communication practices and provide a way to gain an overview of the connected members in the system. Making the connected partners visible and accessible could support the start of new projects, funding requests and sharing of knowledge. For example, displaying the web of members could help to showcase the progress and achieve a sense of accomplishment when the system grows.

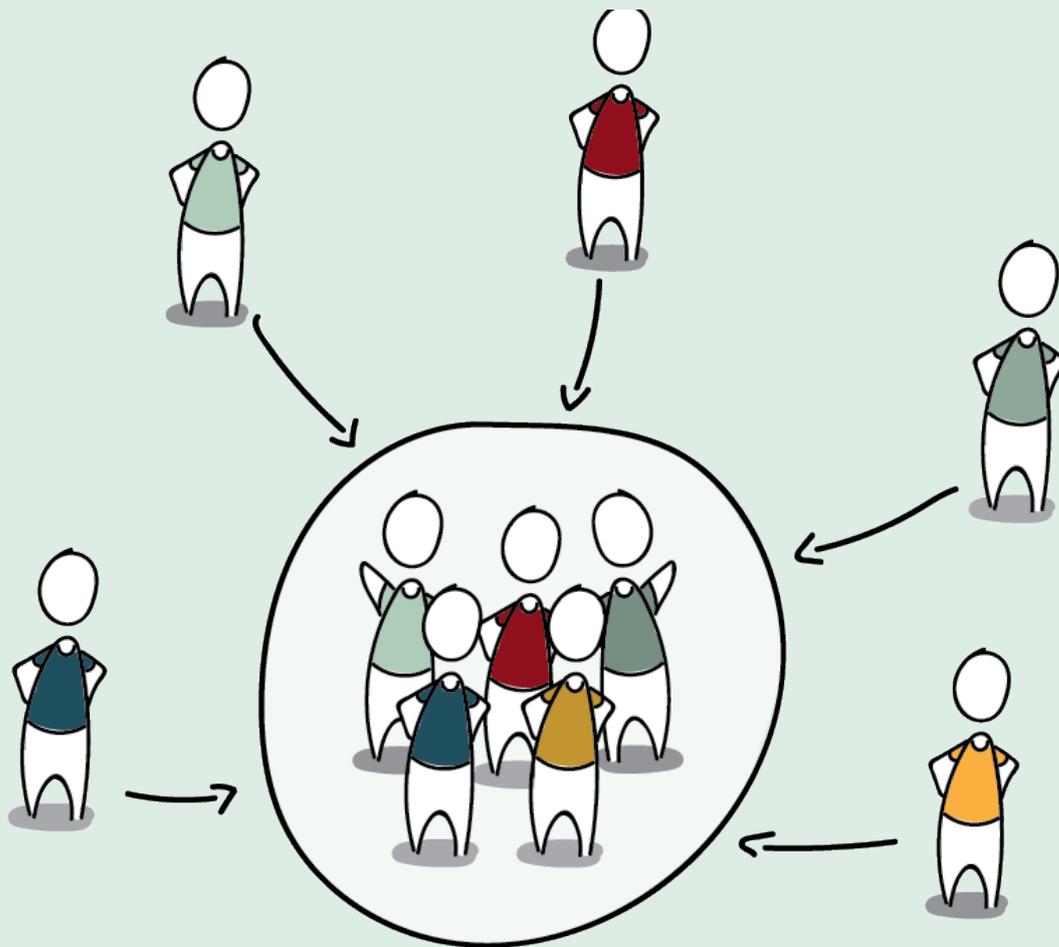
GOALS

BUILT A SENSE OF COMMUNITY IN THE NETWORK AND TNF

BOOST THE INTERNAL ATMOSPHERE IN TNF TO CREATE AN ENCOURAGING ENVIRONMENT FOR INTERACTION AND INNOVATION

CREATE USEFUL COMMUNICATION STRUCTURES TO SHARE KNOWLEDGE AND MAKE IT CONVENIENT TO REACH OUT TO MEMBERS OF THE NETWORK

MAKE THE PARTNERS OF THE SYSTEM VISIBLE AND SHOWCASE THE NETWORK GROWTH



BUILDING A SENSE OF COMMUNITY



CONNECTING PEOPLE



SHARING KNOWLEDGE



IMPROVE COMMUNICATION



ENERGISING ATMOSPHERE

3.5.2 NEED FOR ACTION AND ACTIVITIES

The next step after building a sense of community would be to discover joint opportunities and initiate innovative projects. The community can be a strong foundation to explore new opportunities that could be beneficial for multiple partners. The collaborative projects could result in a more energising atmosphere and new innovative ideas.

It was observed that people in the network struggled to initiate a project even though it was their goal. For example, during the Future of Food meetings, the group discussed ideas but never scheduled a follow-up. The meeting culture discouraged to take the next step and make the first steps to exploring an idea in more detail after the brainstorm meeting. This barrier to taking action has to be overcome if innovative projects are the desired result of the network.

Initiating joint project will support building a more energising and experimental atmosphere and could help to overcome the current bleak feeling in TNF. If the collaborative projects are developed in TNF, they could encourage the start of more initiatives and showcase the value of the network. Additionally, it might help the TNF team to get out of their energy draining cycle and boost motivation to provide some limited support to new initiatives when they prove valuable for their cause.

Furthermore, if projects are displayed in TNF, it might provide a path for outsiders to engage with TNF and explore its possibilities. For example, if a prototype of the "Food Efteling" concept is built on the ground floor, it might invite passers-by to come inside and learn about TNF and its possibilities. The open atmosphere and exposure could make it more attractive for entrepreneurs to become a tenant.

In conclusion, having activities in the tnf building and initiated by the network would be beneficial. Hosting project teams, providing space for prototypes and boosting overall activities in TNF could improve their situation and make their concept more attractive for future initiatives. Next, translating the ideas of the network into collaborative projects will boost the morale of the members and produce a sense of value for the network.

GOALS

THE COMMUNITY AS A FOUNDATION FOR COLLABORATIVE PROJECTS

NEED TO OVERCOME THE BARRIER TO TAKING ACTION

COLLABORATIVE PROJECTS TO BOOST ATMOSPHERE AND SHOWCASE THE VALUE OF THE NETWORK IN TNF

PROJECTS IN TNF COULD MOTIVATE THE TNF TEAM AND PROVIDE VALUE FOR THEIR SETTING

MAKE IT ACCESSIBLE FOR OUTSIDERS TO ENGAGE WITH TNF AND THE NETWORK

PROVIDE A SENSE OF VALUE FOR THE NETWORK



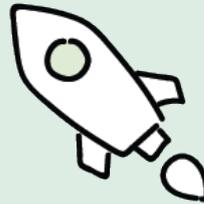
TAKE ACTION



TRANSLATE
IDEAS INTO
ACTIVITIES



SHOWCASE
VALUE OF
THE NETWORK



CREATE
INNOVATIVE
PROJECTS



ENGAGE PEOPLE
IN FOOD
SOLUTIONS

3.5.3 CREATE A BENEFICIAL SETTING FOR COLLABORATION

In the process of community building and project initiation, several challenges need to be recognised before they can be useful. For example, uniting people in their goals, establishing definitions of community and project terms and having transparency between project partners. These challenges will be discussed in more detail and can be a source of inspiration to design supportive solutions for the community of TNF.

Firstly, it is easier to build community and come up with joint projects when there is a goal or ambition to unify people. Their purpose can provide a source of focus and direction for projects and feel a sense of accomplishment when setting up plans to reach this goal. However, when people come from diverse backgrounds they might have different perspectives. It would be interesting to explore in more detail the general intent of the community of TNF to unite them in their effort. Additionally, it could help to spark ideas for a joint project to reach these goals. For example, one of the tenants suggested setting up an educational environment for children to explore the different initiatives of TNF.

Secondly, when people have a joint goal, they need to establish an approach. The "Future of Food group" has already set their mutual purpose: "providing healthy and sustainable nutrition for one million citizens". However, it was difficult to translate this into palpable activities rather than discussions. The move from idea to action is challenging to take, and they might need extra guidance to overcome this obstacle.

Thirdly, if project initiation is achieved new challenges in teamwork and collaborative processes arise. For example, planning milestones, setting terms and managing different expectations. In joint projects between two or more partners, the initial process of discussing their agreements and plans can shape the collaborative process of the project. However, during discussions miscommunication crop up and affect the rest of the project. For example, one person might think "Urban Farming" is only rooftop greenhouse in big cities, while another might consider vertical farms to be the definition of "Urban Farming". Similar situations with project planning and selecting mutual goals could occur, creating costly errors.

Lastly, is the transparency in project processes, goals and perceived advantages. In the initial stages of a project, each partner calculates their expected benefits and investments of the collaborative plans. However, if these are not shared with other partners, complications might arise due to different expectations. As discussed in Section 3.2, it is beneficial to document these assessments and create clarity between the individual aims of the project.

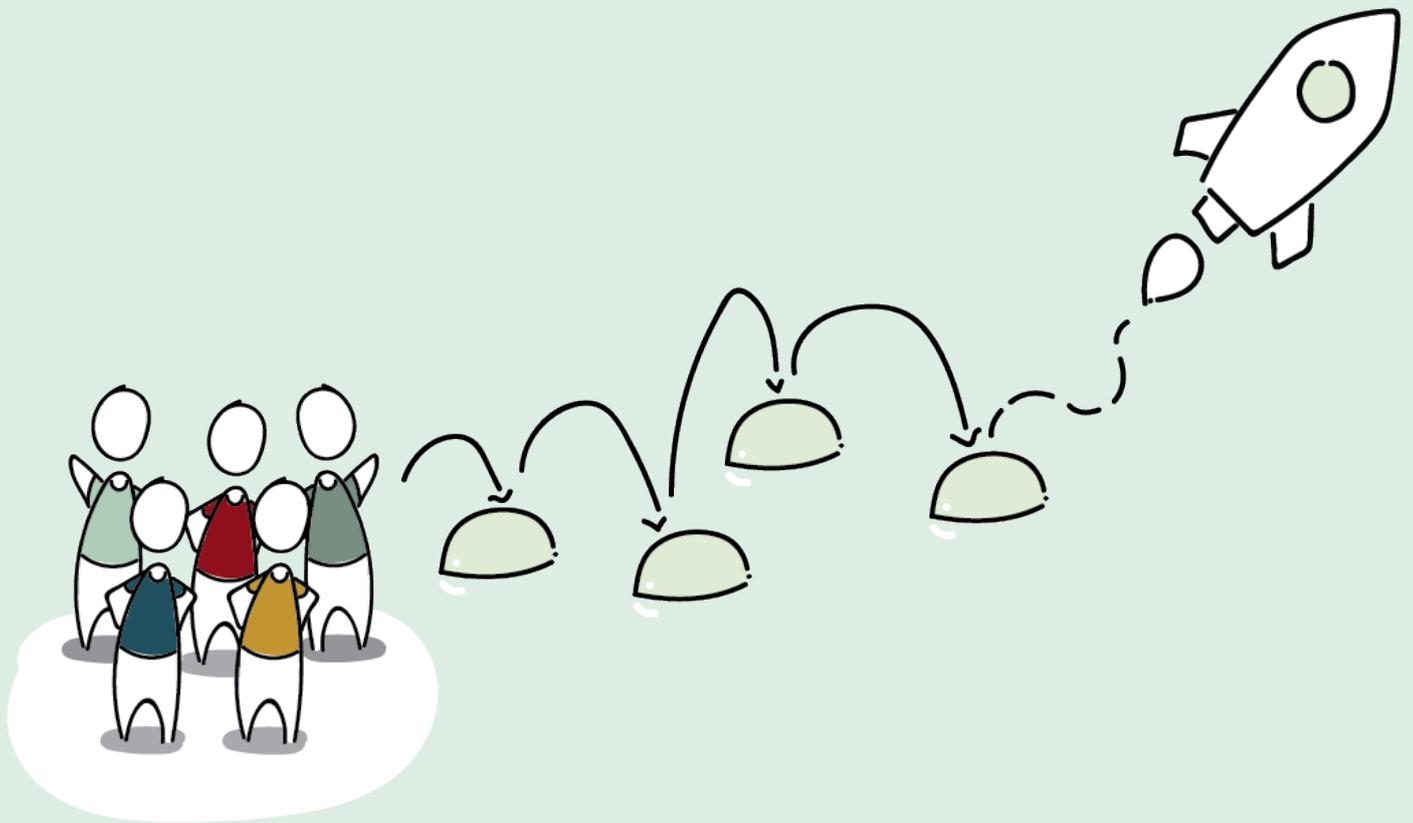
GOALS

ALIGN THE NETWORK OVER A JOINT GOAL OR AMBITION

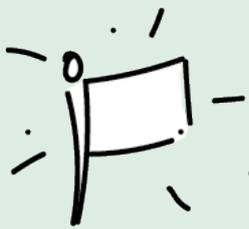
PROVIDE GUIDANCE TO TRANSLATE IDEAS TO EXECUTING STEPS
TO REALISE THE CONCEPT

MANAGING PROJECT EXPECTATIONS AND PROCESSES BETWEEN
PARTNERS

TRANSPARENCY BETWEEN PARTNERS TO ACHIEVE A BENEFICIAL
RELATIONSHIP



SUPPORT COLLABORATION



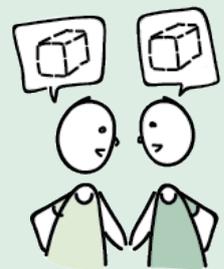
ALIGN OVER A
JOINT GOAL



GUIDANCE IN
PROJECT
SET-UP



MANAGE
EXPECTATIONS



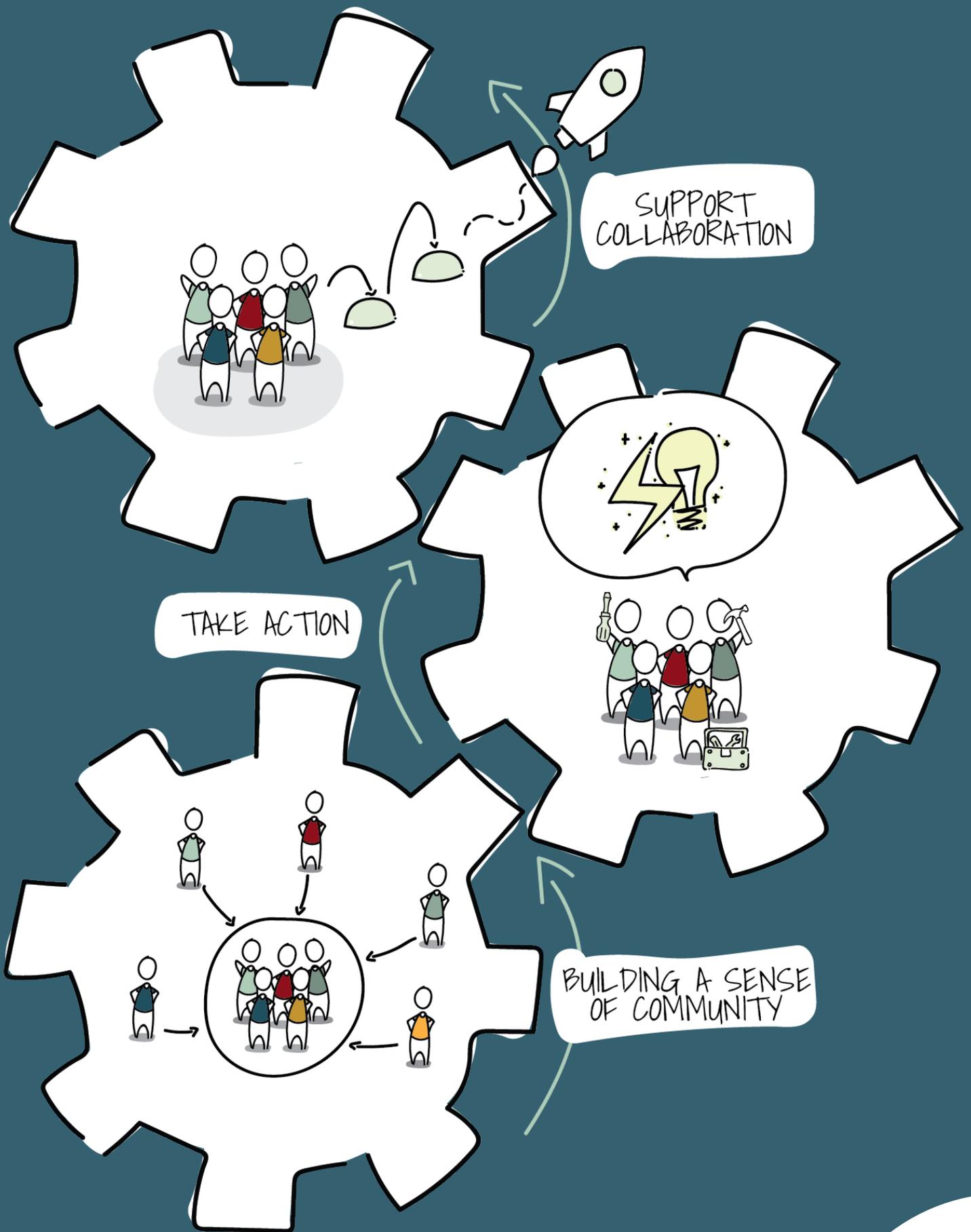
TRANSPARENCY
IN PARTNERSHIP

3.6 CONCLUSION

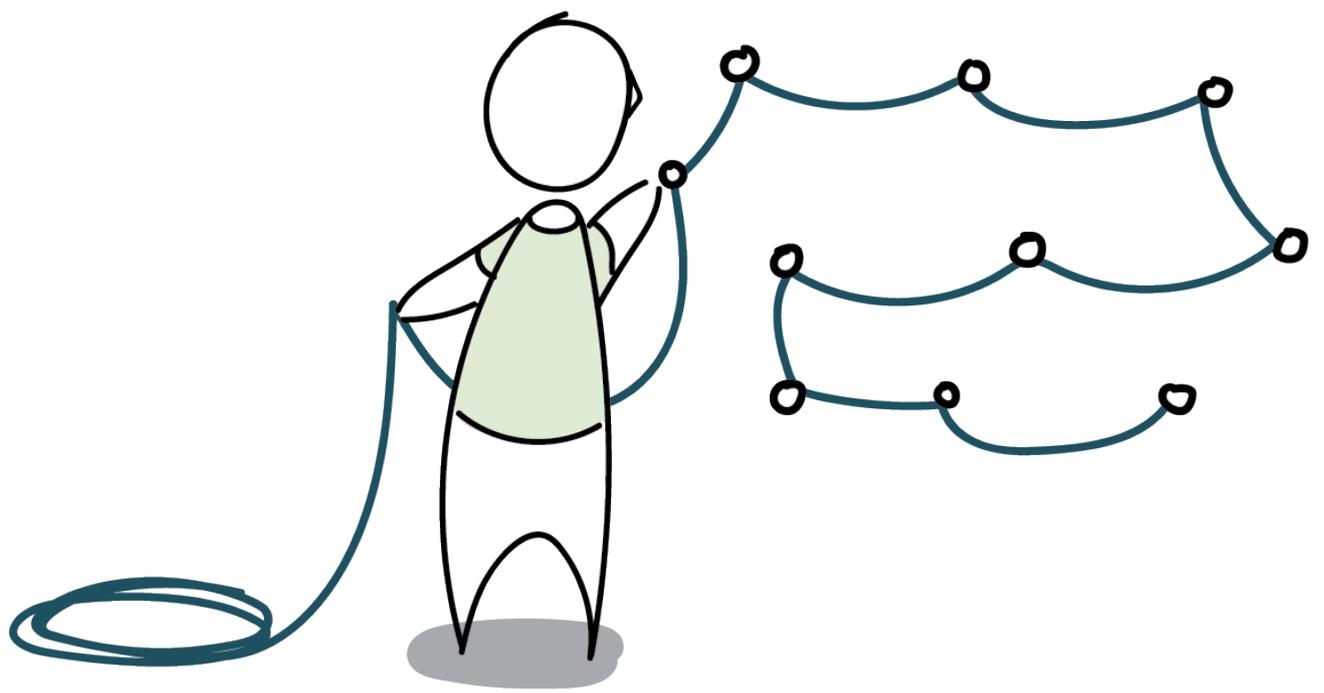
The research activities helped to identify how the Food Innovation Network and the community of TNF could be aided to create innovative food solutions. Several challenges were observed that currently prevented the people in TNF from forming closer bonds and joining forces to grab opportunities. For example, the current office set-up, no designated channel to communicate and a bleak atmosphere. Furthermore, the "Future of Food group" struggled to translate their ideas into concrete projects. For example, the "Weck de Wekpot"-concept and the "Food Efteling"-event had the support of the group but didn't result in additional activities.

These identified challenges can be overcome by building a closer community in TNF, improving communication in the network, providing guidance in project set-up and creating a beneficial setting for collaboration. Firstly, the community of both the network and TNF has to be strengthened to make reaching out to people more accessible and build social relations. Secondly, the ideas in the system need to be translated into joint projects to boost activities in TNF and a sense of purpose. Lastly, these activities need to be supported to overcome common obstacles to collaboration. For example, managing project expectations, selecting goals and milestones and creating transparency in partners motivation to initiate the project.

The next chapter of this thesis will use the discovered insights to design a solution to support the network. It will aim to overcome the previously mentioned challenges and enhance the ability of the network to create innovative solutions.

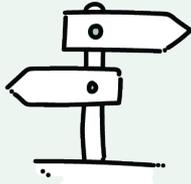


4. CONCEPT DESIGN



4.1 INTRODUCTION

The findings discussed in chapter 3 will form the basis to design a supportive solution for the community of The New Farm. The following sections will explain how these insights were used to create a concept. Firstly, the boundaries will be illustrated in which the idea will be developed. Including the constraints from the context and the objective they aim to achieve. Secondly, the ideation process will be described in which different solutions were explored. Thirdly, several ideas will be selected and developed into three concepts. Fourth, the concepts will be evaluated in a test with the tenants of TNF. Lastly, this chapter will be concluded, and several recommendations will be given to improve the concept in the future.



4.2 DESIGN DIRECTION

The ambition is to aid the community of TNF in their goal to facilitate innovation in the food sector. This is still a broad area to explore thus several requirements and sub-objectives will be set. The key insights from Section 3.5 already give some guidance for the design solutions for the context of The New Farm. Furthermore, the discovered constraints in research will help to realise a solution that will fit the context. These targets will be discussed in the next paragraphs. Firstly, the key objectives will be explained, which are based on the key insights from Section 3.5. An initial plan will be constructed in a Three Horizon Model to better illustrate short and long-term objectives [Curry, Hodgson, 2008]. Secondly, the requirements and constraints will be discussed within the context.

4.2.1 OBJECTIVES

The discovered key insights from Section 3.5 will be used to plan the identified goals for the community of TNF and the network. The desired end-results can be achieved by gradually developing the TNF setting and the network's capabilities. A Three Horizon Model will be used to create a roadmap of the discovered goals and ambitions. Firstly, the long-term goals will be discussed that need to be achieved. Secondly, the strategies to enhance the situation of the network and the TNF community will be addressed. Lastly, an overview will be visualised to present the timeline.

THIRD HORIZON

The third horizon of the Three Horizon Model is focussed on long-term goals. In this case, the goal for TNF is to enhance its setting to become better able to host the network to become a hub for innovation. The improved environment has to be better able to cater to the needs of the system and the community of TNF. They can do this by providing an energising atmosphere with innovative projects and a close-knit community. These ambitions are visualised on the right of Figure 53.

The energy in TNF and the network is boosted through an interplay of these elements. Preferably, a positive loop is created in which people are energised by the setting, initiate innovative projects and attract more people to animate the climate in TNF again. However, to reach this stage things have to change in TNF and gradually build the right environment, community and ability to start joint projects. These will be discussed in the first and second horizon.

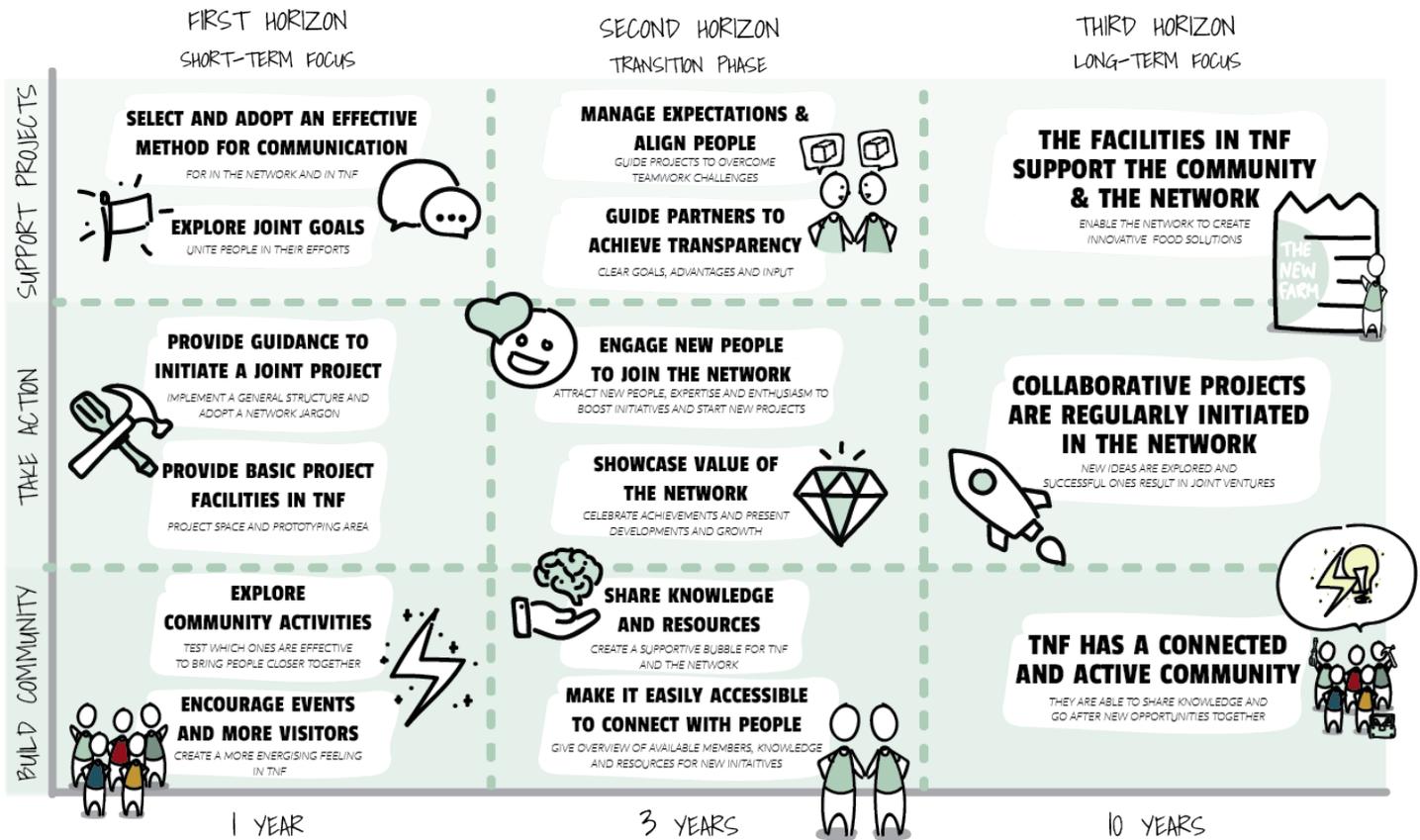
FIRST HORIZON

The first horizon is focussed on the short-term changes that have to be made to create a better situation for the long-term goals. For example, improve communication structure and experimenting with community activities. The horizons and steps are presented in Figure 53. They are divided into three horizontal sections representing the three areas to improve from the key insights: building community, taking action and supporting new projects.

In the coming year, it is vital to make some initial improvements in TNF to support the community. For example, promoting a first collaborative project with stakeholders and encouraging community activities to develop. The first steps will provide learnings and the basis to create further improvements in the future.

Additionally, it will help to create some assisting activities to enable the desired developments. For example, uniting people by exploring joint goals and adopting better communication structures. If people are united, it will be easier to select ambitions for collaborative projects. Plus, better communication will aid the project initiation process and help to organise community activities.

FIGURE 53: Three horizons to build capabilities



SECOND HORIZON

The second horizon is concentrated on building on the initial improvements of the first horizon and creating the change in TNF to be able to reach the long-term ambitions. A transition in the setting of TNF is needed to create the right environment to hold on and improve long-term advantages. For example, a vibrant community and supporting new joint ventures.

The second horizon is visualised in Figure 53 in three sections. The improved capabilities from the first horizon will be used to develop further and shape the environment. For example, by enabling the community to share knowledge and resources and making it easier to reach out to people in the network. The community of TNF could achieve this through regular events and activities and by building stronger relations between members of the network.

In the middle section of Figure 53, the goals for taking action are presented. Firstly, to showcase the newly initiated activities and honouring the achievements together. Displaying the initiatives to the network will show the value of the system and celebrating them will boost the overall morale and energy. Secondly, to engage new members and expand the network. The presented achievements will help to attract these members and can inspire people to initiate new projects.

Lastly is the top section, this contains the supporting activities the TNF community could facilitate in. For example, managing expectations and achieving transparency in collaboration. These obstacles were identified to affect the collaborative projects and should be taken into account to prevent misunderstandings. Failure to do so might result in annoyance and hurt the community due to the hurt feelings of members and their distrust. time pacing

TIME PACING

The timing of the three horizons has been set to one, three and ten years. The first horizon contains the focus points for the first year in which first improvements are made. It gradually enhances the setting and prepares for future activities. The second horizon is the transition phase which develops the constructed improvements from the first horizon to create value and work towards the end goal in the third horizon. The third and last horizon contains the ambitions for the project. They are the lighthouse to guide activities and to keep the long-term goals in focus. The aim is to reach these goals in ten years with the help of the gained abilities from the previous horizons.

However, the suggested activities will need to be updated along the way to adapt to changes in the environment and new learnings. Staying flexible in intermediate goals will help to create more value and make it easier to respond to opportunities.

4.2.2 REQUIREMENTS & CONSTRAINTS

The solutions that will be developed have to meet certain requirements and constraints to verify their feasibility, viability and desirability. These metrics were set by the design goal and the context of TNF. During research, several design limitations were discovered, which have to be taken into consideration to create a feasible solution for them. The following paragraphs discuss the current needs of the community of TNF, the constraints and the potential future needs of the community of TNF.

DESIRABILITY - CURRENT NEEDS

The current needs have been set by the chosen focus from the previous section. Here, the target was selected to build the community of TNF, guide them to take action and support them during this process. These changes will help them in the long-term to develop the needed environment, initiate joint projects and improve the overall atmosphere. Ideally, they would learn new skills while doing this. "Learning by Doing" was identified in Section 3.2.3 to be helpful to test assumptions and quickly develop ideas. Additionally, learning by doing will help to boost a more energising atmosphere due to more activities.

FEASIBILITY - CONSTRAINTS

In the research phase, several restrictions were identified, which should also be taken into consideration when designing a solution for this context. The internal team of TNF is already pressured for their time and funds, thus adding additional burdens to these wouldn't be feasible. Ideally, the solution would make their current activities easier and would help them to gain additional funds. At the least, the answer should not require extra energy and need little funds to produce it. Thus, the result should be easy to integrate with their current processes.

VIABILITY - FUTURE NEEDS

The current context of TNF is highly uncertain, and their needs can drastically change in the future. The solution should consider this and could choose several strategies to stay viable. The answer can be developed to be slightly vague to interpret it differently in changing environments, or the solution can be designed to be adapted by the community to incorporate learnings along the way. Another approach would be to create a modular solution, which can switch elements to perform in different situations. Overall, flexibility should be taken into consideration to change to the future needs of the context.



DESIRABILITY

BUILD COMMUNITY
TAKING ACTION
SUPPORTING PROJECTS

TO

CREATE A N ENERGISING ATMOSPHERE
FORM COMMUNITY BONDS
INITIATE COLLABORATIVE PROJECTS

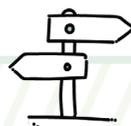


FEASIBILITY

SOLUTIONS SHOULD BE EASY TO
INTEGRATE IN CURRENT PROCESSES

TO

MINIMIZE NEEDED TIME
MINIMIZE NEEDED FUNDS
MINIMIZE NEEDED EFFORT



VIABILITY

AMBIGUOUS SOLUTION
FLEXIBLE SOLUTION
MODULAR SOLUTION

TO

ADAPT TO CHANGES
IN THE CONTEXT



4.3 IDEATION

The set design constraints and goals will be used to develop ideas to support the context of TNF. The overall goal is to create solutions which will enable the community of TNF to facilitate the innovation network. The goal will be reached by setting up a community, improving internal communication and enabling them to set-up joint projects. However, the solution should require minimal time and funds to use it, because TNF is already pressed for these resources.

APPROACH

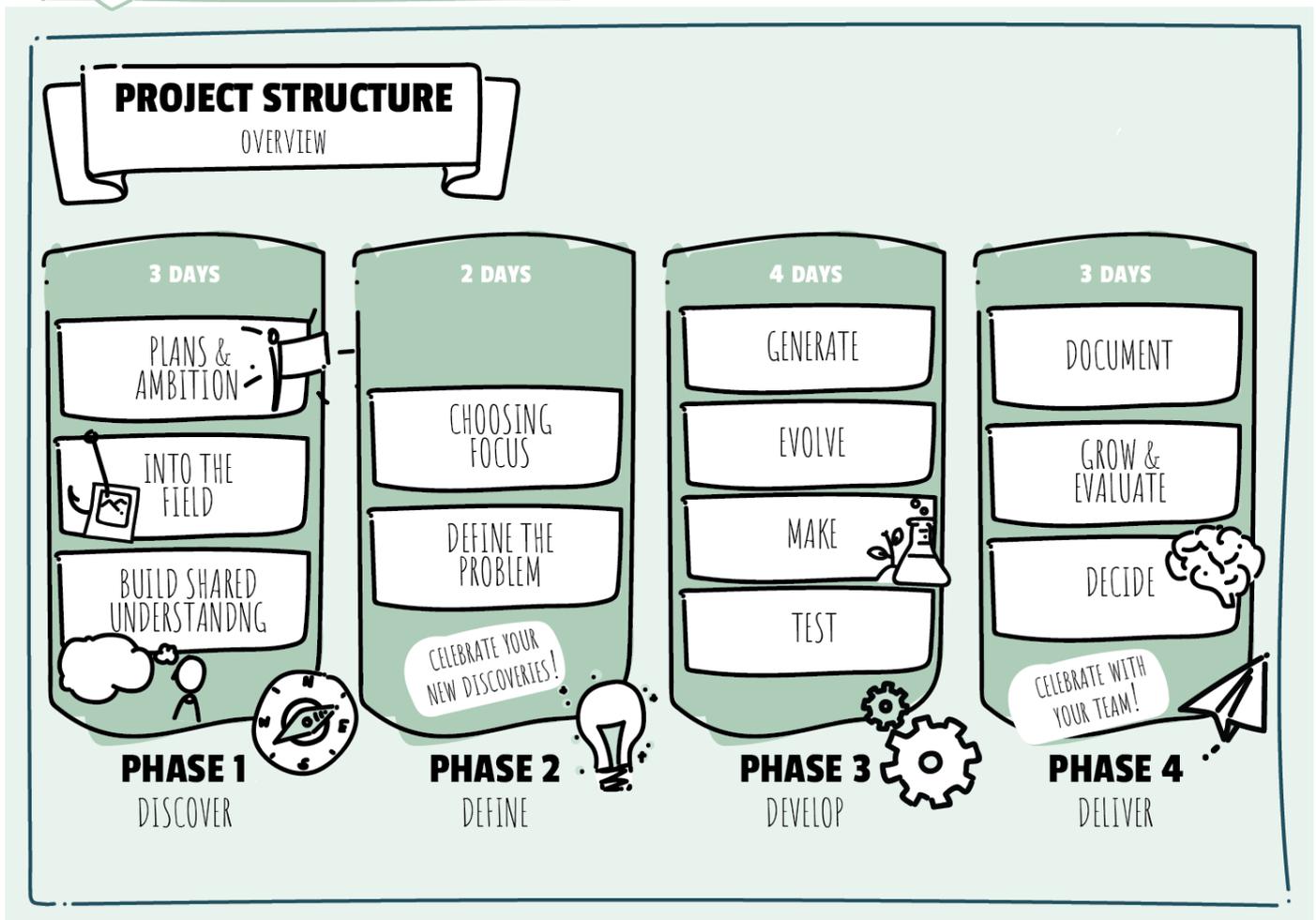
Ideas were developed in two brainstorm sessions, which were carried out in an individual setting. The goal of the first brainstorm was to explore several initial ideas that already came to mind during the research phase. These ideas catered to the direct needs of TNF and were less tailored to the discovered underlying needs as discussed in Section 4.2. One idea, the project structure framework as can be seen in Figure 55, was developed in more detail and was used as a basis for the later developed concept. The ideas of the first brainstorm and more in-depth details of the designed solutions can be viewed in Appendix H. A second brainstorm was conducted to create a larger number of ideas and explore newly identified ideas.

The goal of the second brainstorm was to develop a high number of solutions and explore different goals, spaces and potential users to gain more diverse ideas. These various metrics are investigated in “How to ...” questions to create solutions which help to achieve the set goals [van Boeijen, Zijlstra, Daalhuizen, van der Schoor, 2013]. The developed ideas were rearranged in clusters to gain an overview. This process was done intuitively, and the cluster names were selected on the overarching topic they covered. In Appendix H, photos can be seen of the process and the ideas that were developed.



FIGURE 54: Ideation materials.

FIGURE 55: Final idea from the first brainstorm:
project structure framework



IDEA SELECTION

Ideas were selected from the generated ideas based on how well they met the requirements and how effective they could be in the context of TNF. Due to the immersion in the setting during the research phase, a thorough understanding was gained to gain the ability to make this assessment. Some ideas were rejected due to high cost, for example reshaping the office space to be more inviting. Other were discarded because they would not create the desired level of impact, for example hosting a tasting event in the building.

The final ideas were selected intuitively. As a consequence of the thorough immersion in the context, some ideas were viewed to have the highest chance to succeed, while taking into consideration the different details and nuances of the situation. The discarded ideas that do meet the requirements and could potentially create impact will be included in the recommendations. These concepts could be used if the other ideas fail or if additional supportive solutions are needed.



4.4 CONCEPTS

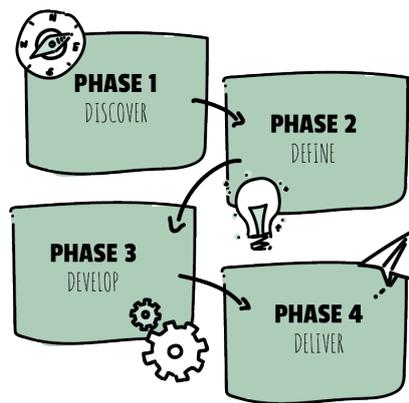
Three ideas were chosen to be developed into more detailed concepts. In this chapter, each idea will be discussed, including its advantages, intended impact, benefits and limitations. After each concept has been explained, they will be validated in interviews with the tenants of TNF. Next, the ideas will be improved based on their feedback and advice will be given how to implement and use them.

4.4.1 THE CONCEPTS

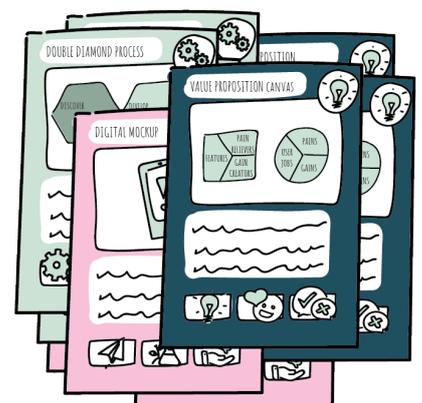
Three concepts were selected and will be discussed in the next paragraphs. The first concept is a community and network mural, which invites people to share, connect and give feedback. The second is a project framework, which can be used as a structure during a multidisciplinary project. The last concept is a toolkit translated into an action card deck. The cards in this deck is a set of tools and strategies, which can be used in projects, meetings and as inspiration.



COMMUNITY MURAL



PROJECT FRAMEWORK



ACTION CARD DECK

FIGURE 56: Overview of the three concepts.

4.4.2. COMMUNITY & NETWORK MURAL

The first concept is the community mural. This solution is specifically designed to improve communication inside TNF, between the internal team, tenants, network members, visitors and students who frequent the building.

GENERAL

This concept has two different solutions which support each other. The first is used for community questions: the community mural. These are visualised in Figure 57 on the pillars on the fourth floor. These can be used by the internal TNF team to ask for feedback or invite the community to share ideas. Furthermore, it can be used as a way to share knowledge and inspiration in the community. Ideas for the community questions can be seen in Figure 58.

The second mural is used to visualise the network: the network mural. Users can fill in their information on a card and add it to the wall. The cards can be seen in Figures 59 and 60. They can personalise the cards to be easier to recognise them in the crowd and make the members and network structure more tangible. Connections between members can be visualised with string.

INTERACTION

The community mural can best be displayed in a commonly frequented area by people in TNF. For example, the open space on the second floor or the elevator. TNF can select question tailored to the current needs of the team or the community. The community answers these questions on the board with chalk.

Ideally, people would interact with the community mural when they are on a break or have some free time. It can however also be used during brainstorming or for gaining specific information during an event or meeting.

The network mural is focused on interaction during events when people are visiting TNF. They could use it to look for new connections or add themselves to the system when they are available for new projects. Ideally, it would be located in a place where network events are organised in TNF and where daily visitors can view it. For example, in the entrance hall or potentially on the first or fourth floor, depending on how the developments of these areas go.

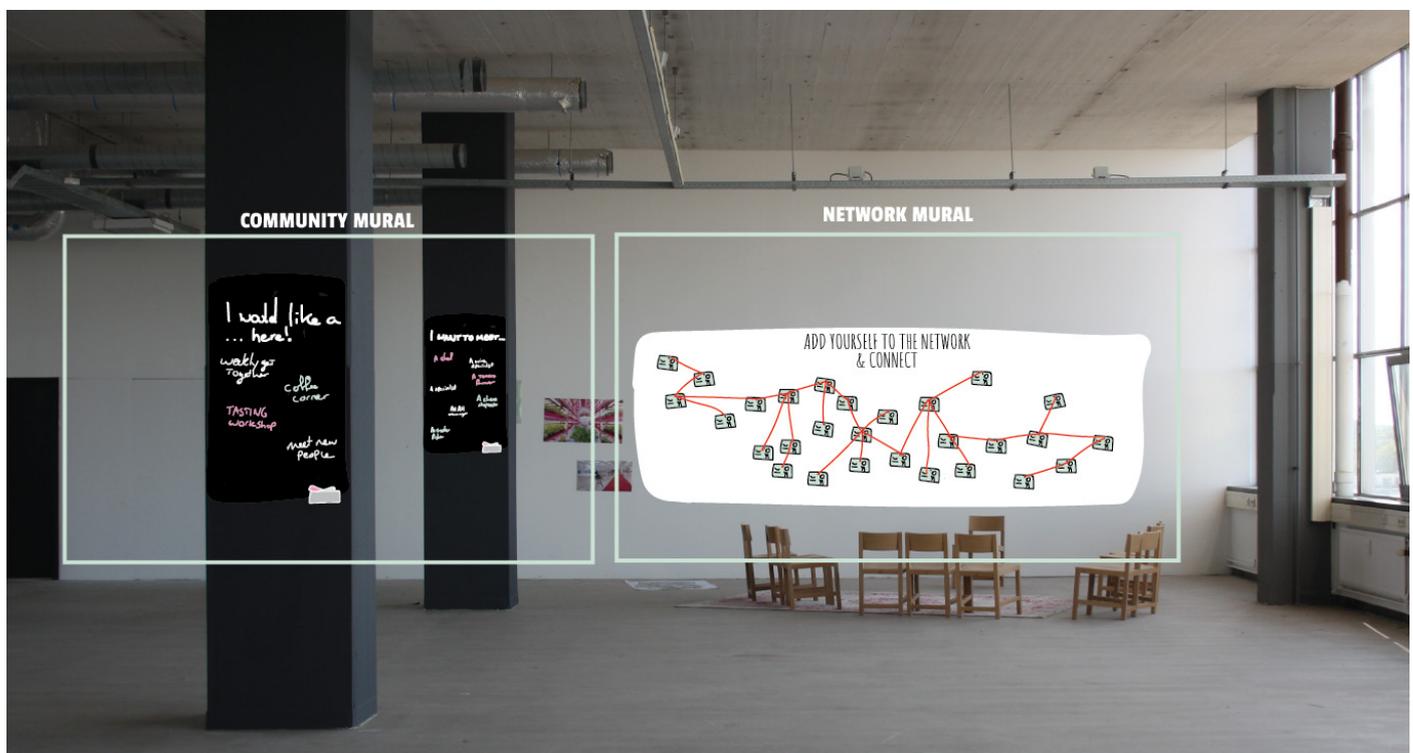


FIGURE 57: Mural example visualised on the fourth floor

INTENDED IMPACT & BENEFITS

The community mural is used to facilitate interaction in TNF and help to improve communication and feedback. In the research phase, many tenants suggested potential solutions for TNF and had ideas for creating more activities in the building and even how they might generate a profit. Furthermore, the tenants enjoyed the Farm Lunch and having more interactions in TNF. The community mural can be used to facilitate communication on a daily basis.

The network mural is used to simplify making new connections during events and meetings. As also identified during the Future of Food meetings, doing a formal introduction in big groups can be a mood killer during these activities. The network mural can be used to get through the first stage of a meeting to initiate more action and creativity during an event. Furthermore, the participants during the Border Session Event enjoyed the exercise to visualise their "Footprint" on the large brown paper and connect with people visually.

During events, the network mural might facilitate meeting new people and discovering new matches for potential partners. The visual will expand as the network grows and people can contact members when they need an expert in a particular field or are interested in a joint project.

LIMITATIONS

The murals can have several limitations, depending on how they are used. For example, if they are placed in a less visited environment, it might not be used as much as intended. People tend to forget about the possibilities if they are not consciously reminded of its existence.

Next, one of the other goals for the design solution was to build the internal capabilities of TNF, next to improving communication and encouraging learning. The murals do provide feedback to the TNF team. However, it doesn't give them guidance on how to interpret and use this information. This could be a potential pitfall since the team has currently not responded well to feedback from tenants. Thus, the feedback-questions should be chosen depending on the availability of the team to respond to them.

CONCLUSION

The two mural solutions can provide several benefits to the network and TNF. Firstly, it improves internal communication in the TNF and facilitates new interactions. Secondly, the network gains a visual representation of the system which enables them to make new connections and see the network grow over time. Finally, the murals are flexible for future context changes and are adapted to changing needs. For example, by developing new questions or repurposing it for further interactions.



FIGURE 58: Community mural questions example

FIGURE 59: Network mural, with example card

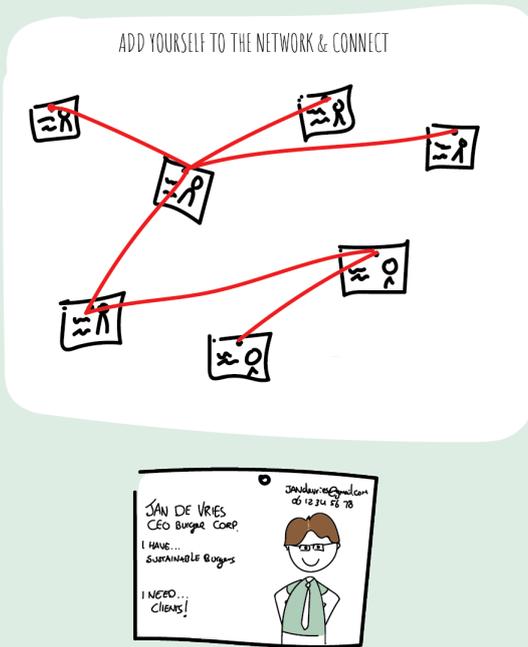


FIGURE 60: Basic network card and personalisation stickers

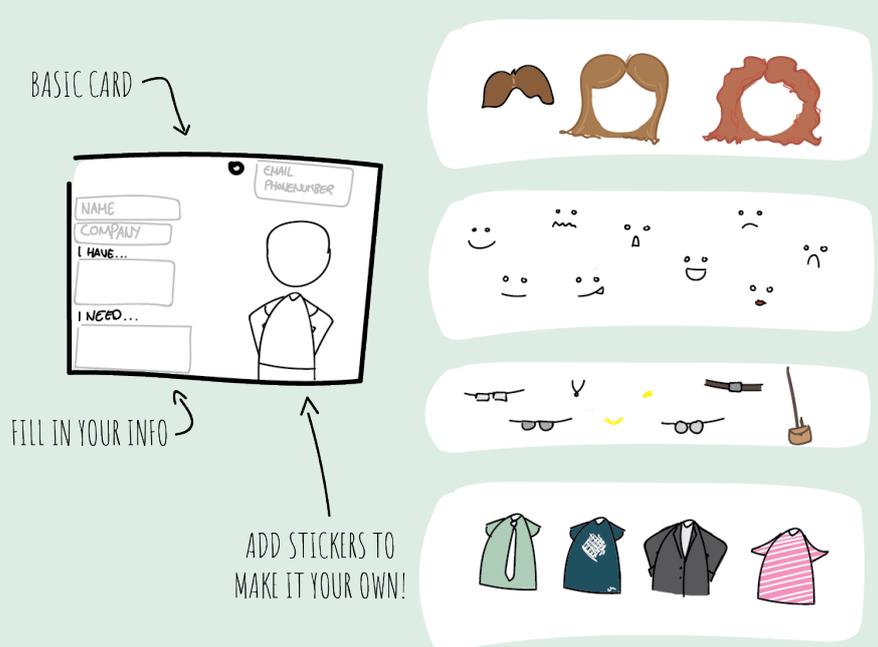


FIGURE 61: Mural location example

4.4.3 PROJECT FRAMEWORK

The second concept is the framework for a project structure. This solution is specifically designed to facilitate the network in their project activities while simultaneously supporting TNF to build their capabilities.

GENERAL

TNF currently lacks the capabilities and resources to support a project in the network. They might be able to facilitate a project space in the building, but will be unable to aid the team in their activities. Inexperienced teams might need guidance during their project and while setting milestones.

Additionally, TNF could internally benefit from such a solution as well. If they would like to initiate a project internally in the building, they might benefit from adopting a designed structure to create, test and evaluate their ideas.

The project structure was based on several explored methods in the literature. For example, Sprint, Lean Startup/Agile and Design Thinking. These approaches support building quick solutions for projects and the testing of initial assumptions, as was discussed in Section 3.2. These activities will strengthen activities in TNF by developing solutions in a short time and thoroughly testing them to observe its impact. Furthermore, the network could be supported in their actions to start new projects.

INTERACTION

The Project Framework is intended to guide a project team. It was observed that the "Future of Food group" struggles to initiate a project after discussing the idea. The Project Framework was designed to overcome this obstacle and guide a team to estimate the time they would need and have a go-to Framework for the network. TNF could provide this Framework as a service, or the "Future of Food group" could adopt it. Ideally, the projects will take place in TNF to create a buzz in the building and boost the atmosphere.

Incorporated in the framework are good collaboration practices discovered in literature from Section 3.2. For example, building shared understanding and having alignment moments. Furthermore, the structure will come with a guide for the project leader with tips and suggestions to support the team in their process.

The structure is deliberately designed to be a general project approach. A slightly ambiguous approach is more flexible and can easily be used in a diverse scope of projects. Furthermore, it has to leave some room for the team to make their plans on how to address specific tasks.

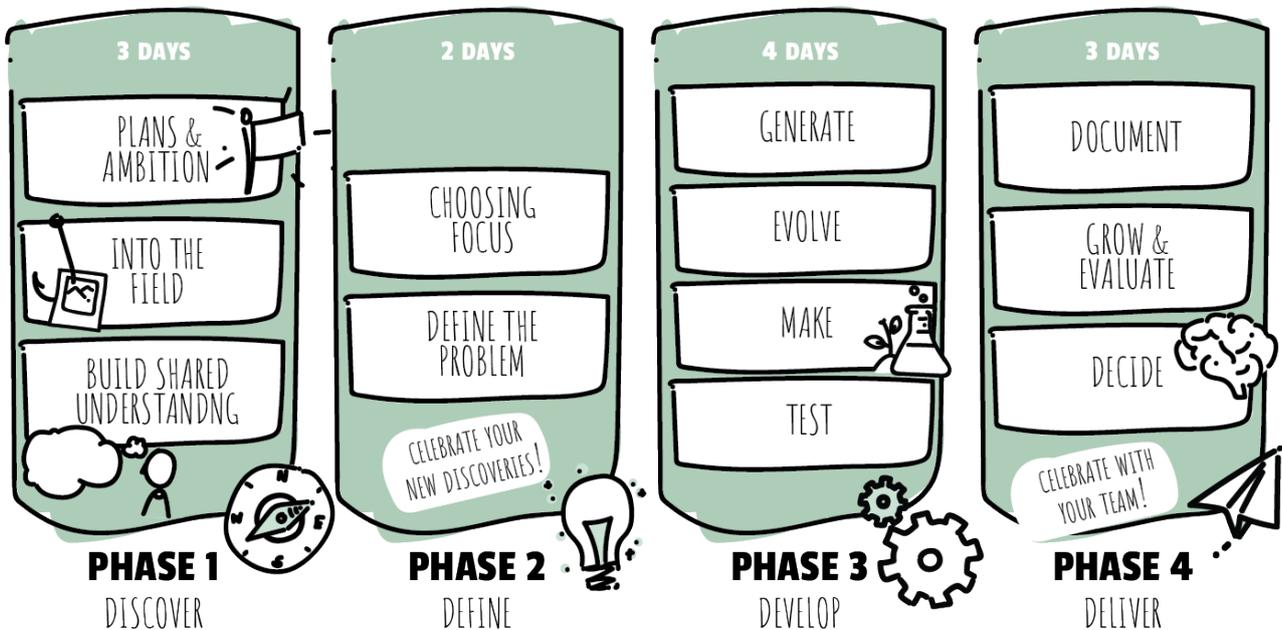


FIGURE 62: Project structure overview

IMPACT & BENEFITS

TNF has to be aided in their activities to set up projects in the LivingLab. The Project Framework aims to support their activities. Consult2Grow has ample experience with vertical farming and aiding businesses to set-up the needed facilities to start their vertical farm. However, they have little experience in facilitating projects.

Their lack of experience in project facilitation makes them unsure and feel inadequate to provide such a service. This doubt became clear during one of the research activities where Consult2Grow had to lean on the abilities of the network to facilitate the Border Sessions Event in TNF. Furthermore, it was evident through the insecurity when people would suggest new projects, activities and changes in TNF. Suggestions were usually met with the inquiry about how to make these changes and where to start.

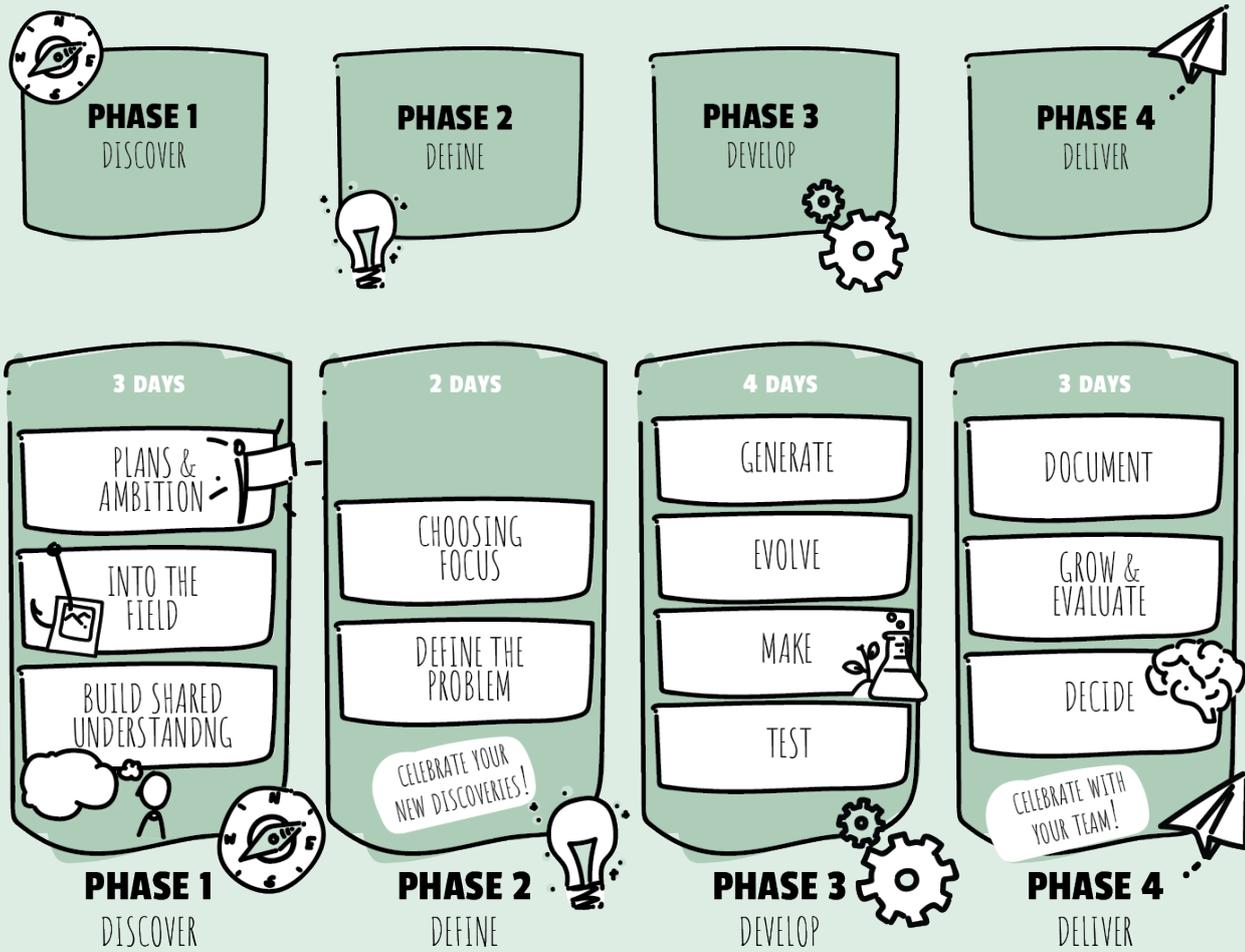
The Project Structure can help guide Consult2Grow in their future projects and support them in their communications with partners. Transparency in structure can aid the collaborative process with partners. For example, by giving an overview, an impression of the activities and time estimations per phase or activity. Providing this guidance will aid Consult2Grow to build a stronger proposition and make it easier for them to communicate and discuss the proposal.

The concept is also aimed to make it easier to initiate a project and take action. One of the current hurdles perceived in both the "Future of Food group" and TNF is the difficult transition from meetings into project initiation. A project structure with a time limit for specified activities could make this leap easier. For example, by setting a limit to discuss "plans and ambitions" to one day, they are forced to go to the next step "into the field" and explore the next day, the structure can be seen in Figure 62. An experienced facilitator might further aid this process, due to their ability to judge when a group is ready or needs to be guided to the next step. For example, a creative facilitator from the "Future of Food group".

LIMITATIONS

The Project Structure has several limitations. Firstly, the benefits of the framework depend on TNFs ability to initiate a multidisciplinary project in their building and provide the right facilities. For example, a project space and necessary project materials like paper and a printer. Plus, they have limited time available to dedicate to new projects. Thus, they might need the support of the network to achieve implement these results.

The second limitation might be that the structure might not always fit every project. The level of detail and guidance is essential to create a balance between learning and following directions. Thus, multiple detail levels will be designed for the structure. For example, from general phases to individual activities per step in each stage, as can also be seen in Figure 63. The project team will be empowered to choose their preferred level of guidance, depending on their personal experience and difficulty of the project. Additionally, if they run into obstacles during the project they might look at the more detailed approach for guidance.



LEVEL OF DETAIL

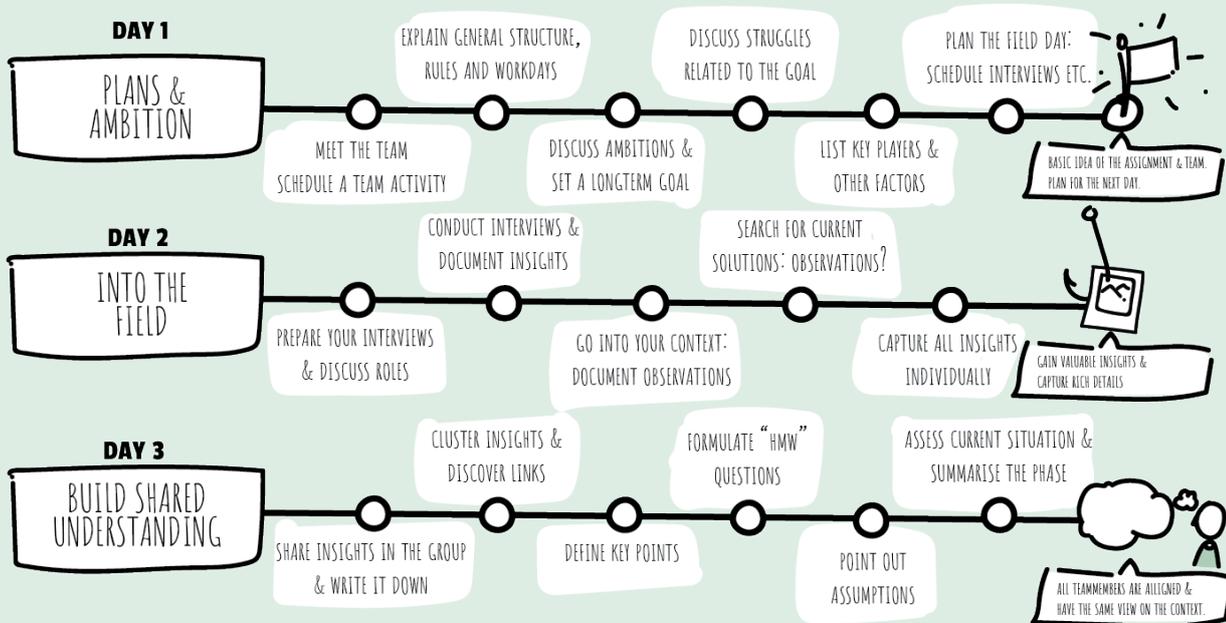


FIGURE 63: Level of detail in the framework, from low (top) to high (bottom).

4.4.4 ACTION CARD DECK

The third concept is the Action Card Deck. This idea is designed to be a playful solution to support TNF. The card deck is intended to provide guidance with tools and methods during projects and activities. The card deck could aid TNF in their plans and proposals as well as aid the network with developing solutions.

GENERAL

The Action Card Deck consists of a set of cards with project structures, goals and tools. The card deck is a more playful version of the Project Framework. The cards challenge the user to sift through possible solutions and approaches to select one that fits their plans. Similar to the project structure, multiple levels from strategies to tools can be chosen by the colour of the cards. An example of the different levels, including colour indication can be viewed in Figure 64. The cards contain instructions, potential uses and an overview of topics they address. The card elements can be seen in Figure 66.

The topics on the cards will be selected from Design Thinking and Agile Processes. These methods could support TNF community to create user-centred solutions and are designed to develop and test ideas in quick iterations. Additionally, the network and "Future of Food group" can use the cards to plan their activities and select their desired methods.

INTERACTION

The cards are designed to be used during several stages of the project. The card level, indicated by colour, can be selected to fit the process. At the start of a project, a general strategy needs to be picked. The green cards, as can be seen in Figure 64, contain project processes and approaches. For example, the design Double Diamond process, the Sprint process and the general Lean Startup approach, which were discussed in Section 3.2. These cards might help to explore multiple procedures with a team and select the best fitting one for a project.

The second level of cards contains goals, which can be selected during different phases of the project. For example, understanding the user, exploring trends and developments and defining focus. These are individually chosen to support a group when multiple activities are going on and make it easier to select activities depending on their situation.

The third level contains methods and tools which assist during the activities. After the group selected the project goals and approach, the team might consider looking at tools to facilitate the project. For example, the group members might have defined gaining user insights and identifying project features as their goals. They can then select tools to support this process, for example, the Value Proposition Canvas. Tools will be categorised depending on which steps it facilitates, for example, defining the problem or developing ideas.

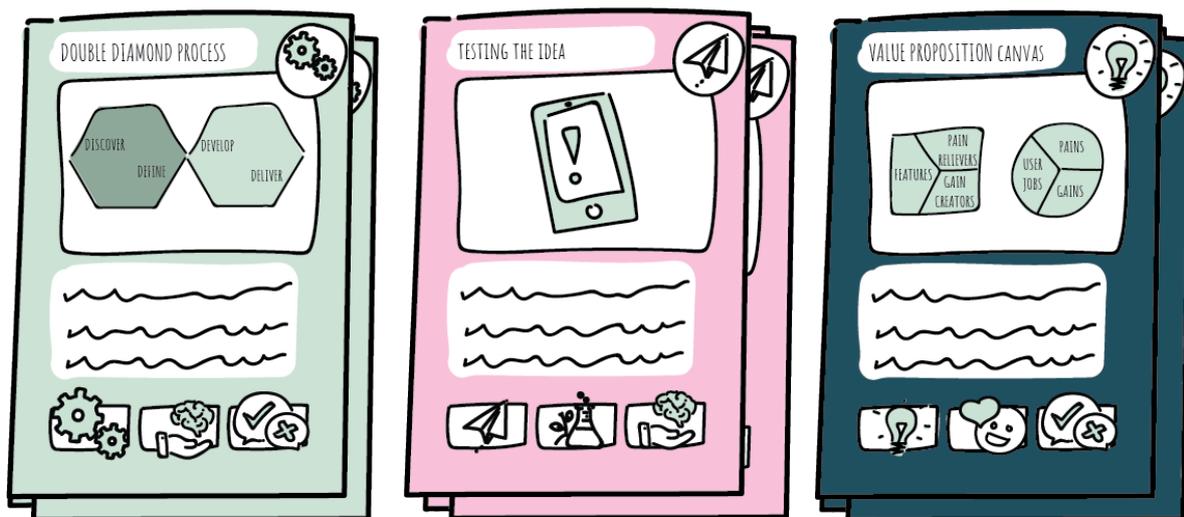


FIGURE 64: Card levels ordered by colour. Left: general project structure. Mid: goals. Right: tools.

IMPACT & BENEFITS

The cards encourage exploring new project approaches and guide a team to define their project strategy. Additionally, the deck can give a project overview and align team members when they have different goals. They can be used to create transparency and as a tangible tool to facilitate discussions.

Identified during the Future of Food meetings was their dependence on one of the members to facilitate the whole process. Adopting one facilitator naturally occurred because she has experience in creative facilitation and design processes. Thus, the group would increasingly depend on her for guidance.

However, this put the responsibility of progress on her shoulders, and the participants felt less responsible for the activities and results. The cards might give them the tools to take action in smaller groups and lean less heavily on the guidance of the researcher.

TNF can benefit from the approaches, methods and tools as well. Firstly, the TNF team can be inspired to explore new techniques and strategies, which focus on creating value for the user. For example, they can view their tenants as one of their users and by filling in a value proposition canvas, explore new possibilities to add value. Secondly, they can use it to develop project strategies and approaches for clients. During client meetings, they might use the tool to measure the preferences of the client and to invite them to participate in the project development.

With these cards, TNF is better able to create value for their client and invite partners to participate in project development. Involving clients in the process might empower TNF to stand level to potential partners and develop services and products which could provide an additional profit.

LIMITATIONS

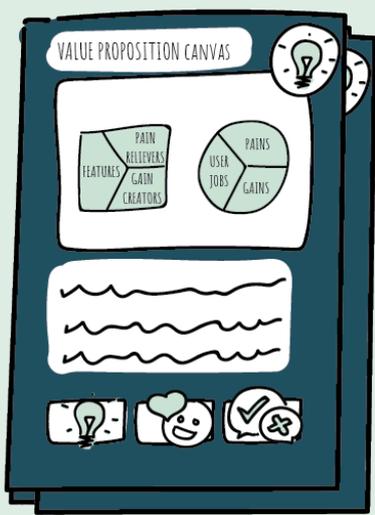
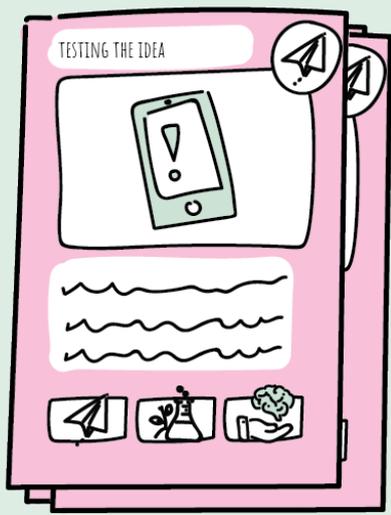
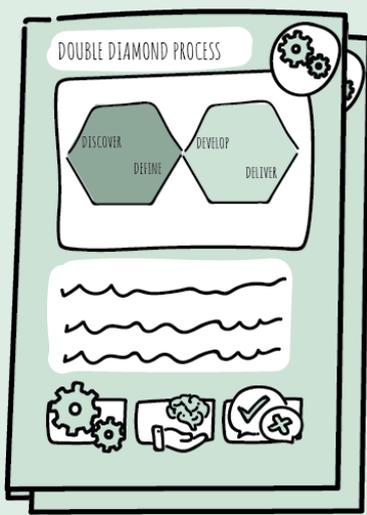
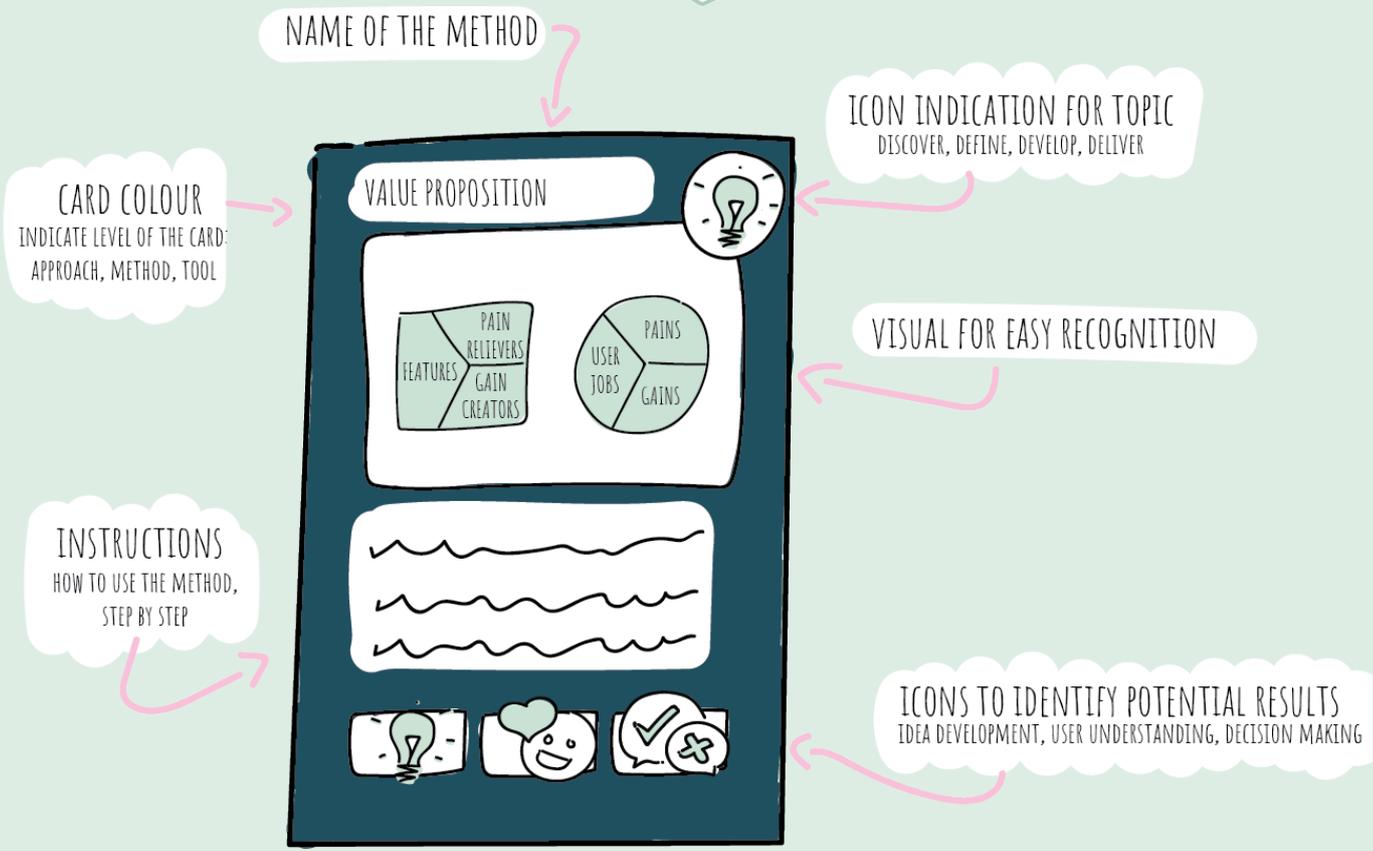
If the cards want to reach their desired effect they have to be incorporated well into the preferred approaches of the network members. They can be integrated into the communities current procedure and made readily available for use. Including the Action Card Deck in the structure of the network can only be accomplished if they are thoroughly tested and developed to fit the context and if funds are provided to print several sets of the cards.

Another limitation of the Action Card Deck is the inability of the cards to provide thorough instructions and guidance when it is needed. The cards have limited space, and some methods might be too complicated or lengthy to fit on a card. Thus, the desired effect might not be achieved. Additional information could be provided by adding an instruction booklet which contains a more detailed description per card.

FIGURE 65: Interaction with the action cards.



FIGURE 66: Action card elements





4.5 CONCEPT EVALUATION

The three ideas were evaluated with the tenants of TNF to grasp how they perceived the concept, how they might use it and if they considered it potentially helpful to overcome their challenges. Assessing the ideas with the tenants helped to judge the effectiveness of the design, how they could be improved and what would be needed to implement them.

4.5.1 TESTING METHOD

Four one-pagers were constructed to facilitate the evaluation process. Additionally, a small mockup was included to provide a more tangible experience; these can be seen in Figure 67. The concepts were presented to the tenants individually in a semi-structured interview. The audio was recorded during the discussion to review their comments and analyse their feedback. An overview of the comments the tenants shared is presented in Appendix I.

The interview structure consisted of three steps. Firstly, at the start of each interview consent was asked to record the audio. Secondly, a couple of initial questions were asked to create a more relaxed atmosphere and to help the tenant to get in the mindset of what they wanted to gain out of TNF. Finally, the one-pagers were presented to introduce the concepts one by one. The ideas were introduced in the following order: the Community Mural, the Network Mural, the Project Structure and the Action Card Deck.

Each concept would add to the previous one, and this assisted in making it easier to grasp the idea for the tenants. For example, the Network Mural would facilitate further interactions on top of general community communication, and the project structure could be used after an intriguing topic was explored and a team was formed with the help of the murals. The interview process and the used props can be further reviewed in Appendix I and in Figure 68.

Additionally to the interviews, the first concept, the Community Mural, was implemented on the second floor of the building in the open workspace. Responses on the boards were measured over the next two weeks to observe if the concept was used and if they were competent to improve communication between the stakeholders of TNF.

4.5.2 RESULTS

The tenants provided valuable feedback to improve the concepts further. It helped to gain specific insight into how they would use each idea, if they would see them as an improvement of the context and if they might need extra features to make them more effective. The main findings will be discussed in the next paragraphs.

4.5.2.1 BUILDING COMMUNITY

The two concepts that focussed on improving communication, the Community Mural and Network Mural, were evaluated with the clients. Their responses confirmed their need for more social connections and activities in TNF, as well as the wish that it needs to be facilitated. For example, one tenant explained that he would like the concepts to also facilitate organising activities and workshops by the tenants in the building. Furthermore, another tenant expressed the wish for a community manager to create, test and promote further community activities for TNF. The next paragraphs will discuss the Community and Network Mural in more detail.

COMMUNITY MURAL

The Community Mural was received well by the tenants. All understood how it would potentially help to facilitate more interaction and how it could be used to ask advice or plan activities for the community. However, they also expressed the need for creating a moment of action rather than just writing on the board. For example, facilitating not only asking a question but a structured way to plan a moment to discuss a topic with the community.

Some tenants used the prototype of the Community Mural on the second floor. However, not all were inclined to use the mural and still needed encouragement to overcome the initial hesitation. The day after the prototype was implemented it was observed that one of the tenants had written a request on the questions board: "Anyone got an address to CNC mill a prototype?". During that day it was witnessed that another tenant made several suggestions and discussed the options for CNC milling the prototype. This example showcased the added value of the board and how it could facilitate further interaction in the community.

The Community Mural also inspired one tenant to further improve the second-floor area with some board games. When asked why he wanted to add these, he explained that he thought it would be great to engage the community more and try out more things in the space and invite others to do the same. Additionally, he planned a moment to have drinks together to introduce the new improvements. The added enthusiasm to initiate more activities because of the introduction of the new concepts was a surprisingly valuable influence due to the concept evaluation activities.

NETWORK MURAL

The network was interpreted in different ways by the tenants. Some viewed it as an ideal way to showcase the various initiatives at the entrance of the building, others perceived it as a medium to showcase new project teams, and a few valued it as a concept to find potential new partners and experts. Their perspective was built on their current wishes and focus for TNF. They could see the potential of the board to aid in these needs and quickly extrapolated the concept to do so. Potentially two boards can be created: one to showcase the tenants in the building and one to display the network and its connections. Overall, the network board can be used in diverse ways and help to create new relationships and make these transparent to the outside.

All interviewed tenants observed that it is crucial that the Network Mural is positioned smartly in the building, so people see it daily as a visual reminder. Furthermore, some expressed that an additional online variant would be helpful to give people access it outside of the building as well. However, they also noted that a visual reminder would be crucial because people might be oblivious or forget about the existence if only an online version existed.



FIGURE 67: Prototype of the community wall on the second floor of TNF.

4.5.2.2 PROJECT INITIATION

The two concepts designed to support the process of project initiation with multiple partners are the Project Framework and the Action Card Deck. The two ideas were both met with some hesitation, and the tenants considered it difficult to imagine this being used in the current setting. However, they did think something like this might be useful in the future.

Currently, there is a clear need for more connection and communication in the building between tenants. If this is not achieved collaborative project are not likely to be initiated. Thus, the tenants found it hard to estimate if the concepts would be useful.

Furthermore, most tenants have some experience already with project structures and wouldn't feel the need to console a set structure. Being startups, they also would prefer more flexibility rather than a set structure to guide their approach. The action card deck might be useful to have more freedom in their designed project structure. However, they viewed it as limiting to the set methods, processes and goals as well.

An unexpected finding was obtained during one of the interviews with the tenants. He explained that he had already initiated a joint project with another tenant: a grow kit for educational purposes. It was still in development, and they were currently contacting schools to measure their interest. This insight displayed that collaborative projects are initiated in the community, and they are exploring opportunities together. However, it is not common knowledge, and they do not share the projects they are working on with others.

Overall, the two concepts were not perceived as very useful in the current setting. Most tenants are experienced with project structures and could guide people if they didn't have the experience. Plus, a set structure would be too limiting for their preferred approach.

However, some tenants did express the need to structure project meetings and agreements between partners. Some have had bad experiences with previous collaborations because the accords and mutual benefits were not clear and miscommunications occurred. Furthermore, setting clear milestones and communicating clearly what each partner adds to the project and tries to gain out of it, might help communication and creating agreements. These tips inspired to redesign the concept and create a solution which caters to these needs.

FIGURE 68: Presented one-pagers and quick prototypes during the tenant interviews.

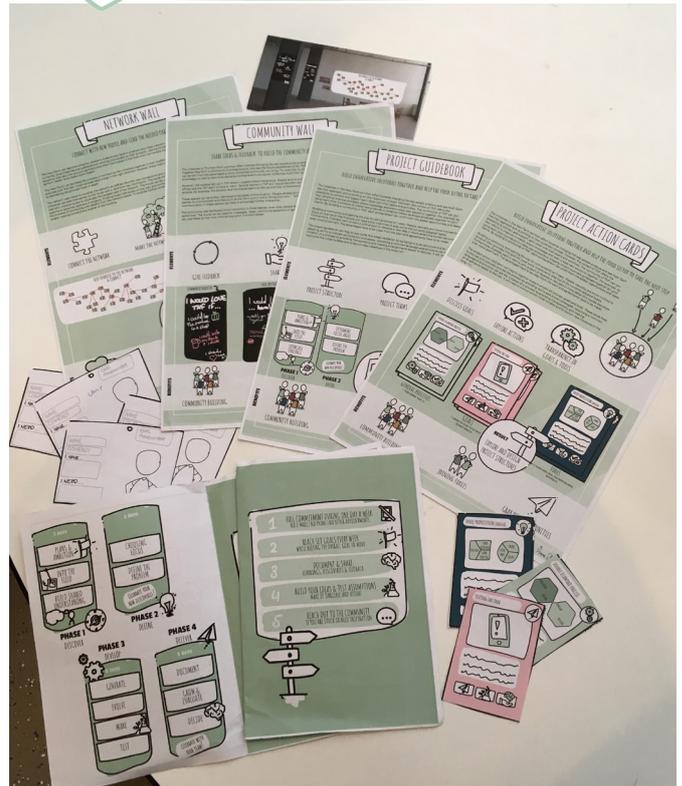


FIGURE 69: Shared activities on the community mural prototype.

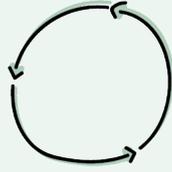
4.5.3 CONCLUSION

Valuable insights were obtained from discussing the concepts with the tenants in the building. The Community and Network Mural were well received and would benefit from some small adaptations and further improvements. The Project Framework and Action Card Deck were not perceived well and less useful in the current setting. The present limited communication and connection between tenants would first need to be improved before such a solution might be helpful. Plus, the current tenants perceived the tool as limiting because they already have sufficient experience with project structures.

Based on the feedback from the tenants a redesign to enable project initiation will be developed. They expressed several needs during the set-up of a project that was not reflected in the current solutions. Thus, a new solution will be created that might help with setting up a new plan with partners. This concept will focus on establishing transparency in agreements, expressing individual gains, setting project milestones and planning project activities together.



FIGURE 70: Tenant writing his request on the prototype of the community mural.



4.6 CONCEPT REDESIGN

The first concepts were tested with the tenants of TNF to evaluate if they would be useful. The feedback on both the project structure concept and the action card deck revealed several points that could be used to construct into a new solution. The tenants expressed that they would indeed like to have clarity and transparency in the early stages of a joint project. However, they prefer a less rigid solution that fits better with their way of working. These needs were translated into a new concept.

4.6.1 PROCESS

The first concepts were tested with the tenants of TNF to evaluate if they would be useful. The feedback on both the project structure concept and the action card deck revealed several points that could be used to construct into a new solution. The tenants expressed that they would indeed like to have clarity and transparency in the early stages of a joint project. However, they prefer a less rigid solution that fits better with their way of working. These needs were translated into a new concept.

4.6.1 GENERAL

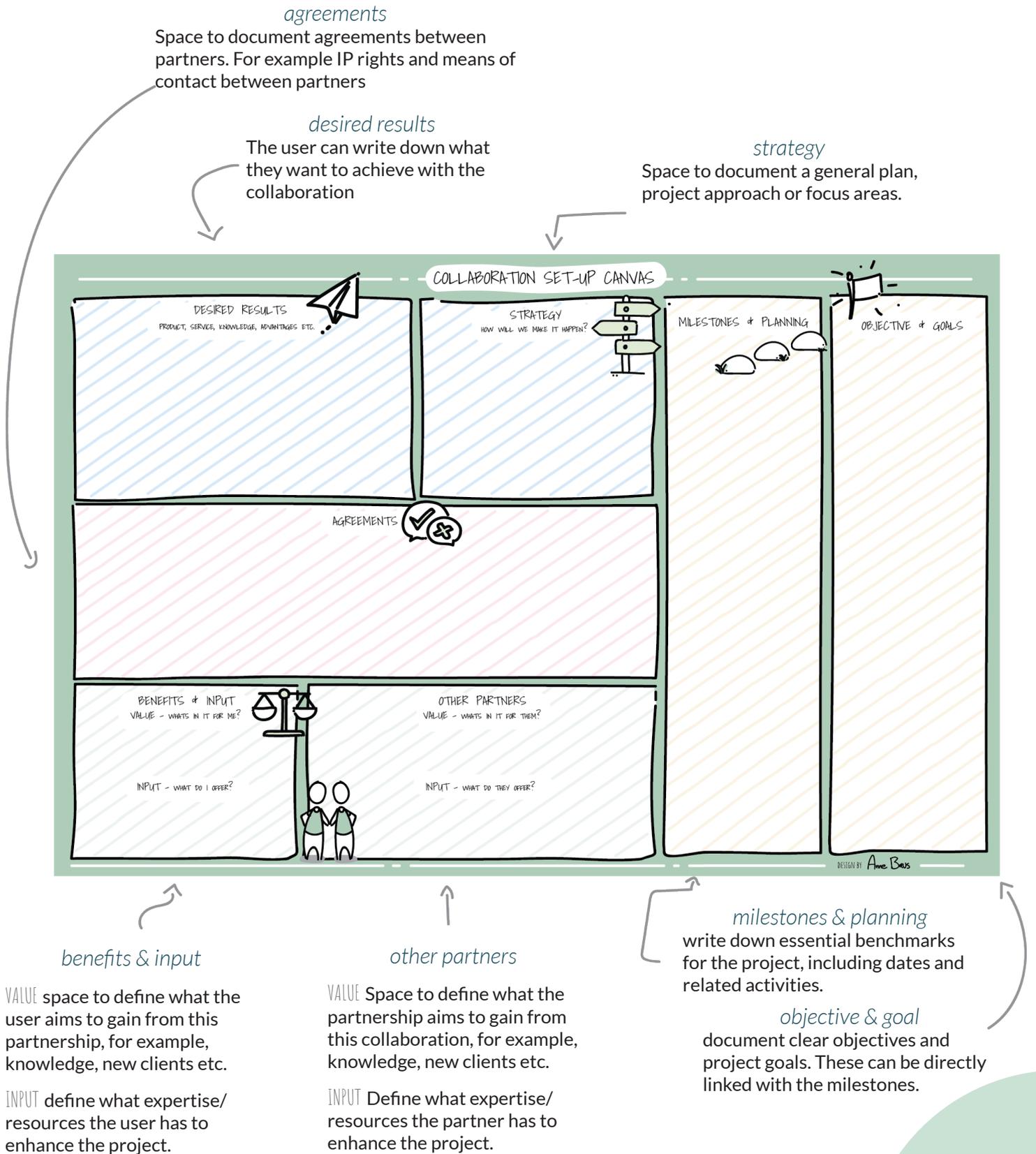
The first meetings to set up a potential new collaboration between partners is critical. It's the moment that each party measures and explores if this venture will benefit them, how it will help the other partner and what steps need to be taken to make the project a success.

Miscommunications easily crop up during these meetings, because people misunderstand terms or interpret agreements differently. One of the tenants explained the bad experiences he had had in previous collaboration because the other partner didn't live up to their promises. Neglecting agreements created a bad collaborative atmosphere and distrust. Thus, their partnership quickly seized due to the negative mood.

When collaborative agreements are transparent and clear to both partners, it is easier to point out if one neglects their duties or if goals are not being met. As also discussed in Section 3.2.2, authoritative texts help to set-up a collaboration by creating transparency and measures commitment of both partners. However, contracts and rules can also undermine the collaborative process if they are too rigid and people use them as leverage. Using contracts to exert power over the collaboration evokes distrust and discourages team spirit.

The collaboration canvas strives to make agreements, benefits and plans explicitly without having to document them in a rigid contract, which can negatively impact the collaboration, as can be seen in Figure 71. The additional cards, as can be seen in Figure 74, can be used if needed to discuss new topics. The canvas is divided into four sections: defining the result, documenting agreements, explicit gains for and input from each partner and project planning and goals. These sections were chosen to support the process of setting up a new joint project and were based on the interviews with the tenants.

FIGURE 71: Redesign of the project framework: the Collaboration set-up Canvas



4.6.3 INTENDED INTERACTION

The collaboration canvas can be used to facilitate the first meetings when a new idea appears to start up a joint project. The canvas and the additional tools can be used to explore the collaboration and define the relationship between partners. The canvases encourages the users to plan their project, make agreements and determine the scope of the project.

As discovered during the research phase, several ideas for new food solutions popped up during the "Future of Food group" meetings, and new projects could have been initiated from these. However, it was difficult to follow through and make concrete steps towards bringing these ideas to life. The canvas aims to make this step easier and create transparency for involved partners in this process.

The canvas can be updated along the way or used to check if the project is on course and everything is developed accordingly. Furthermore, if a project needs to pivot because previous assumptions are not met, the canvas can be used to re-evaluate set agreements and plans.

4.6.4 IMPACT AND BENEFITS

The canvas together with the additional content is intended to aid the process of setting up joint ventures. It guides the process and makes agreements between partners explicit. Furthermore, it helps to overcome the initial obstacle to go from meetings to plan actions to realise a project.

The canvas is designed to aid the context of TNF and the "Future of Food group" of The Hague University. Both initiatives struggle to set up new collaborations and create synergy between members. The canvas tries to overcome this hurdle and helps the users to develop a plan to realise their solutions.

4.6.5 LIMITATIONS

The canvas is designed to facilitate meetings and give a basic overview of the collaboration. It is not a tool that supports more detailed documentation or processes. Other means might be needed to aid the process further. For example, task documenting software, text documenting or creative ideation tools. The canvas does support recording tasks during a meeting or when new agreements are made, as can be seen in figure 73: the meeting canvas. These can later be added to the collaboration canvas to keep the overview.

Changes in the canvas need to be documented manually and this would make it difficult to use when collaborating with a distant partner. Potentially the canvas can be translated to an online version or collaborative whiteboard tool to overcome this. For example, Mural [Tactivos Inc, 2018] supports collaboration and brainstorming on an online whiteboard the user could recreate the canvas on their website and use it with a potential partner.

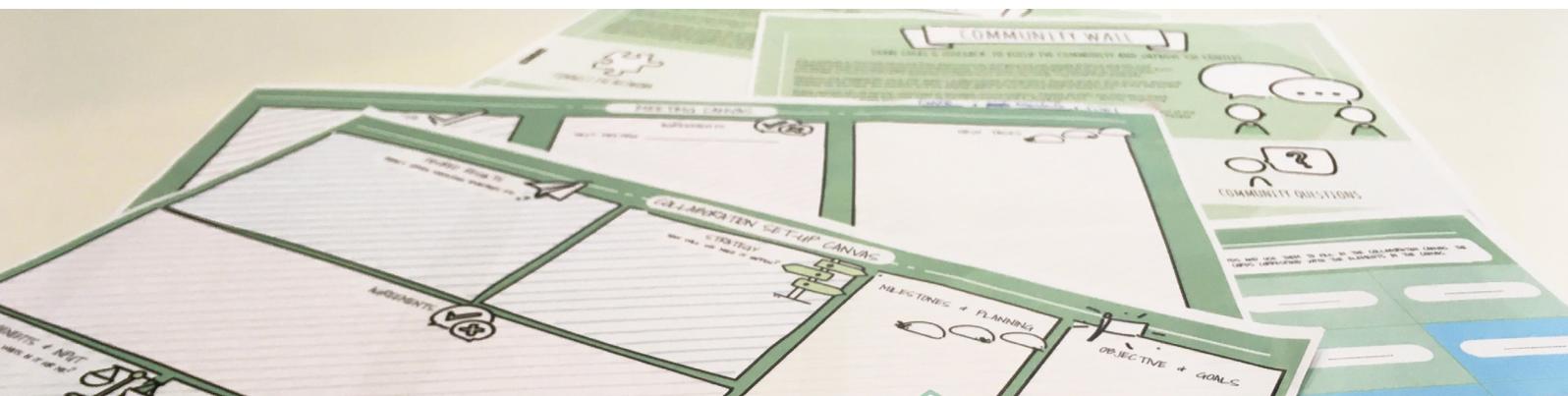


FIGURE 72: Prints of the concepts used during evaluation process with the tenants.

FIGURE 73: The meeting canvas aims to help plan and structure meetings

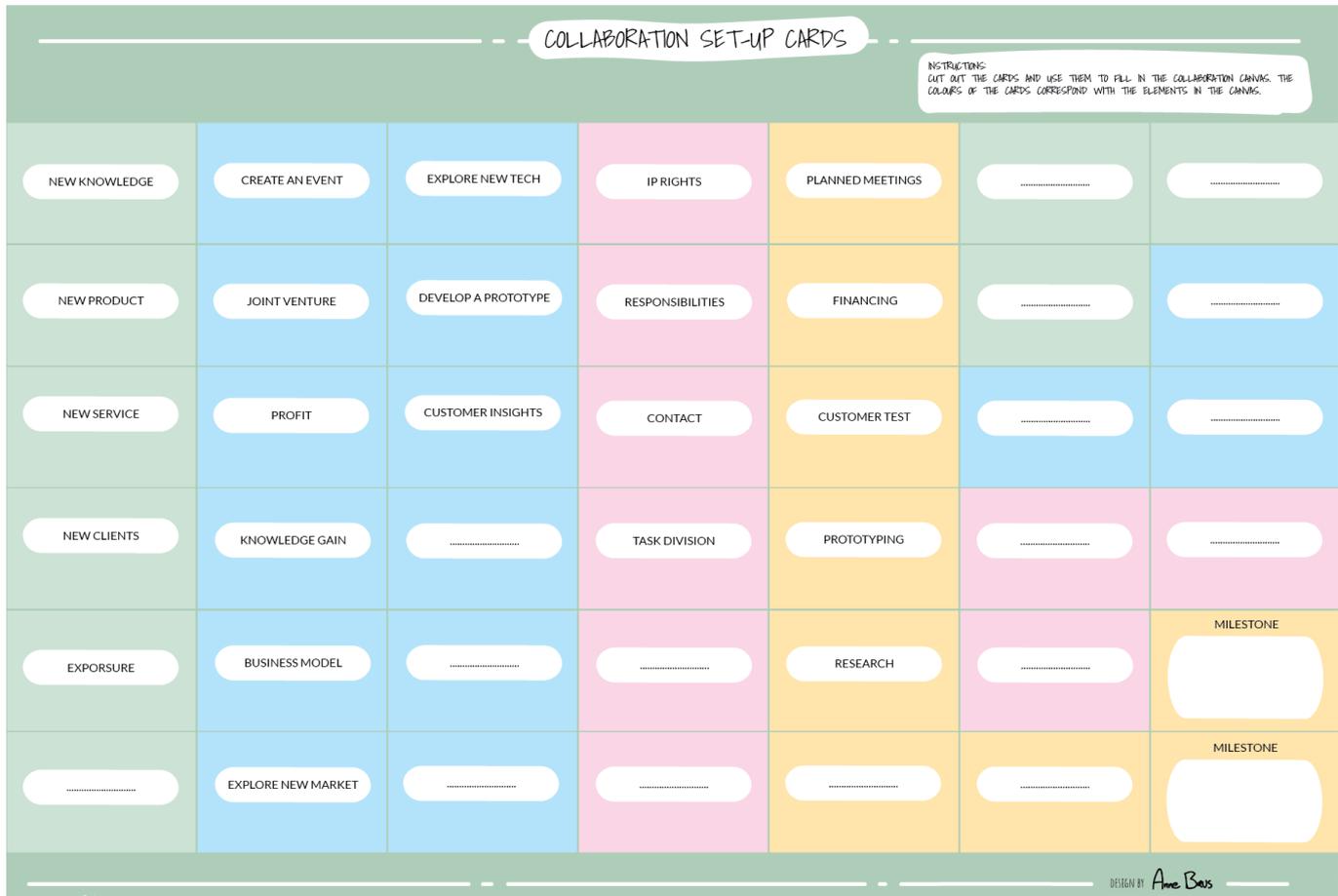


FIGURE 74: Collaboration canvas cards aimed to help fill in the canvas. The colours correspond with the colours of the canvas.

4.6.6 EVALUATION OF THE REDESIGN

The collaboration canvas was evaluated with several of the tenants of TNF. One of the previously interviewed tenants and three who hadn't seen the previous designs. The participants who hadn't seen any previous concepts were first presented the communication mural and network mural concept, after which the collaboration canvas was introduced. A more detailed explanation of the interviews is documented in Appendix I. The main findings will be discussed in the next paragraphs.

CANVAS ELEMENT FINDINGS

The tenants quickly grasped the redesign when it was presented. They went through the section of the canvas and commented that it contained all the necessary elements from their perspective. Two did suggest to make the overall goal more explicit and to challenge the user to write a short and compact summary of their idea.

When the additional cards were presented, they explained it might be useful as a reference or to check that all topics are discussed during the meeting. Additionally, one suggested it might be helpful to use post-its instead of cards. Using post-its would help to review and change elements on the canvas.

The meeting canvas was more challenging to grasp. The canvas focusses on tasks, and it was perceived as an inconvenience to write these down on paper instead of documenting it in task software. More thorough testing would be needed to measure if the meeting canvas is a desirable addition to the collaboration kit.



FIGURE 75: Input from the tenants for ideas for TNF.

PERCEIVED OTHER USES

During the interviews, some tenants suggested some new ways the collaboration canvas could be applied. For example, to help their employees make plans or teach their kids with setting goals and planning. Some of the initiatives in TNF work with people who struggle with their career. These people need extra guidance and care while they work and might benefit from concrete plans.

Another suggestion was to use a tool like this to help guide kids to set up a project. The tenants who were currently working on a project which involved teaching children suggested using it in their program to challenge the kids to plan their project autonomously.

These other uses might be interesting to explore. The canvas could be used to support different kinds of projects for example in a team or for personal guidance. More careful instructions to use the canvas would probably need to be developed and tailored to these users.

NEGATIVE FEEDBACK IN EVALUATION OF THE REDESIGN

The collaboration canvas was not always received well, for example, the small consultancy business in TNF didn't think it would add value to their current activities. Their core business is working well, and they didn't feel a need to collaborate with new partners since they tend to come to them naturally when they were stuck and needed advice.

INTERVIEW AFTEREFFECT

After the interviews with the tenants, it was observed that several of them started new initiatives to improve the community further. The tenants who were especially passionate to build a stronger community in TNF and create a more vibrant atmosphere seemed energised by the presented ideas. Several new initiatives were started after the interviews, for example, a community WhatsApp group and the plan to create a sports team which could play in one of the big empty halls of TNF. Furthermore, the tenants also took it upon themselves to introduce new people to the building and invite them to rent one of the offices to expand the community.

4.6.7 CONCLUSION

The collaboration canvas was perceived as helpful by more than half of the interviewed tenants. It was an improvement from the previously suggested project structure or action cards concept because it was more flexible and effortless to grasp. It was observed that tenants could make sense of the tool and were also more enthusiastic about the idea to potentially use it. They also naturally recognised the added benefits of creating transparency in a project.

However, they also urged to focus on the current need to build community rather than advancing to the next step of joint projects. The community mural and network mural were received well to create these benefits, but more additions would be needed to keep building the internal connections.



FIGURE 76: The collaboration kit (collaboration set-up canvas, cards and meeting canvas)



4.7 CONCEPT ASSESSMENT

The developed concept will be assessed and evaluated based on three metrics: desirability, feasibility and viability. The findings from the evaluation of the concepts with the tenants will be used to reason how well each concept meets each metric. An overview of the topics is presented at the end of Section 4.7. The results will be used to discuss recommendations and advice in Section 4.8.

4.7.1 ASSESSMENT PROCESS

The following concepts will be evaluated: the community mural, the network mural and the collaboration kit. Three metrics will be discussed to assess the concepts: desirability, feasibility and viability. The feedback from the tenants during the concept evaluation process will be used to obtain a relatively objective assessment.

However, more thorough testing would be needed to obtain a better assessment of the concepts. The verbal feedback is not adequate to capably judge the value of the concepts in a real-life setting. Ideally, they would be tested in a real case with the tenants or the network to measure how effective they are in overcoming the perceived obstacles.



DESIRABILITY

DO PEOPLE WANT IT?
DOES IT FILL A NEED?
DOES IT APPEAL TO THEM?



FEASIBILITY

CAN THEY DO THIS?
CAN THEY ACHIEVE THE
DESIRED RESULTS?



VIABILITY

SHOULD THEY DO THIS?
WILL THE SOLUTION KEEP
ITS VALUE OVER TIME?
IS IT WORTH THE INVESTMENT?



4.7.2 DESIRABILITY

The desirability metric aims to assess if the idea is valued in the current setting. For example, if the user needs the concept, if it is solving their problem and if the user values it. The conducted interviews were used to gain insight into the user's perceptions of the ideas. These will be used to judge each concept on desirability.

COMMUNITY MURAL

The tenants were divided over the value of the Community Mural. Some were enthusiastic to start using it, and other's said they would probably rarely use it, especially if it is placed on the second-floor area in the building. However, if the concept is correctly positioned in the building, they considered it a good addition. For example, at the entrance of the building or in the elevator where people have to wait anyway.

The tenants did express a need for more communication, social activities with the residents and sharing knowledge and ideas. In other words: they wanted to build a community. They think that the community mural could be the first step to achieve this. However, they value it more if a person (community manager) would actively try out more of these ideas to bring people together in the building.

Overall, the Community Mural is desired by the tenants of TNF, if effectively placed in the building. For example, in an area that is visited by everyone and where people have spare time: at the entrance or in the elevator. However, more social activities would be needed to build an internal TNF community genuinely.

NETWORK MURAL

The network mural was positively received, especially because the mural could be used to aid different needs of the tenants. For example, more exposure on the ground floor, discovering new experts to aid projects, showcasing the activities in the building and as an extra activity for visitors or during events. The versatile concept provided value for the diverse needs of the tenants and each valued the concept in their own way.

Ideally, the concept should be placed at the entrance of the building to provide a more inviting entrance and residents can review it daily when they enter the building in the morning. Some tenants suggested placing it in the elevator. However, this would make it more exclusive to the residents. Placing it on the ground floor at the entrance would be more inviting to external people to add themselves to the visual representation of the network when they visit the building.

COLLABORATION KIT

The Collaboration Kit was created based on the feedback on the initial concepts: the Project Framework and Action Card Deck. It was designed to overcome the initial obstacle to translate ideas into actionable plans and collaborative action. Observed in the "Future of Food group" (FoF-group) as well as in the TNF building was the potential to collaborate between partners. However, in both cases, it was also observed that going from the process of ideation to realising an idea and implementing it was challenging.

The tenants quickly understood and perceived the added value of the collaboration canvas. For example, to use it during meetings with potential partners, to create an overview of a plan or to transfer tasks between people without losing the overview of the overall goal. These values answered to some of their expressed needs and they seemed less hesitant to collaborate with other tenants in the building potentially.

Ideally, the desirability of the concept would also be measured for the network. For example, by testing it during one of the future meetings with the FoF-group and testing if it would help to plan activities. However, the group has no plans yet to come together. Thus, opportunities to test it with the group are limited. Recommended would be to check it with the group, or a similar group, in the future to better measure the desirability.



4.7.3 FEASIBILITY

The feasibility metric aims to assess if a concept can be built with the projected available resources. Due to the previously chosen constraints for this project, limited resources are required to realise the ideas. Thus, feasibility is not an issue for the designed concepts.

However, setting up the supporting activities to make the concepts more valuable will take extra effort and resources. For example, initiating additional community activities in TNF and re-energising the "Future of Food group". These will be discussed per concept in the following paragraphs.

COMMUNITY MURAL

A prototype of the Community Mural has been placed in the open space on the second floor. However, not all tenants have actively interacted with it because they don't visit the second floor regularly. Ideally, the prototype would be moved to the ground floor or the elevator to reach a wider audience.

Furthermore, the Community Mural on itself will not achieve a closer community more activities will be needed. Adopting weekly rituals and community activities will facilitate further social connections in the building. Some tenants have already taken some of the responsibilities to facilitate meeting each other. For example, by hosting the weekly Farm Lunch by Tabouleh, placing games on the tables on the second floor and by starting a WhatsApp group. Because the tenants are making it their responsibility to facilitate more activities it is easier to manage and thus more feasible to do so in the future.

Additionally, someone could be appointed to a community manager, or an external person could be hired to do so to keep pushing new activities. Designating someone would require extra funds if someone spend their time and energy on facilitating activities in the building. Nonetheless, it would be a way to create additional value for the tenants and make the building more attractive. It is difficult to measure if this would be feasible in the future because the financing plans of the building could not be inspected.

NETWORK MURAL

The Network Mural could be created relatively quickly on the ground floor. Preferably a board could be placed so it would be visible from the outside. Next, they would need to invest in printing the cards and setting some necessary tinkering materials to add information to the cards and attach it to the board. An even cheaper back-up solution could be created by using post-its instead of cards and including some instructions to write the needed information on the post-it.

The Network Mural is only valid if the tenants and the network actively use it. The network would need to be invited to the TNF building regularly to interact with the board. Thus, more activities would need to be facilitated.

However, hosting more activities of the network would require extra time and effort of the TNF team. It would be interesting to at least start with building the mural with the current visitors, the tenants and their network to see how it might expand. The small user base could at least further support the ongoing activities in the building. Nonetheless, to reach the full potential of the concept the extra time and effort would be required to host more events.

COLLABORATION KIT

Using the Collaboration Kit requires limited resources and only needs to be printed. However, making it easily accessible and promoting the kit is essential to make it a useful tool. Currently, little information sharing structures are in place in the network and TNF. The absence of a system to do so makes sharing the kit more difficult and would require extra effort to make it easy to access.

Sharing the materials could be achieved in several ways. For example, creating an internal database, providing prototypes of the kit and a download link or creating a community website with tools and topics. However, each of these would require additional funds and time to develop and maintain.

The most achievable is to place examples in the building and create a download link or QR code to download the materials. This method would solely focus on sharing this collaboration kit and would be a short-term solution. Longer term, the community of TNF and the network would benefit from a more structured way to share knowledge and tools.



4.7.4 VIABILITY

Finally, the concepts will be assessed for viability. Even though the concepts cater to the current challenges of the network and the TNF community, they should be viable long-term to make the extra effort of realising them worthwhile. Thus, an estimation will be made if the concept will be sustainable in the future or can be adapted to maintain or enhance its value.

COMMUNITY MURAL

The Community Mural is a concept that can be interpreted and used in multiple ways. Currently, the best way to use the Mural is to enhance communication between tenants or visitors. But, in the future other uses might be more relevant. For example, to use the surface for brainstorming, to use it to announce events for visitors or daily specials if a restaurant/shop is included. Thus, the boards of the Community Mural can change over time if needed to stay viable.

The Community Mural in itself can stay relevant for a more extended period as well. Communication between people will be essential to keep building the community. However, other means might be more efficient to communicate between tenants. For example, a community slack group [Slack, 2018]. The boards could still stay relevant to disclose information outside of the TNF community. For example, during events and when external people are visiting.

However, if the building is wholly repurposed and the plug is pulled out of the current concept, the Community Mural might not be useful. If the concept will stay relevant would ultimately depend on the new plans for the building. No estimation can be made what the municipality might do with the building. It could be torn down, turned into apartments or be repurposed for any other solution that might benefit them.

NETWORK MURAL

The network mural is a visual representation of the Food Innovation Network and the TNF community. It facilitates discovering new connections and finding the right people for a project. These values will stay relevant as long as the network is putting effort towards innovation and setting up innovative projects.

New connections can almost always help a community. For example, to find new job opportunities, to meet people with expert knowledge or to gather a small group of people with a shared passion. These functions can be used for the current need to connect more people to the TNF community and over time change to the future needs of people. For example, to gather new expertise.

However, the board will cease to be useful if the community becomes inactive and external people are not invited to TNF. If no new connections are added to the board, and the need to connect with new people is not there, the Network Mural will become obsolete. However, if this is the case, the whole purpose of TNF is not actively pursued. At that point, a new focus or use for the building might need to be developed.

COLLABORATION KIT

The Collaboration Kit is a relatively generic tool, built to be flexible for different circumstances. It supports documenting and facilitating a meeting between potential business partners to set up a joint venture. It is currently not explicitly tailored to the food sector or the partners in TNF to enable different styles and approaches to be adopted while using the canvas.

The flexible aspects make the tool valuable over a more extended period of time. Discussing agreements and setting goals are continuous processes for collaboration practices and facilitating this process can enable any potential partnership. If, however, the requirements and needs change the tool can be adapted and altered to future needs if needed.

The validity depends on the changes in the context of TNF. If the current purpose to enable collaboration dwindles the tool will not further aid the context. However, it could be used or adapted to another setting to allow collaboration in other branches. Tests would be needed to determine if the tool will be useful in other industries as well.

DESIRABILITY

COMMUNITY MURAL

DESIRABLE, IF PLACED WELL IN THE BUILDING WHERE PEOPLE HAVE SOME SPARE TIME. FOR EXAMPLE, IN THE ELEVATOR.
VIEWED AS A FIRST STEP, MORE ACTIVITIES AND INITIATIVES NEEDED TO BUILD THE COMMUNITY.

NETWORK MURAL

DESIRABLE, IF PLACED WELL IN THE BUILDING WHERE PEOPLE OFTEN VISIT. FOR EXAMPLE, AT THE ENTRANCE.
VERSATILITY OF THE CONCEPT IS WELL RECEIVED.

COLLABORATION KIT

THE ADDED VALUE OF THE KIT WAS QUICKLY UNDERSTOOD AND RECEIVED WITH ENTHUSIASM.
MORE IN DEPTH TESTING NEEDED WITH THE REST OF THE NETWORK TO MORE ACCURATELY JUDGE DESIRABILITY.



FEASIBILITY

COMMUNITY MURAL

CONCEPT IS EASILY FEASIBLE AND LIMITED RESOURCES ARE NEEDED.
TO HAVE ITS FULL EFFECT, ADDITIONAL FUNDS AND TIME IS NEEDED TO FURTHER BUILD THE COMMUNITY.

NETWORK MURAL

CONCEPT IS EASILY FEASIBLE WITH MINIMAL RESOURCES.
MORE TIME NEEDS TO BE INVESTED IN OTHER ACTIVITIES TO ATTRACT THE NETWORK TO TNF TO UNLOCK ITS TRUE VALUE.

COLLABORATION KIT

CONCEPT IS FEASIBLE WITH SOME PRINTING COSTS.
EXTRA TIME NEEDS TO BE INVESTED TO EXPLORE HOW TO SHARE THE CONCEPT IN THE NETWORK.



VIABILITY

COMMUNITY MURAL

CAN BE ADAPTED TO FUTURE DESIRED USE.
AS A MAIN COMMUNICATION METHOD OTHER TOOLS ARE BETTER, HOWEVER CAN STILL BE USED TO ANNOUNCE THINGS

NETWORK MURAL

STAY RELEVANT AS LONG AS THE NETWORKED STRUCTURE IS DESIRED AND NEW CONNECTIONS ARE SOUGHT.

COLLABORATION KIT

CAN BE ADAPTED OR CHANGED WHEN NEW NEEDS ARISE
CAN BE ADAPTED TO ANOTHER SETTING TO BECOME VIABLE IN A NEW WAY.



4.7.5 CONCLUSION

The developed concept, the Community Mural, the Network Mural and the Collaboration Kit, were assessed. Each idea was discussed based on three metrics: desirability, feasibility and viability. The discussion provided insight into their perceived value, if it could be realised with the current resources and if they were expected to retain value over time.

The interviews with the tenants gave insight into the desirability of the concepts. For the Community and Network Mural, the placement in the building was vital to provide value to the community of TNF. However, if it was placed well it was perceived as valuable to the tenants. The Collaboration Kit was regarded as a beneficial tool for setting up joint projects with partners. It was quickly grasped, and multiple use-cases were suggested by the tenants to use the tool potentially.

At the start of the ideation phase, the resource constraints were taken into consideration. Thus, concepts were chosen that required minimal time and funds to realise. The ideas can quickly be actualised, but to gain additional value and make optimal use other investments would be needed. For example, facilitating more community activities and setting up an information sharing structure for the community.

Lastly, the viability was discussed for each concept. The concept should retain value over time to make the effort to realise the idea worth it. Overall, the concepts can easily be adapted and repurposed to provide new benefits in the future. However, due to the high uncertainty, the context of TNF can drastically change in the future. In this case, it will be unpredictable if the value of the concepts will be retained.

Overall, the concepts seem to provide value to the community to connect effortlessly and set up projects. Plus, they are easily feasible and adaptable to changes if needed. The concepts would make a welcome addition to the context of TNF and would aid the community to take future steps to create innovative products.





4.8 CONCEPT RECOMMENDATIONS

The created concepts are only the first step to establish the needed support to organise joint projects and innovative solutions for the food industry. Plus, the ideas itself need to be tested, developed and improved to reach their potential. The context of TNF and the Food Innovation Network still have many steps to take, and they are in need of additional initiatives to support them in this process. This chapter discusses the concept improvements that can be made as well as the next steps to implement them and aid the network.

4.8.1 IMPLEMENTATION

The concepts cater to two needs: building community through facilitating new connections and creating transparency in setting up collaborative processes. It will be challenging to initiate a collaborative project if the people in the network don't feel like they belong to the same group and are not connected over a joint goal. Plus, the obstacle to reach out to potential partners needs to be low to facilitate the exploration of new connections.

It is recommended first to implement the Community Mural and Network Mural to enable the community of TNF to foster new connections and improve communication. Building relationships will help to facilitate kinships and explore joint goals. Furthermore, it will be easier to record and reach out to potential partners through the Network Mural.

The two community building concepts are not sufficient to build new relations in the network. More activities and events will need to be organised to achieve the desired synergy between partners in the network. Ideally, a community manager would be appointed to initiate new activities and try new ideas with the community. Electing someone with a passion for connecting people will help to boost the energy in the community and provide momentum to take the social activities to the next level.

The next step for the TNF community and the Food Innovation Network would be to explore potential projects together. They could use the collaboration kit to document their agreements, goals, mutual benefits and contribution during this process. Registering these factors will create more transparency in the process and establish clear objectives to be accomplished by the partners.

Potentially it could also support a group to overcome the barrier to initiate action. For example, the Future-of-Food-group struggled to go from a meeting structure to experimentation and an action-oriented approach. The canvas could provide guidance in setting milestones and planning activities with multiple partners. However, it needs to be tested and possibly adapted to measure its effect in this setting genuinely.

Overall, the first step will be to further build relations in the network and a sense of community. The second step will be to initiate the first joint projects. Next, support and tools should be provided to overcome the obstacles associated with collaborative processes. The Community Mural and Network Mural could be used to take a first step towards achieving the first. The Collaboration Kit could be used as a next step to overcome the initial hesitation for joint projects and be able to translate ideas into an actionable approach. However, other projects and activities will need to be explored to keep supporting the network and unlock the potential of the TNF setting.

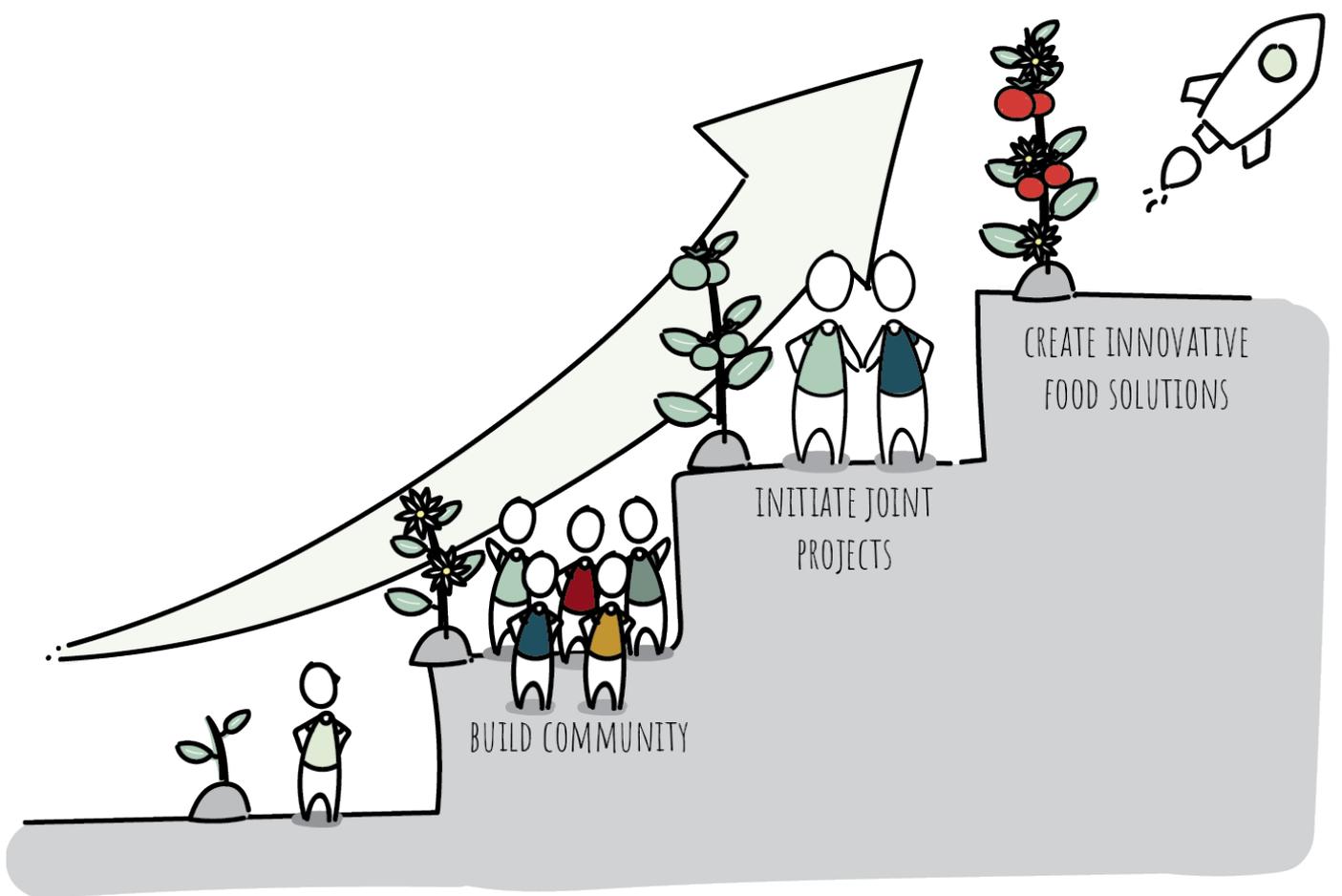


FIGURE 77: How to grow an environment to build innovative food solutions.

4.8.2 CONCEPT IMPROVEMENT

During the interviews, several small recommendations were suggested by the tenants to improve the concepts further. These will be discussed in the next paragraphs. However, more in-depth testing should be considered to gain deeper insights into the improvements and to implement them effectively.

COMMUNITY MURAL

The tenants made several suggestions to make the community mural more impactful. First, a definite push for action can be included on the mural. They suggested making the community mural more potent by adding an element to immediately plan a meeting, discussion or workshop when people show interest. Inviting for action could, for example, be achieved by dedicating an area on the board to suggest a date or room to express interest in a particular topic easily.

To further boost the community feeling and build connections other activities can be organised by the TNF internal team or the tenants. Several suggestions have been made to host workshops in which people share their expertise and knowledge of a specific topic. These activities can be related to food or individual hobbies. For example, one of the tenants already suggested hosting indoor football in one of the large unused areas. Team sport and activities can help to bring together people from the network routinely and lower the barrier to get to know people personally.

NETWORK MURAL

The tenants responded excitedly to the idea of a Network Mural. In their enthusiasm, they suggested many potential uses and other improvements for the concept.

The tenants suggested additional uses for the Network Mural. For example, to showcase the current ongoing projects and their teams in TNF, to provide an area for people looking for new opportunities and to show who is currently in the building and available to contact. These suggestions showed the need to further improve the communication to outsiders and better express what is happening in the building to interested visitors.

These additional ideas can be tested and implemented with the support of the tenants. Seeing their ideas come to life could be a catalyst to boost both their spirit and the look and feel of the areas in TNF. A boost in energy could aid them in constructing future ideas and improving TNF by themselves.

COLLABORATION KIT

The tenants suggested several alternative uses for the collaboration kit and improvements. The collaboration kit was easy to grasp, and the tenants were satisfied with the current elements. However, additional testing would be needed to measure if elements might be missing or need to be adapted to create the desired effect.

Some of the improvements tenants suggested can be included and tested in future versions. For example, making the goals more explicit and more prominent and adding an area to include the date and names of partners to the board. They also suggested some barriers to use the canvas. For example, how to consistently document the canvas in future meetings and how the tool will be provided to the community. These hurdles should be taken into consideration when the canvas is further tested and implemented.

Additionally, the canvas could be experimented with in more detail. For example, by adding new elements, taking away others or restructuring it to thoroughly test its potential and determine which features are most effective in setting up a collaboration. For example, creating a horizontal timeline instead of a vertical one or by dividing the canvas into two sections to document the perspectives of each partner. Plus, new canvases or guidelines could be added to the kit as well to offer a complete solution.

4.8.3 CONCLUSION

The developed concepts can help in various stages of creating a favourable environment to build innovative food solutions in joint projects. They can be tested and implemented in the setting of TNF and the Food Innovation Network. Further improvements and other activities can be supported to reach the potential of TNF and to create an energising environment for food innovation.

Several other discovered pain points in TNF should be taken into consideration to overcome perceived internal obstacles. For example, making the entrance more inviting and effectively communicating the causes in TNF to outsiders. These pain points currently function as obstacles to grow the community and lead to frustrations for the tenants. Improving these pain points can support additional growth and overall happiness in the community.

4.9 CONCLUSION

The findings from the research phase were used to develop three concepts: the Community Mural, the Network Mural and the Collaboration Kit. These concepts aimed at two desired developments in TNF. Firstly, building social connections and community between the tenants of TNF. Secondly, to create transparency when initiating a joint project between two or more partners from the network.

Building relationships between the members of the network need to be facilitated by social activities and efficient communication. Identified in Section 3.2.1, building trust and communication channels are vital factors to enable good collaborative practices. Additional effort will be needed to keep improving these areas in TNF.

The Community Mural and Network Mural aim to provide a first step to improving communication and facilitating interaction in TNF. The Community Mural invites tenants, visitors and members of the Food Innovation Network to share ideas and express their wishes for the setting of TNF. The Network Mural facilitates discovering new connections, showcases the network and makes the system easier to grasp for members.

In the research phase, an obstacle was observed for initiating joint projects. The "Future of Food group" struggled to trigger action after exploring ideas in a meeting setting. Additionally, some of the tenants explained their experienced conflicts with a joint project when agreements were not clear between partners. The need for transparency was also recognised in the literature as a factor for good collaborative practices, as can be reviewed in Section 3.2.1.

The Collaboration Kit aims to provide transparency during a joint project set-up. It guides the partners to set goals, boundaries and express their reasoning for the joint venture. Furthermore, it aims to set concrete milestones and develop a plan to achieve the aspired goals. A quick overview of these agreements on the Collaboration Canvas supports transparency and helps to discuss the needed arrangements for the potential collaboration.

Overall, the concept can support the first steps in TNF to create an environment which enables building innovative initiatives in the food industry. Collective projects, a sense of community and a common purpose help to create an energising and activating setting.

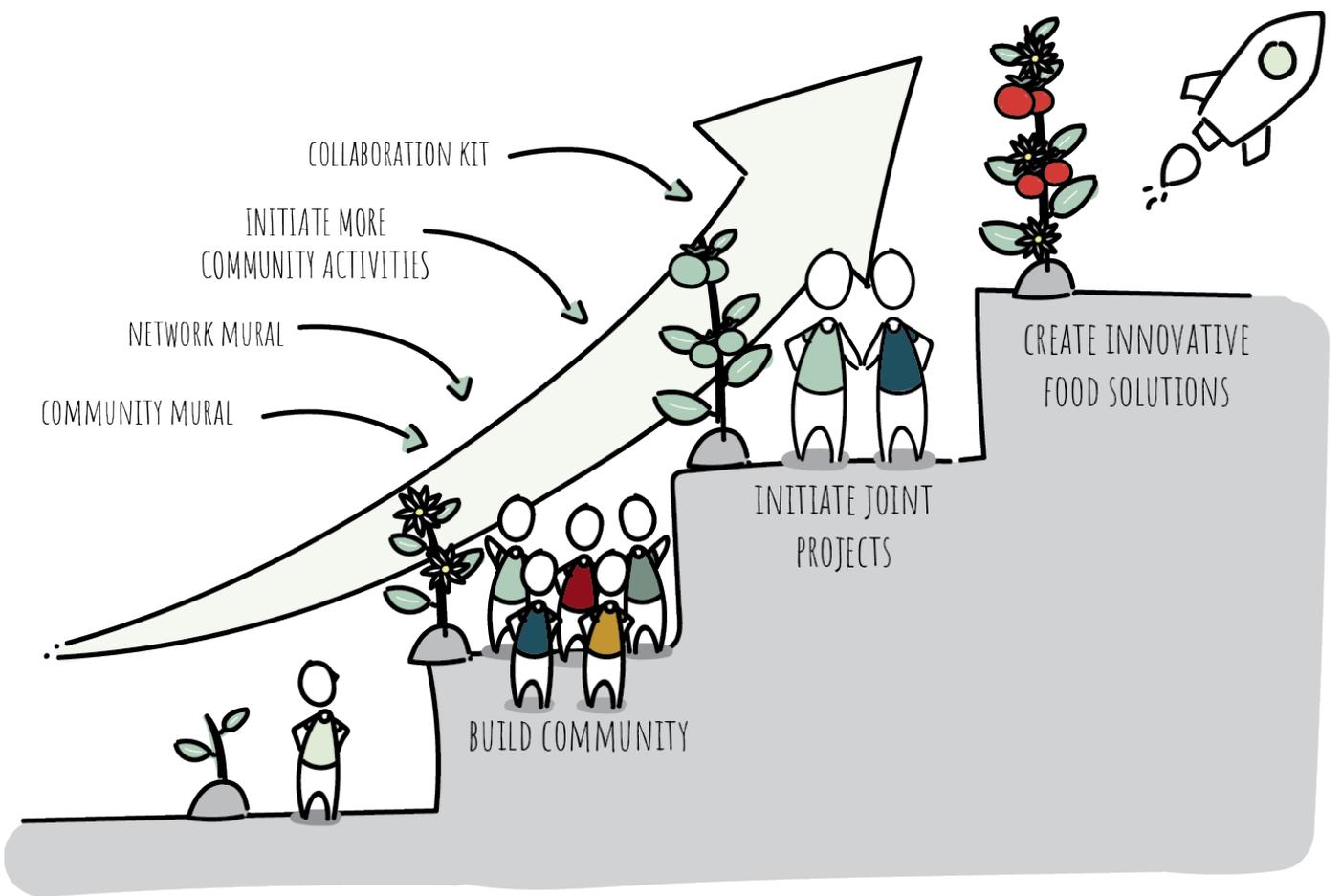
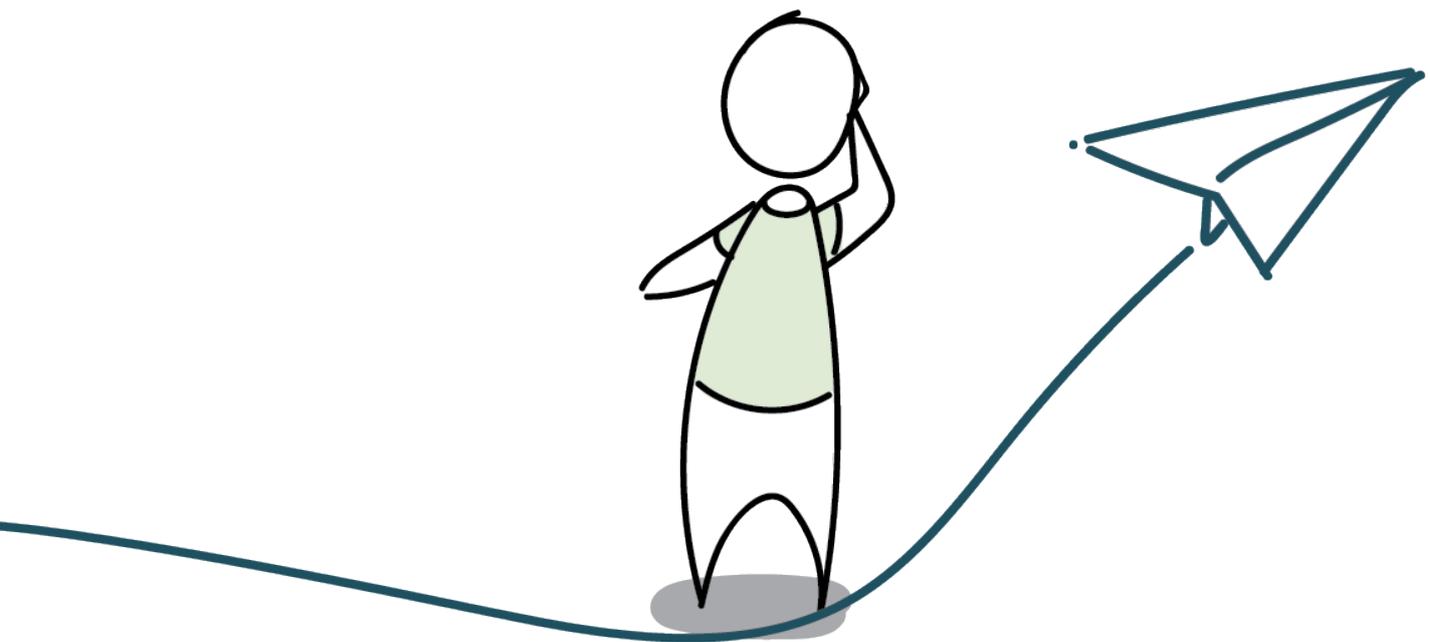


FIGURE 78: Concepts & steps to build an environment to start innovative food solutions.

5. FINAL REMARKS



5.1 INTRODUCTION

This graduation thesis will be concluded with some final remarks. Firstly, the process will be concluded and evaluated, including the research setup, the discovered problems and the developed design solutions. Furthermore, the academic relevance and value of this project for the Food Innovation Network will be discussed. Secondly, several recommendations will be given for future research in the innovation network and potential design projects in TNF. Plus, advice will be given to further aid the setting and improve the concept. Lastly, a short reflection on the project process, project approach, final result and personal learnings will be discussed.

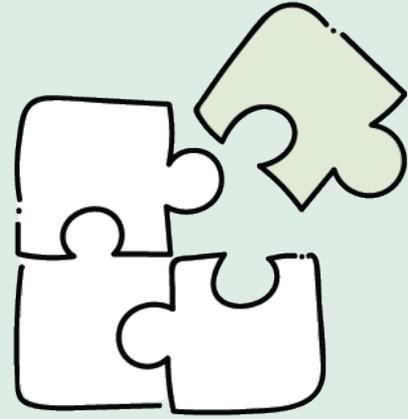
5.2 CONCLUSION & DISCUSSION

The goal of this thesis was to explore the context of the Food Innovation Network and identify the challenges that could be overcome with the help of a design solution. The setting of The New Farm (TNF) and the "Future of Food group" (FoF-group) of The Hague University was examined. These two recently founded initiatives have the goal to explore and create innovative food solutions and are still trying to figure out how best to achieve their goals. These elements presented a unique situation to conduct research and design a supportive solution for their challenges.

The following research question was explored to guide the process: "How can the community of The New Farm generate innovation in the food sector?". This question was answered by conducting several research activities in an action research-based approach. For example, by observing and participating in the daily operations in TNF, attending meetings of the FoF-group and introducing new ideas to the context in design interventions.

The research activities resulted in several findings. Firstly, the current atmosphere in TNF and lack of action in the network were undermining the intentions of the involved stakeholders. For example, the FoF-group had a high focus on meetings which didn't result in concrete actions. Plus, the building of TNF is set-up in separate small offices which blocked the interaction between tenants. Secondly, new interactions and connections have to be facilitated to boost the network. People tend to focus on their personal tasks when they aren't challenged to think outside of them. Thus, they must be encouraged to participate and consider new opportunities and spark new forms of joint projects. Lastly, the lack of transparency, visibility and outside engagement limits the stakeholders to grab the needed opportunities and grow the concept of TNF and expand the network. There is limited information for potential new tenants, and it is challenging to connect with the current causes of TNF due to the closed-off set-up.

The discovered challenges which are currently undermining the growth and potential of the Food Innovation Network can be overcome. The community of TNF can be supported by building social relationships between partners, developing shared goals to guide initiatives, kindling action to create energy, sharing information and knowledge to build trust and creating transparency in projects to enable positive collaborations. Concretely, these translate into two main goals: build a community with a shared purpose and foster the creation of new joint projects.



Ideas were generated to empower tenants of TNF to build a sense of community and guide the process of initiating collaboration in joint projects. Additionally, several constraints were considered to develop feasible solutions for the context. Due to the high uncertainty and pressure on the TNF internal team, the ideas had to be low cost and low effort to be arranged. Furthermore, they had to be flexible and adaptable because the context could rapidly change in future developments.

Three final solutions were developed to aid the context of TNF and the Food Innovation Network. Firstly, the Community Mural which aimed to improve communication and explore community ideas, requests and input. Secondly, the Network Mural which strived to give a visual representation of the network and enable the initiation of new connections. Lastly, the Collaboration Kit which sought to facilitate the process of initiating projects, defining collaborative project goals and creating transparency between partners.

These concepts were designed to help the community of TNF and the Food Innovation Network to initiate innovative food projects. Firstly, by building relationships and community through the Community Mural and the Network Mural. Secondly, by guiding the process of beginning joint projects through the Collaboration Kit. These concepts are the first step to improve the situation of the Food Innovation Network and TNF. Additionally, the context would benefit from more community activities, hosting social events and encouraging collaboration. Extra effort and intentions will be needed to unlock the potential of TNF and grow the Food Innovation Network.

The findings and results of this graduation assignment can be used to improve similar contexts or causes. For example, the intention to establish an Innovation Network, initiating joint projects between industry partners or facilitating new connections and additional communication in a negative atmosphere. The project strategies and results can be used to overcome similar challenges.

The results of this project gave insight into the processes of building an Innovation Network at an early stage. The learnings, findings and observations can be used to explore the means of Innovation Networks and how they can be aided to create valuable collaborative solutions in more detail. The case of TNF and the Food Innovation Network can be used as part of a case study or to discover patterns in similar settings.

5.3 RECOMMENDATIONS & LIMITATIONS

FUTURE RESEARCH

It will be worthy to investigate Innovation Networks and its challenges and opportunities in more detail in the future. This project gave insight into the challenges and potential solutions to develop a (Food) Innovation Network which is at an early stage of initiation. It will be interesting to conduct comparable research at a later stage to explore if similar challenges persist and if new ones arise.

Additionally, it will be interesting to explore more design solutions in the context of TNF and the Food Innovation Network. The setting is an opportunity to experiment and implement ideas to test which factors are essential in the environment of an Innovation Network. Conducting more design projects can assist in gaining more knowledge of the boundaries of the Food Innovation Network, while they keep boosting the setting to reach its potential.

It might also be worthwhile to explore other Innovation Network to compare their developments, challenges and opportunities to the identified findings from the Food Innovation Network. By exploring other contexts and focus areas of Innovation Networks new learnings can be obtained. These can result in possible advice to incorporate favourable practices and ways to prevent harmful situations.

CONCEPT & CONTEXT RECOMMENDATIONS

The concepts still need to be developed in more detail, tested and implemented. Ideally, the concepts would be thoroughly analysed in a genuine case to determine how the concept can be further improved and adapted. From feedback, several recommendations have already been made, which could be implemented and tested. For example in the Collaboration Canvas the following adaptations could be made: creating a horizontal planning timeline, providing more guidance with checkboxes or guiding the user visually through the canvas.

Next, the environment of TNF should be further improved to create a valuable setting for the food industry. For example, by providing the facilities to host network events, by giving unmistakable and inviting information to join the community and the network and by making the entrance more inviting and accessible for visitors to enter the building. Solving these small points of frustration will be the start to search for more opportunities with potential partners and try out new design solutions.



If extra resources are available other ideas from the ideation phase could be explored. Several ideas focussed on building community through activities, like a dinner night or cooking workshops to build bonds. Other ideas were focussed on improving the facilities in TNF, like a garden area outside and a farm market on the ground floor with produce. These could be applied to improve TNF and create a more energising and attractive environment to invite new partners and network members.

LIMITATIONS

This design project was limited in several aspects. Firstly, the chosen approach to conduct research heavily interfered with the observed setting. Meddling in the setting hampered the ability to use the data objectively and observe how the setting would have behaved naturally. However, introducing new design solutions assisted the context in its developments and aided stakeholders to overcome their challenges. Interfering in the context was consciously chosen because the setting could benefit from the interference, while valuable insights could still be gained as part of the research activities.

Secondly, in the ideation phase, it was decided to focus on the present situation of the TNF and design solution to aid them with the present obstacles rather than potential future challenges. Thus, the ideas weren't tailored to fit into their potential future scenario. However, TNF and the Food Innovation Network are still in an early stage of development, and it is highly unpredictable how they will evolve and what the future needs will be. Thus, it was decided to generate solutions for the current situation rather than for potential future solutions.

Lastly, the generated solutions were limited to the accepted constraints. The concepts had to be low cost and low effort because TNF and its stakeholders were limited in their resources. If, however, more money and time were available, other solutions might be more worthwhile to arrange. For example, appointing a community manager or hosting regular activities in TNF to improve the community. These and similar solutions which required additional funds and time of the internal team were not considered in depth and left out of the final results.

5.4 REFLECTION

A reflection on the project process, approach, result and the personal learnings will be discussed. Reviewing these was done to give insight into the project course, how it was experienced and the personal takeaways and learnings.

PROCESS & APPROACH

The project process has seen some erratic and chaotic moments. It took some time to gain enough insight into the setting of TNF to be able to plan research activities thoroughly. The situation of TNF was a unique experience for myself, and I had to respond to changes and unpredictable developments rapidly. I attempted to use my intuition as a designer to uncover the needed information and probe the edges of what was possible in this context by observing how stakeholders responded to my interventions and suggestions.

I initially struggled to get into the proper position to create an impact in TNF due to the high pressure and panicked state of the internal TNF team. In their panicked state, they focussed on spending little of their resources, time and funding, rather than exploring their long-term possibilities. Due to this situation, it was challenging to gain some of their time to discuss their opinions and suggestions for improvements tended to drop to the bottom the list of their priorities. The opposition tested my ability as a designer to thoroughly investigate the context and gain the needed access to vital information.

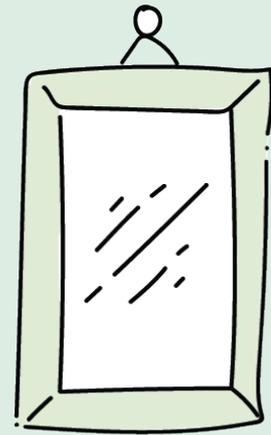
Eventually, I shifted my focus from the internal TNF team to the current tenants in the building to gain a deeper understanding of the context and be able to test ideas. They provided constructive feedback and helped test several of my ideas for TNF. Furthermore, they were pleased to finally be able to share their experiences with TNF and their suggestions to improve the context. These developments helped to pinpoint the essential challenges in TNF and how they could potentially be overcome.

Even though the project had to adapt to many changes and unforeseen circumstances, it provided a deeper insight into what it takes to set up a complex structure like an innovation hub or network. For example, the bankruptcy of the largest tenant, Urban Farmers, was a big blow in the developments of TNF. However, focussing on the people in the building helped to pinpoint what was needed to energise them and support them to push through rough times to make TNF a better and more inviting place.

PROJECT RESULTS

The identified insights, developed concepts and the initiated improvements and developments can be considered the results of this graduation assignment. The results were verified with the involved stakeholders. For example, the insights were discussed with Jaap from Consult2Grow and TNF, and the concepts were reviewed with the tenants in short one-on-one interviews and with a prototype on the second floor. The activities were evaluated with the involved members from the "Future of Food group". For example, the bordersessions event was evaluated during a meeting with the members who helped to set it up.

Verifying the project results with the involved stakeholders helped to gain insight into how these strategies could be improved and what might be needed in TNF and the network to support them in future activities. Evaluating the concept at an early stage with the tenants helped to increase findings and even supported the design of a new solution which better answered to their current needs.



PERSONAL REFLECTION

Conducting a project of this size alone was a brand-new experience for me. It tested some of my skills I considered to have mastered but experienced as a challenge anew because of the individual setting. For example, evaluating decisions, designing follow up activities and determining the best approach to overcome setbacks.

However, these challenges helped me to become more confident when I reached the final stages of the project and helped me to rediscover personal and design skills. The new experiences helped me to slowly overcome my initial insecurity and start to believe in my skills again. Plus, it helped me to refocus on my ability to choose strategies on the spot and believe that the project will reach a satisfying end, even though I couldn't see clearly yet how this would be achieved.

This project has also challenged my motivation during tough times. At the start of this assignment, it was difficult to reach out to people in TNF. They had little opportunity to chat and were highly pressured for their time. Not being able to connect with people and explore how I could best aid them, aside from miraculously creating extra time or funds, was discouraging.

The setting made it tough to connect with people and challenging to stay motivated. I know from previous projects that I deliver the best work when I work with slightly hesitant but proactive people. I tend to quickly connect with them at the start of a project to discover how I can best aid them with my design skills. For example, by exposing new possibilities, they didn't consider before or by teaching problem-solving strategies I use as a designer. The condition of TNF made achieving this complicated and it challenged my abilities to create a productive setting.

Luckily, at the end of this project, I was better able to connect with the people, mainly the tenants, and quickly made use of this opportunity to design solutions to support them. Preferably, this would have happened sooner in order to perform more design iterations to reach an even better-tailored solution to aid them in their next steps. However, I'm thrilled to see the changes I've been able to make in the last months with the tenants and how it changed their perspective of what they can do and what is possible in TNF.

Overall, I have overcome several of my challenges and learned new approaches and skills during my graduation project. Moreover, I have developed a new sense of certainty in my design skills and courage to try out new strategies when the old ones don't seem to fit. I hope to continue my journey and keep helping people by together challenging what is possible.



6. RESOURCES

2010 Poptech Social Innovation Fellows (2010) *Can you help solve these social entrepreneurs' challenges?* Harvard Business Review, retrieved from <https://hbr.org/2010/10/can-you-help-solve-these-social-entrepreneurs-challenges>

Abdirahman, Z., Cherni, M., Sauvee, L. (2014) *Networked Innovation: a concept for knowledge-based agrifood business.* Journal on Chain and Networked Science: 14(2), 83-93

Adner, R. (2006) *Match your innovation strategy to your innovation ecosystem.* Harvard Business Review, April 2006

Aerofarms (2018) *Technology.* Retrieved on 24th of July 2018, from <https://aerofarms.com/technology/>

AGF (2014) *Kas van 1200 meter op dak in Den Haag.* Retrieved on 9th of August, from <http://www.agf.nl/artikel/117824/Kas-van-1.200-meter-op-dak-in-Den-Haag>

Ansell, C., Gash, A., (2008) *Collaborative Governance in Theory and Practice.* Journal of Public Administration Research and Theory 18(4), 543-71

Architectenweb (2014) *Voormalige fabriek krijgt kas op het dak.* Retrieved on 9th of August, from <https://architectenweb.nl/nieuws/artikel.aspx?ID=35720>

Astroplant (2018) *Homepage Astroplant.* Retrieved on 25th of June 2018, from <https://www.astroplant.io>

Baskerville, R., Myers, M., (2015) *Design ethnography in information systems.* Info Systems Journal, 25, 23-46

Berardo, R., Heikkila, T., Gerlak, A., (2014) *Interorganizational Engagement in Collaborative Environmental Management: Evidence from the South Florida Ecosystem Restoration Task Force.* Journal of Public Administration and Research Theory 24(3), 697-719

Berasategi, L., Arana, J., Castellano, E., (2011) *A comprehensive framework for collaborative networked innovation.* Production Planning & Control, 22(5-6), 581-593

Bergema, K. (2015) *An action repertoire for the collaboration in innovation networks* (Doctoral dissertation). Retrieved from TU Delft Institutional Repository (Accession No. 978-94-6186-589-2)

Blank, S. (2013). *The four steps to the epiphany successful strategies for products that win.* California: S. Blank.

van Boeijen, A., Zijlstra, J., Daalhuizen, J., van der Schoor, R. (2013) *Delft Design Guide.* BIS Publishers,

van den Braak, J. (2018) *Livinglab.* Presentation, The Netherlands.

Brown, T. (2019). *Change by Design: How design thinking transforms organizations and inspires innovation.* S.I.: Harperbusiness.

Bryson, J., Crosby, B., Stone, M. (2006) *The Design and Implementation of Cross Sector collaborations: Propositions from the Literature.* Special issue, Public Administration Review 66, 44-55

Calabretta, G., Gemser, G., Karpen, I. (2016) *Strategic Design: Eight essential practices every strategic designer must master.* BIS publishers, Amsterdam

Chesbrough, H. and Kardon Crowther, A. (2006) *Beyond high tech: early adopters of open innovation in other industries.* R&D Management, 36(3), 229-236.

ClickNL (2018) *WUR & Creative Industry Matchmaking Event.* Retrieved on 20th of May 2018, from <https://www.clicknl.nl/en/events/wur-and-creative-industry-matchmaking-event/>

- Consult2Grow (2018) *About Consult2grow*. Retrieved on 27th of June 2018, from <http://consult2grow.nl/about>
- Creative Mornings (2018) *Partners with Rotterdam*. Retrieved on 13th of August, from <https://creativemornings.com/cities/rtd/sponsors>
- Cross, N., Dorst, K., Roozenburg, N. (1992) *Research in Design Thinking*. Delft University Press, Delft
- Curry, A., Hodgson, A. (2008) *Seeing in Multiple Horizons: Connecting Futures to Strategy*. Journal of Futures Studies, 13(1), 1-20
- De Man, A., Duysters, G., (2003) *Collaboration and innovation: a review of the effect of mergers, acquisitions and alliances on innovation*. Eindhoven University of Technology Repository
- Discord (2018) *Homepage*. Retrieved on 24th of September from <https://discordapp.com>
- Dorst, K., (2011) *The core of 'design thinking' and its application*. Elsevier, Design Studies, 32(6), 521-532
- Dorst, K. (2010) *The Nature of Design Thinking*. DAB Documents, 131-139
- Emerson, K., Nabatchi, T., Balogh, S. (2011) *An Integrative Framework for Collaborative Governance*. Journal of Public Administration Research and Theory 22(1), 1-29
- Fowler, M., Highsmith, J., (2001) *The Agile Manifesto*. Software Development
- Freightfarms (2018) *The leafy green machine*. Retrieved on 24th of July, from <https://www.freightfarms.com/product#lgm-2017>
- Gothelf, J., (2014) *Bring Agile to the whole organization*. Harvard Business Review
- Greenwood, D. J., & Levin, M. (2007). *Introduction to action research social research for social change*. Thousand Oaks, CA: Sage Publications.
- Gunn, W., Otto, T., & Smith, R. C. (2013) *Design anthropology theory and practice*. London: Bloomsbury Academic, an imprint of Bloomsbury Publishing Plc.
- HaagseZwam (2018) *Homepage*. Retrieved on 24th of July, from <https://haagsezwam.nl>
- Hass, K. (2007) *The Blending of Traditional and Agile Project Management*. PM World Today, 9(5)
- Huggings, R., Johnston, A., Thompson, P., (2012) *Network Capital, Social Capital and Knowledge Flow: How the Nature of Inter-organizational Networks Impacts on Innovation*. Industry and Innovation 19(3), 204-232
- Hyacinth, B. (2018, July 31) *You can't buy Employee Loyalty; You must EARN it!* [Blog post], retrieved from <https://www.linkedin.com/pulse/you-cant-buy-employee-loyalty-must-earn-brigitte-hyacinth/>
- i-did (2018) *Over ons*. Retrieved on 24th of July, from <http://www.i-did.nl/over/>
- ING (2016) *Setting the Pace*. Retrieved on the 3th of August, from <https://www.ing.com/Newsroom/All-news/Setting-the-PACE.htm>
- Jackson, D. J. (2015) *What is an Innovation Ecosystem?* National Science Foundation, Arlington, VA
- KLM (2017) *KLM en TU Delft ondertekenen unieke samenwerking*. Retrieved on 3th of August, from <https://nieuws.klm.com/klm-en-tu-delft-ondertekenen-unique-samenwerking/>
- van Kooten, O. (2018, 7th of June) *Personalised Food*. International Festival of Technology, Delft, The Netherlands
- Koschmann, M., Kuhn, T., Pfarrer, M., (2012) *A Communicative Framework of Value in Cross Sector Partnerships*. Academy of Management REview 37(2), 332-54
- van der Leij, F. (2018, 7th of June) *Shrimp Waste for Shrimp Taste*. International Festival of Technology, Delft, The Netherlands
- Lawson, B., Dorst, K. (2009) *Design Expertise*. Elsevier, UK
- Malhotra, D., Lumineau, F., (2011) *Trust and Collaboration in the Aftermath of Conflict: The effects of contract structure*. Academy of Management Journal, 54(5)
- Mauro, G. (2018, 7th of June) *Robot Swarms in Agro-Sector*. International Festival of Technology, Delft, The Netherlands

Pop-Up Creativity Hub (2018, 30th of May) *Facilitating Knowledge Sharing in Big Corporations*. Event, Delft, The Netherlands

Metlab (2018) *Food and the city*. Retrieved on 24th of July 2018, from <http://meta-lab.nl/programma/food-the-city/>

Nerur, S., Mahapatra, R., Mangalaraj G., (2005) *Challenges of Migrating the agile methodologies*. Communications of the ACM, 48(5), 73-78

Platform Design Toolkit (2018) *The Platform Design Toolkit, Evolving Service Design & Business Modeling in the Age of Ecosystems*. Retrieved on 16th of April, from <https://platformdesigntoolkit.com/toolkit/>

Plattner, H., Meinel, C., & Leifer, L. J. (2011). *Design thinking: Understand, improve, apply*. Berlin: Springer.

Price, R., Wrigley, C., Matthews, J. (2017) *Design-led innovation and sensemaking: opportunities to connect*. Design Management Academic Conference, 7-9 June 2017, Hong Kong.

Price, R., Wrigley, C., Matthews, J. (2018) *Action Researchers to design innovation catalyst: Building design capability from within*. Action Research, Sage Journals

Provan, K., Kenis, P., (2008) *Modes of Network Governance: Structure, Management and Effectiveness*. Journal of Public Administration Research and Theory 18(2), 229-52

Ries, E. (2011). *The lean startup: How constant innovation to creates radically successful businesses*. London: Portfolio.

Schwaber, K., (2004) *Agile project management with scrum*. Microsoft Press, US

Shaw, N., E., Burgess, T., F., (2013) *Innovation-sharing across a supply network: barriers to collaboration*. Production Planning & Control, 24(2-3), 181-194

Slack (2018) *How it works*. Retrieved on 14th of September, from <https://slack.com/features>

Space10 (2018) *Local Food*. Retrieved on 24th of July, from <https://space10.io/labs/local-food/>

Strategyzer (2018) *Value proposition canvas*. Retrieved on 9th of August, from <https://strategyzer.com/canvas/value-proposition-canvas>

Stroh, D. P. (2015). *Systems thinking for social change: A practical guide to solving complex problems: Avoiding unintended consequences, and achieving lasting results*. White River Junction, VT: Chelsea Green Publishing.

Sustainable Urban Delta (2015) *Stadslandbouwproject urban farming de schilde*. Retrieved on 9th of August, from <http://sustainableurbandelta.com/de-schilde/?lang=nl>

Swan, J., Scarbrough, H., (2005) *The politics of networked innovation*. Human Relations, 58(7), 913-943

Tacitivos Inc (2018) *Mural homepage*. Retrieved on 11th of september from https://mural.co/?utm_expid=R8POy24vSl6Wh2xuUkd7fQ.0&utm_referrer=

The New Farm (2017) *Homepage*. Retrieved on 24th of July from <http://thenewfarm.nl>

UrbanFarmers (2018) *Homepage UrbanFarmers*. Retrieved on 25th of june 2018, from <https://urbanfarmers.nl/?SID=q2ju42usi5hhk1f8efs73esav5>

Valkenburg, R., Sluijs, J., Kleinsmann, M., (2016) *Images of Design Thinking*. Boom Uitgevers Amsterdam

Valkokari, K., Paasi, J., Rantala, T. (2017) *Managing knowledge within networked innovation*. Knowledge Management Research & Practice, 10(1), 27-40

Vangen, S., Huxham, C., (2012) *The Tangled Web: Unraveling the Principle of Common Goals in Collaborations*. Journal of Public Administration Research and Theory 22(4), 731-60

Viviano, F. (2017) *This tiny country feeds the world*. National Geographic Magazine, September 2017, retrieved from <https://www.nationalgeographic.com/magazine/2017/09/holland-agriculture-sustainable-farming/>

Yee, J., Jefferies, E., Michlewski, K. (2017) *Transformations: 7 roles to drive change by design*. BIS Publishers, Amsterdam