Creating successful collaborative networks

Explaining the impact of successfactors like proximity and commitment and actions like building strong relationships and formulating SMART goals when looking at the process of creating collaborative networks at the Industry Park Kleefse Waard in Arnhem, the Netherlands

$$1 + 1 = 3$$

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Jolien Nieuwenhuis
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Executive summary

How to create successful collaborative networks, specifically for corporate sustainability goals? This research question is highly relevant since our society faces a multitude of challenges related to sustainable development, climate change and global social- and economic inequality. Organisations are increasingly more involved in contributing to solving these societal issues, but individual organisations are unable to solve these 'wicked' problems alone: there is a societal need for increased inter-organisational collaboration. The academic literature discusses the successfactors of collaborative networks, but almost none focus on the creation of new collaborative networks. Because of this the main research question is: *"Considering the processes of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"*

The Industry Park Kleefse Waard was selected to focus the research on a specific geographical area. Their ambition to become the first eco-industrial park and desire to increase collaboration at their industry park made them interested in this research question. Eight collaborate networks located at- and surrounding the IPKW were picked as case studies for their relatively early development stages and focus on corporate sustainability goals: Battery Valley, Miscancell and Akzo Nobel, the GreenDeal Natuurvezels, the IPKW ontwerpstudio's, HyMove and Nedstack, Plastic Fantastic, CMC and SEECE. At least two persons from each collaborative network were interviewed in order to learn about the development process of their collaborative networks, the barriers they faced, the impact of proximity and their most important successfactors.

The gathered data was analysed using both inductive- and deductive review methods. The answer to the research question is that the chances for creating successful collaborative networks for the purpose of corporate sustainability goals increases, when:

- Certain initial conditions - like committed leadership - have been met, and;
- Clear shared values and goals are formulated, translated into SMART goals and a clear task division is agreed upon;
- There is a lack of barriers and/or these barriers are overcome, and;
- There is a high level of organisational proximity (closeness), a good amount of geographical proximity and there is technological complementarity;
- There is a strong core team, a signed agreement that everybody agrees on and there are regular meetings with the involved partners.

When organisations want to create a new collaborative network, one recommendation resulting from the research is that they follow the steps presented in the figure on the next page. These steps can help parties to create lasting commitment among the partners and to meet some of the initial conditions, overcome a few barriers and create a certain level of organisational proximity.

When an industry park wants to stimulate collaboration, it is recommended that they: 1. formulate an inspiring vision that attracts like-minded tenants, and 2. bring people together by organising events and being a linking-pin for the tenants. An industry park has the opportunity to stimulate collaboration by creating a real sense of community, making their role in the creation of new collaborative networks quite important.

Research and/or learn about the problems

Find the reasons for collaboration — *based on a (societal) need*

Share personal and organisational interests — *search for the WIN-WIN*

Officially decide who joins the network — *complementarity is key - everybody should add value*

Find a good (process)leader

Form a passionate and diverse core team

Formulate SMART goals together

Divide tasks and responsibilities clearly

Sign a contract that everybody agrees on

based on trust and mutual respect — Build strong personal relationships

recognise each others limitations — Do. Work with focus towards your goals

Meet and evaluate your progress regularly

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1. Introduction

"*To ensure long-term success, companies have to face pressures from society to address the current and future impacts on society which they directly or indirectly cause while managing their existing core business*" (Witjes, Vermeulen and Cramer, 2017, p. 132). This quote refers to the concept 'Corporate Sustainability' or 'Corporate Social Responsibility' (CSR for short), which seems to be everywhere nowadays: in business strategies (Salzmann, Lonescu-Somers and Steger, 2005), in governmental policies (Bryson, Crosby and Middleton Stone, 2006) and in academic publications (Witjes, Vermeulen and Cramer, 2017; Sharma and Kearins, 2011). Academic research surrounding corporate sustainability has made a shift from understanding the economical-, social- and environmental impacts of business activities, towards research on (Witjes, Vermeulen and Cramer, 2017, p. 132): "(…) *effective strategies for transformative change of the organisational system and how these can be spread out and controlled throughout the organisation*". Witjes, Vermeulen and Cramer (2017) researched how corporate sustainability can be integrated into the internal organisational system of singular organisations (ibid). This master thesis research, on the other hand, focusses on the integration and stimulation of corporate sustainability between multiple organisations and institutions, by relating it to the concept of inter-organisational collaboration. Collaboration seems to be of key importance, when trying to solve societal challenges – or 'wicked problems' - within the context of organisations (Murray, Haynes and Hudson, 2010). There is, however, a lack of academic publications about creating new collaborations for the integration of corporate sustainability goals. For these reasons, the creation of new collaboration for the integration of corporate sustainability goals is the main theme of this master thesis.

1.1 Problem statement

Our current society faces a multitude of challenges related to sustainable development, climate change (Murray, Haynes and Hudson, 2010) and global social- and economic inequality. These challenges are extremely complex in nature - sometimes even called 'wicked problems' – which creates the need for collaborative problem solving across the various institutions of our society, e.g. government, non-governmental organisation, businesses and civil society (Murray, Haynes and Hudson, 2010). This is not a recent discovery, since Barbara Gray published the same statement in 1985 (Gray, 1985), however the role of businesses in the creation of a 'responsible and sustainable society' has increased over time (Murray, Haynes and Hudson, 2010). Businesses have increasingly been taking their responsibility for the social- and environmental impacts their business activities have (ibid; Witjes, Vermeulen and Cramer, 2017). However, organisations cannot solve these 'wicked problems' on their own. Individual organisations lack the knowledge, resources and political power to solve the issues related to corporate sustainability by themselves (Sharma and Kearins, 2011). There is thus a need for inter-organisational collaboration between organisations and other stakeholders (Murray, Haynes and Hudson, 2010, p. 162): "*Such collaborative approaches involve a wide and complex range of stakeholders working together to achieve a shared outcome*".

The concept of inter-organisational collaboration is not new. Murray, Haynes and Hudson (2010) explain however that a significant amount of academic publications related to inter-organisational collaboration focus mainly on market-oriented relationships, being: corporate economic strategy, strategic alliances and corporate leadership and the economic benefits of inter-organisational collaboration (ibid, p. 166): "*Much of the academic literature on collaboration, (…) is concerned with the business case and potential advantage to the collaborative organizations of engaging in*

collaboration, rather than any wider societal benefit". Murray, Haynes and Hudson (2010) however, chose to apply the concept of inter-organisational collaboration to Corporate Social Responsibility (CSR) and global sustainability. They explored existing academic literature about an UK case study to look for possibilities for collaboration between business and government, government and non-governmental organisations and all three institutions in order to contribute to solving the problems related to CSR. Besides Murray, Haynes and Hudson (2010) more academic publications are about inter-organisational collaboration for the goal of corporate sustainability and/ or sustainable development (Sharma and Kearins, 2011; Gray, 1985). What all of these academic publications have in common, is that they either analyse mature collaborative networks themselves or that they review other publications about existing and mature inter-organisational collaborative networks. There is a striking lack of academic publications about creating new collaborative networks for corporate sustainability goals. Understanding how new collaborative networks are created and made successful is extremely important when trying to solve the 'wicked' societal problems related to corporate sustainability (Sharma and Kearins, 2011). For example, collaborative networks can benefit the circular economy in which increased successful collaboration along the supply chain is of vital importance (Jonker, Faber and Stegeman, 2018). Inter-organisational collaborations increase organisations their impact in regard to societal issues, because of extra resources (time, money and/or knowledge) and because of a stronger position towards policymakers caused by a shared agenda (Murray, Haynes and Hudson, 2010). Since inter-organisational collaboration is important in order to solve the problems related to corporate sustainability and sustainable development (Sharma and Kearins, 2011; Murray, Haynes and Hudson, 2010; Bryson, Crosby and Stone, 2006; Gray, 1985), there is clearly a need to create new inter-organisational collaborative networks.

Creating new inter-organisational collaborative networks is not an easy task. For example, when forming new collaborative networks certain initial conditions are important. These are conditions that have to be met before the different parties begin with the negotiations on forming the new collaborative network (Bryson, Crosby and Stone, 2015). Without these pre-existing conditions, attempts at creating new collaborative networks will most likely not succeed (ibid). Leaders committed to collaboration (Bryson, Crosby and Stone, 2015; Spekman, et al., 1996) and a clear agreement on the problem at hand are just two of such requirements (ibid; Ingirige and Sexton, 2006). There are many barriers to be faced when creating and starting a collaborative network as well, such as the turbulence of the environment (Bryson, Crosby and Stone, 2006) and a possible lack of resources like time, money, knowledge (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006). Creating new collaborative networks that succeed in realising their goals is not an easy task. Which is why this master thesis aims to understand how collaborative networks, specifically for the integration of corporate sustainability goals, are created and which actions can be taken in order to increase the chances of creating a successful collaborative network. The main research question is:

"Considering the processes of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"

This research question will be answered within the scope of the Industry park Kleefse Waard (IPKW), located in the city of Arnhem in the Netherlands (see chapter 3: methodology). The selection of case studies within a certain geographical area offers an interesting opportunity to research the impact of (geographical) proximity. This concept will be explained in chapter 2: theoretical framework.

Industriepark Kleefse Waard

1.2 Societal relevance

The societal relevance of this master thesis is focused on a broader macro level on the one hand, and on a specific micro level on the other hand. The macro level societal relevance was previously discussed in the problem statement: the 'wicked problems' facing our current society cannot be solved without collaboration between the various institutions of our society: government, non-governmental organisations, business and civil society (Sharma and Kearins, 2011; Murray, Haynes and Hudson, 2010; Bryson, Crosby and Stone, 2006; Gray, 1985). Research on the formation of new inter-organisational collaborative networks for the goal of corporate sustainability could offer helpful insights in how to solve these wicked problems via increased collaboration.

The micro level societal relevance is the result of the case selection (see chapter 3): The Industry park Kleefse Waard. Both the organisation IPKW, which is responsible for the management of the industry park, and the HAN, which gives its students the opportunity to learn from practice at the industry park IPKW, expressed the desire and need for increased collaboration at the Industry Park Kleefse Waard (personal communication with IPKW and HAN, 27 February 2018). "*Increasing the amount of collaboration at the IPKW is our most important goal. Collaboration is the fastest way to realising our goals*" (personal communication with Kevin Rijke, 26 April 2018). The IPKW wants to increase collaboration at the park to realize its social- and environmental vision, which entails social workplaces and an energy- and waste neutral industry park (personal communication with IPKW, 24 January and 27 February 2018). The HAN wishes to increase the 'learning-from-practice' or 'hybrid learning' project at the industry park, via increased collaboration between the HAN, the students at the HAN and the other organisations located at the Industry Park Kleefse Waard. This research can contribute to these goals by clarifying the current network of collaborations at the IPKW and by creating a practical overview of factors and actions that increase the chances of creating successful collaborative networks, which are directly applicable when organisations at the IPKW take initiative to form a new collaborative network.

1.3 Scientific relevance

Collaboration is widely discussed in academic publications, using many different terms for roughly the same thing like: inter-organisation collaboration, partnerships, alliances, joint ventures, trade deals, et cetera. As stated by Murray, Haynes and Hudson (2010), the academic research concerning collaboration has mainly been focussed on the strategic and economic benefits caused by collaboration, on subjects like corporate economic strategy, strategic alliances and corporate leadership (Austin, 2000; Axelsson and Axelsson, 2006). Foster-Fishman (et al, 2001) focus on collaboration for the purpose of community well-being and Bryson, Crosby and Stone (2006) their publication discusses the design and implementation of cross-sector collaborations, for a multitude of complex public problems. These publications are not about Corporate Sustainability, but they are

about societal issues and the role of collaboration when trying to solve these issues. The most relevant publications discuss inter-organisational collaboration for the goal of sustainable development or corporate sustainability: Murray, Haynes and Hudson (2010) link the concept of inter-organisational collaboration to corporate sustainability, and look for the problems and opportunities facing a mature collaborative network; Sharma and Kearins (2011) analyse 8 local authorities in New Zealand in order to look for the potential and praxis of collaboration for the goal of regional sustainability, and analyse passed collaborations as experienced by the involved actors.

Without decreasing the contributions made by the presented and other researchers, there is something missing in the existing academic knowledge concerning collaborative networks. All of the before mentioned publications conclude with very broad, academically formulated conclusions which are very important, yet not immediately useful in practice. For example, the conclusion that a lack of resources is a barrier for a new collaborative network is important (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006). Nevertheless, the question remains how organisations can deal with a lack of resources when trying to create new collaborations. This master thesis aims to create an overview of factors and actions that increase the chances of creating successful collaborative networks, that are directly applicable and usable when trying to create new collaborative networks. In order to do this, a number of scientific theories on inter-organisational collaborations are applied and reviewed with a more practical scope. By focusing on more directly applicable research results, the master thesis aims to contribute to the scientific knowledge concerning inter-organisational collaborations.

The case selection offers another interesting aspect to this research as well. The fact that all cases are located at- and surrounding the Industry Park Kleefse Waard, offers the opportunity to research the impact of geographical proximity on the creation of successful collaborations. The physical closeness between the interviewed parties and the other parties located at- and surrounding the IPKW offers the opportunity to really learn about how important closeness is for creating successful collaborations for the purpose of solving societal issues – which is relevant in this more-and more globalised world. It offers an insight in the question: is global collaboration possible of is it too important to be located close by, when trying to collaborate for CS purposes?

1.4 Research objections and questions
The first objective is contributing to the scientific knowledge concerning the creation of new collaborative networks by understanding the impact of proximity on the creation of collaborations.

The second objective of the master thesis is to develop a less theoretical and a more practical guideline for organisations that want to create collaborative networks related to corporate sustainability goals. The aim is to understand the development process of collaborative networks, and to understand which actions organisations can take to increase the chances of creating successful collaborative networks. The objectives of the thesis result in the following main research question:

"Considering the process of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"

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To answer the main research question, the following sub-questions will be discussed:

1. *Why is collaboration between organisations necessary? What motivates organisations to form collaborative networks?*

2. *How are collaborative networks created? What does the development process of a new collaborative network entail? Which specific actions are taken in the development process of new collaborative networks?*

3. *What (pre-existing) conditions must be met within and between organisations before they can create collaborative networks?*

4. *Which barriers do new collaborative networks face during and after the start-up phase? Which actions can new collaborative networks take to overcome these barriers?*

5. *What is the impact of the concept 'proximity' in relation to creating successful collaborative networks? Are organisational-, technological- and geographical proximity important for the success of collaborative networks?*

1.5 Reading guide

The lay-out of this master thesis is fairly standard. The next chapter, chapter two, presents the theoretical- and conceptual framework. Chapter three is about the methodological choices made, and the presents the selected case studies. The results of the gathered data are presented in chapter four. These results, and the clustered codes shown in appendix 5, are analysed in chapter five. Finally, chapter six contains the conclusion, recommendations and discussion. The appendices show the theoretical and operational interview guides used in phase one and phase two of this research, and the results of the coding of the semi-structured interviews.

2. Theoretical framework

2.1 Collaboration

Collaboration is everywhere: between individual people, within organisations, between organisations and the government, between different countries. Collaboration can even be spotted in the animal kingdom. It is a widely discussed subject, both in academic publications and on other forums like management and/or human resources books and TED-talks (see the playlist 'The power of collaboration' via www.TED.com, the link is in the refences list). Collaboration is everywhere. Nevertheless, collaborating is not easily done well. It is not strange that every child must learn to collaborate with others, and that this takes a lot of time and hard work. Collaboration between different organisations is not easy too, which is why the 'how to' question regarding collaboration between organisations is the subject of so many academic publications (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006; Sharma and Kearins, 2011; Murray, Haynes and Hudson, 2010; Gray, 1985; Polenske, 2004). However, before we can understand 'how to' collaborate, it first important to define collaboration and to understand why organisations choose to collaborate. The following paragraphs discuss the different definitions of collaboration and the reasons why organisations choose to collaborate with other organisations.

2.1.1 Different definitions of collaboration

Collaborations between organisations, or inter-organisational collaborations, exists in many different forms and have been described with a broad range of similar meaning terminologies: partnerships, alliances, collaborations, cooperations, networks, joint ventures, trade deals, et cetera (Murray, Haynes and Hudson, 2010; Polenske, 2004). All these terms describe the collaborative relationships that exist between a multitude of individual institutions, like businesses or governmental institutions. These terms are all used in academic publications, and have strong similarities in their meaning (ibid). According to Polenske, the relationships between organisations specifically can be summarized as: competition (with almost no collaboration between organisations), collaboration alliances, cooperation alliances, and networks (2004).

Despite there being many terms to describe the collaborative relationships between organisations, this master thesis will only use the term '*collaborative networks'* to describe the vast amount of different possible collaborative relationships between organisations. The term 'collaborative networks' in this thesis is explained as: the *networks* that *different organisations* form *together* in order to *collaborate* across *the boundaries of their individual organisations* for a *specific goal.* The timespan (short term or long term), geographical scale (local, national or international) or goal of the collaboration (create a new product, knowledge development, sharing of resources, et cetera) can be very different for different collaborative networks.

2.1.2 Why collaborate? Motives for creating collaborative networks

The first subquestion is: "*Why is collaboration between organisations necessary? What motivates organisations to form collaborative networks?*" The introduction discusses the need for inter-organisational collaboration in order to solve 'wicked' societal problems. "*Organisations cannot solve these 'wicked problems' on their own (…) since they lack the knowledge, resources and political power to solve the issues related to corporate sustainability by themselves* (Sharma and Kearins, 2011). Collaborative networks are necessary because organisations are unable to solve the issues

related to corporate sustainability by themselves (ibid). The desire to solve large societal issues is one of the reasons why organisations choose to form collaborative networks (Gray, 1985). This master thesis focusses on the formation of new collaborative networks for corporate sustainability goals, meaning that the desire to solve large societal issues needs to be one of the motives for collaboration for the selected casusses (see chapter 3: methodology). Table 1 presents an overview of other common motives for creating collaborative networks, which will be used as theoretical background knowledge during the data gathering phase.

Motives	Sources
Implement changes more effectively	Sharma and Kearins, 2011
Creating innovative products	Yang, et al, 2015; Sharma and Kearins, 2011;
Greater and mutual learning opportunity	Yang, et al, 2015; Sharma and Kearins, 2011; Ingirige and Sexton, 2006
Mutual value creation (earn more money)	Sharma and Kearins, 2011
Improved stakeholder relationship	Sharma and Kearins, 2011
Consumer relationship and branding	Sharma and Kearins, 2011
Gaining access to new resources (e.g. money, knowledge, people, skills).	Yang, et al, 2015; Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006
Dealing with the turbulence of the market	Yang, et al, 2015; Bryson, Crosby and Stone, 2006; Gray, 1985.
Better relationship with suppliers	Yang, et al., 2015; Ingirige and Sexton, 2006

Table 1. Motives for creating collaborative networks (created by author, 2018).

2.2 Creating collaborative networks

The second subquestion is: "*How are collaborative networks created? What does the development process of a new collaborative network entail? Which specific actions are taken in the development process of new collaborative networks?*" Not much is published about the specific actions necessary - which steps to take - when wanting to create a new collaborative network. This part of the question can only be answered with the empirical data collected in the data collection (see chapter 4: results, chapter 5: analysis and chapter 6: conclusion). Nevertheless, it is known that the creation of collaborative networks passes through different development phases, according to McCann (1983) and Spekman (et al, 1996). These development phases are presented first in paragraph 2.2.1. Next the pre-existing conditions, the conditions that must be met before organisations can start with the creation of a new collaborative network, will be discussed in paragraph 2.2.2.

2.2.1 Development phases

The process of creating a new collaborate network has different phases. Both McCann (1983) and Spekman, et al. (1996) divide three phases of development (see table 2).

McCann (1983)	Spekman, et al (1996)
Phase 1: Problem setting	Phase 1: Vision
Phase 2: Direction setting	Phase 2: Values
Phase 3: Structuring	Phase 3: Voice

Table 2. Development phases of collaborative networks (McCann, 1983; Spekman et al, 1996).

McCann (1983) his problem setting phase is about: "S*etting the environmental and developmental context; articulating a shared definition of the problem; and fact finding and identification of cause-effect relationships among problem variables*" (Gray, 1985, p. 916-917). The direction setting phase is about (Gray, 1985, p. 916-917): "*Creating an awareness of desired values and ends; articulating desired ends and directions for actions; and identifying specific steps and implementation issues".* McCann (1983) his third and last phase, structuring, is about (ibid): "*Enriching and evaluating organizing options; articulating stakeholder roles and control strategies; and monitoring and regulating action step performance".* Spekman, et al (1996) their phases are pretty similar. After 'anticipation' and 'engagement' before the formation process of the alliance or network, the vision for the alliance is formulated (p, 348): "*The vision imagined by the leaders of the two firms begins to take hold in the minds of others and the wish for 'what can be' becomes shared within both firms*". This results in the second phase with the formation of shared values, in valuation negotiations and initiation of the collaboration. However, the third phase is especially important when trying to develop successful and meaningful collaboration (ibid, p. 348): "*What emerges from the data is the importance of voice: the ability to articulate one's vision and to communicate it compellingly so managers in both firms understand and come to share the vision".* These phases show the steps, required communication and mutual trust (Spekman, et al, 1996; McCann, 1983; Gray, 1985) which are necessary when creating new collaborative networks. Much can be learned from these development phases. It stresses the importance of an *order* in the actions and steps to take when trying to form a new collaborate network (ibid). For example: without first distinguishing the – societal – issue at hand during the problem setting phase, formulating a solution - a clear goal - would not be possible. Because of this, the development phases of McCann (1983) – who's term are easier to interpret than Spekman (et al, 1996) their terms – will be used in the conceptual model (see paragraph 2.5).

2.2.2 Pre-existing conditions

The third subquestion is: "*What (pre-existing) conditions must be met within and between organisations before they can create collaborative networks?"* When forming new collaborative networks certain initial conditions are important. These are conditions that should be met before the different parties begin with the negotiations on forming the new collaborative network (Bryson, Crosby and Stone, 2015), meaning before the problem setting development phase (McCann, 1983). Without these pre-existing conditions, attempts at creating new collaborative networks have lower chances of succeeding (Bryson, Crosby and Stone, 2015). It should be noted that these conditions are often still important during the implementation process of the collaboration network and that most of these conditions are still essential within mature collaborations (Bryson, Crosby and Stone, 2015). The most important pre-existing conditions are: committed and well-qualified leadership with a collaborative mindset (Bryson, Crosby and Stone, 2015; Spekman, et al, 2015); the belief that it is necessary for the problem to be addressed within the organisations (ibid); interdependence of stakeholders organisations regarding the problem and knowledge of the former – positive and negative - relationships and collaborations between the participating organisations (Bryson, Crosby and Stone, 2015). A complete overview of pre-existing requirements found while reading academic publications regarding the subject can be found in appendix 2: theoretical interview guide phase 2. The pre-existing requirements can be found in the conceptual model (see paragraph 2.5) and will be discussed during the data gathering phase.

2.2.3 Barriers

Creating new collaborative networks is not an easy task. One of the reasons for this are the many possible barriers collaborative networks can face (Bryson, Crosby and Stone, 2006; Hardy, Lawrence, and Grant, 2005; Ingirige and Sexton, 2006). For this reason, the fourth subquestion is: "*Which barriers do new collaborative networks face during and after the start-up phase? Which actions can new collaborative networks take to overcome these barriers?*" Most barriers distinguished in academic publications are easy to understand. A lack of resources (money, knowledge or time) can be an enormous bottleneck for collaborative networks, especially in the start-up phase (ibid). The lack of the pre-existing requirements like committed and well-qualified leadership, a lack of commitment towards the problem and lack of support from stakeholders can slow down the tempo of the collaboration (ibid). Unclear or unrealistic targets can cause frustration and damage the relationship between the collaboration organisations (Ingirige and Sexton, 2006). Conflict among actors or a lack of trust can also both be barriers for the collaborative network. An overview of different barriers, extracted from academic publications on barriers facing collaborative networks working towards solving societal issues (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006 and Hardy, Lawrence and Grant, 2005), is presented in table 3.

Barriers	
Turbulence of environment	Conflict among actors
No pre-existing relationships and networks before formation	Lack of shared values
No clear leadership	Unrealistic or unclear targets
Not enough resources available (e.g. money, time or knowledge)	Lack of communication
Lack of trust	

Table 3. Barriers facing collaborative networks working towards CS goals (created by author, 2018).

It is extremely likely that organisations will face barriers when creating a new collaborative network. Nevertheless, the hypothesis is that barriers do not necessarily decrease the chances of creating a successful collaborative network. When organisations can overcome these barriers, it might even increase the chances of success for a collaborative network, since the organisations probably had to collaborate in order to overcome the barrier and this might strengthen their trust and commitment towards each other. The concept of barriers and the following two hypothesises will be used in the conceptual model (2.5) and discussed during the data gathering phase.

H1a: barriers that are not overcome, will decrease the chances of successful collaboration.
H1b: barriers that are overcome through collaboration, will increase the chances of successful collaboration.

2.3 Successful collaboration

The main research question of this master thesis is: *"Considering the process of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"* It should be clarified what is meant with successful collaborative networks. There are many different definitions of success and plenty of models to indicate or calculate success. However, the meaning of success used in this master thesis is simply: *to achieve the goals set by the collaborative network in an efficient way.*

The concept 'efficiency' here means that the set goals are achieved within the timeframe and with the resources as were agreed on before the start. According to this definition, a collaborate network is thus successful when they reach their goals efficiently. The focus is strongly on the perception of the actors within the collaborate network, and not on whether outsiders (like customers) regard the collaboration as successful. This definition was chosen because of the hypothesis that the idea of 'success' is perceived more broadly by the actors within the collaboration and because of the development phases of the chosen case studies. For instance: the collaboration between Miscancell and Akzo Nobel (see chapter 3: methodology) is a very promising collaborative network. Their definition of success has a strong ecological perspective, besides of course an economical interest. However, their collaboration is still in the start-up/direction-setting phase. This means that not many outsiders know about the specifics of their collaboration, and could thus not really judge whether or not their collaborative network is successful in their eyes. At this moment in time, for most of the selected cases, the amount of success of the collaborative networks as perceived by the actors within the collaborative networks is thus more interesting. Successful collaboration thus means that the collaborative networks *achieve their set goals in an efficient manner,* according to themselves.

2.3.1 The importance of creating proximity

What conditions increase the chances of successful collaboration within collaborative networks? An interesting theory on creating successful inter-organisational collaborations is the 'proximity' theory by Knoben and Oerlemans (2006) and Boschma (2005). Proximity is about the *closeness,* the *compatibility* of the multiple actors in an alliance and a collaborative network. Knoben and Oerlemans (2006) have done an extensive literature review about the relationships between the concept proximity and inter-organisational collaboration. They state that the different forms of proximity (organisational proximity - cognitive, institutional, cultural and social proximity-, technological proximity and geographical proximity, see figure 2) need to be developed in the formation and implementation phase of a collaborative network, in order to create successful collaborations (ibid). The interesting concept of proximity led to the formulation of the fifth and last subquestion: "*What is the impact of the concept 'proximity' in relation to creating successful collaborative networks? Are organisational-, technological- and geographical proximity important for the success of collaborative networks?".*
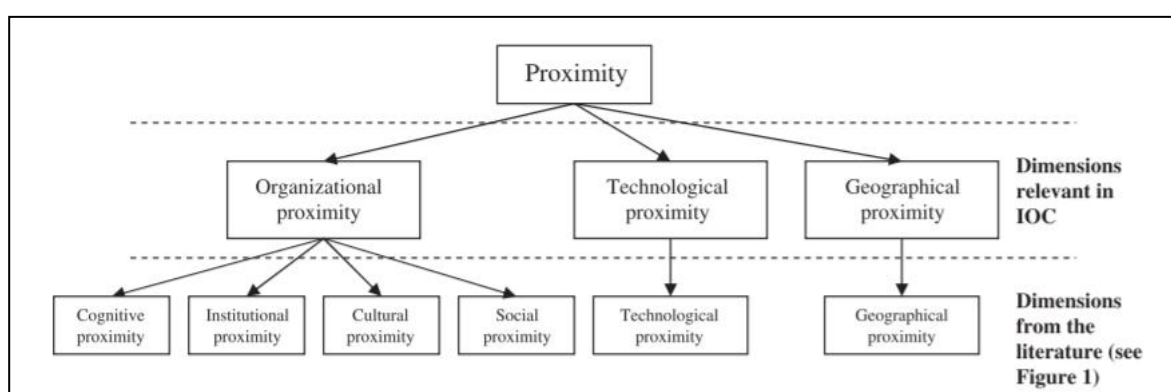

Figure 2: the concept of proximity related to inter-organisational collaboration (Knoben and Oerlemans, 2006).

The different forms of proximity are (Knoben and Oerlemans, 2006):

- *Organisational proximity* (similarity in organisational systems, like the levels of hierarchy and the rules and routines within organisations)*;*
  - *Cognitive proximity (p. 77: "(…) the similarities in the way actors perceive, interpret, understand and evaluate the world*".
  - *Institutional proximity (p. 76: "Institutions are the humanly devised* [formal and informal] *constraints that structure political, economic and social interaction");*
  - *Cultural proximity (*p. 76: "(…) *the pattern of thoughts, feelings, behaviours, symbols and so forth that give meaning to actions and behaviours, and provide interpretations of situations for people*")*;*
  - *Social proximity (*personal or relationships proximity, the closeness and strength of relationships between actors within alliances and networks).
- *Technological proximity (p. 77: "Technological proximity is based on shared technological experiences and knowledge bases. Technology can be defined as those tools, devices and knowledge that mediate between inputs and outputs (process technology) and/or that create new products or services - product technology*")*;*
- *Geographical proximity* (territorial, spatial, local or physical proximity: the physical distance between the actors within the alliance and the network).

In order to develop and strengthen collaboration within networks, building proximity is important. However, not all types of proximity need to be available in the same amount in order to create strong collaborations (Boschma, 2005; Knoben and Oerlemans, 2006, p. 86):

> "(…) *different types of proximity can strengthen or weaken each other's effect at a certain point in time. For example, two collaborating partners that are geographically dispersed face difficulties arranging face-to-face contacts. Firms that are proximate on the technological and organizational dimension might be able to substitute these face-to-face contacts with modern communication technologies and, thereby, overcome the problems caused by large geographical distances. For firms with low levels of technological or organizational proximity, however, trying to do so might result in even more problems due to miscommunication and misinterpretations of electronic communication".*

In different collaborative networks, different levels of organisational, technological and geographical proximity will thus be required. For example, geographical proximity might not be necessary in order to create mutual learning experiences, when the technological proximity between the actors within the collaborative network is closer (Boschma, 2006). Nevertheless, creating proximity when developing and implementing collaborative networks increases the chances of creating a successful collaborative network (ibid; Knoben and Oerlemans, 2006). For this reason, the concept of proximity will be used in the conceptual framework and discussed during the interviews.

H2: In relation to the IPKW, the hypothesis is that the organisation behind the IPKW – probably unconsciously - creates proximity. By bringing likeminded organisations together and by striving towards the creation of a community (personal communication, 18 April 2018). The position of the IPKW makes this industry park such an interesting research case (see chapter 3: methodology).

2.4 Corporate Sustainability

As mentioned in the introduction: the concept of 'corporate sustainability' seems to be everywhere nowadays. It came forth from the 'wicked' problems facing our society today: climate change, biodiversity loss, unsustainable economic development (Murray, Haynes and Hudson, 2010) and strong social inequalities. In the last two decades (ibid) Corporate Sustainability (CS) – and the strongly related concept of Corporate Social Responsibility (CSR) – has become a well-known term in the majority of public organisations, where the concept is often considered as a profitable business strategy (Salzmann, Lonescu-Somers and Steger, 2005). The question is however, what does 'corporate sustainability' mean?

Dahlsrud (2006) analysed 37 of the most commonly used definitions of the term corporate sustainability (p.1): "*Despite numerous efforts to bring about a clear and unbiased definition of CS, there is still some confusion as to how CS should be defined".* After an extensive literature review, he concludes however (p. 1): "*The confusion is not so much about how CS is defined, as about how CS is socially constructed in a specific context".* According to Dahlsrud, the confusion is more around how CS is socially constructed in specific contexts (e.g. different organisations and institutions). Organisations and other institutions consider different aspects be part of corporate sustainability (Dahlsrud, 2006). Murray, Haynes and Hudson write (2010, p. 163): "*What passes for corporate sustainability varies among companies with each company outlining their own interpretation in corporate releases and publications, and web sites".* This thus creates the need for each organisation to clearly think about what the concept 'corporate sustainability' entails for them, when creating an inter-organisational collaborative network. As Hardy, Lawrence and Grant (2005) claim: effective inter-organisational collaborations emerge when each individual organisation formulates their own clear definition of their goals and visions, which can be translated to a discursively constructed shared identity among all stakeholders inside an inter-organisational collaborative network, thus stressing the importance of the 'shared vision' and 'shared goals' within collaborative networks (ibid).

In most publications, corporate sustainability has three pillars (Sharma and Kearins, 2011, p. 173): "*Its 'three E'* [better known as three P: people, planet and profit] *foundations of economy, equity, and environment call for balancing values during decision making so as to achieve sustainability across all three pillars—economic, social, and environmental—at the same time".* The idea between the three pillars of corporate sustainability – being either people / equity, profit / economy and planet / environment – calls for simultaneously addressing the three pillars and taking a long-term view on these goals (Sharma and Kearins, 2011). The three goals roughly mean (Sharma and Kearins, 2011, p. 173): "*Economic sustainability is a state where the economy is strong and vibrant; social sustainability is a state where there is*

Figure 3: The three dimensions of corporate sustainability (Witjes, Vermeulen and Cramer, 2017).

social equity and peace and justice for all; and environmental sustainability is a state where the natural environment, including wildlife and ecosystems, is well preserved and flourishes".
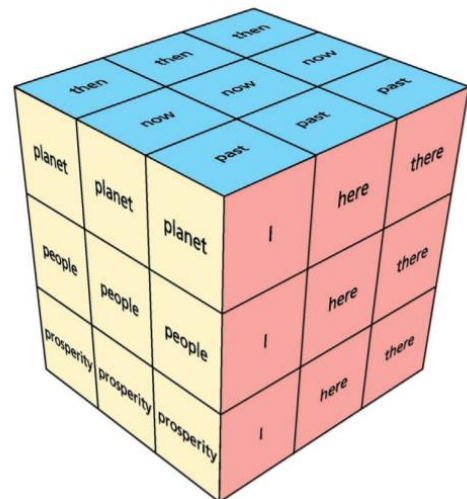
Witjes, Vermeulen and Cramer (2017) go beyond this definition of corporate sustainability, and add two other dimensions to the concept. They state that corporate sustainability entails three dimensions (see figure 3): issues (planet, people and prosperity / profit), time (past, now and then) and place (individual, here and there). According to them, corporate sustainability thus also entails a timeframe and a geographical focus point. The data for this master thesis will be collected at- and surrounding the Industry park Kleefse Waard in Arnhem, the Netherlands. This gives an opportunity to look at corporate sustananility related to the place dimension in the three-dimensions theory by Witjes, Vermeulen and Cramer (2017), because of the specific local and regional geographical location of the selected cases. For the scope of this master thesis, corporate sustainability will thus entail both economic-, social- and ecological goals; a timeframe and a geographical focus.

2.5 Conceptual framework

The main research question is: *"Considering the processes of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"* When reading academic publication, some broad concepts are mentioned at all times: 'trust' (Bryson, Crosby and Stone, 2006), 'shared values' (Hardy, Lawrence and Grant, 2005), 'transparency' and 'effective communication' (Bakker, 2017) are always mentioned as important for successful collaborations. These four concepts: shared values (presented in the conceptual model by itself) and trust, transparency and effective communication (presented in the conceptual model as part of the pre-existing requirements and the lack of barriers) will be used in the conceptual model as well. The conceptual model below is a hypothesis of which factors increase the chances of creating successful collaborative networks for corporate sustainability goals. However, it is important to note that these conditions do not ensure successful collaboration. Even when all conditions and factors are met, a collaborative network still is not necessarily successful. Knoben and Oerlemans explain this regarding their proximity concept (2006, p. 86):

> *"However, even when organizational proximity can successfully be developed and either temporary or permanent geographical proximity has overcome the problems of geographical distance, success is not guaranteed. The match between organizations in terms of strategy, structure and culture is an important aspect, but only facilitates the exchange of (technological) knowledge. A certain amount of technological proximity is also required in order to be able to use the knowledge and capabilities of the other actor (…)"*

There are many factors and conditions influencing the chances of success for a collaborative network. Success is never guaranteed within collaborative networks. Nevertheless, the following conceptual model (see figure 4) shows the hypothesis of which factors at least increase the chances of successful collaboration for corporate sustainability goals.
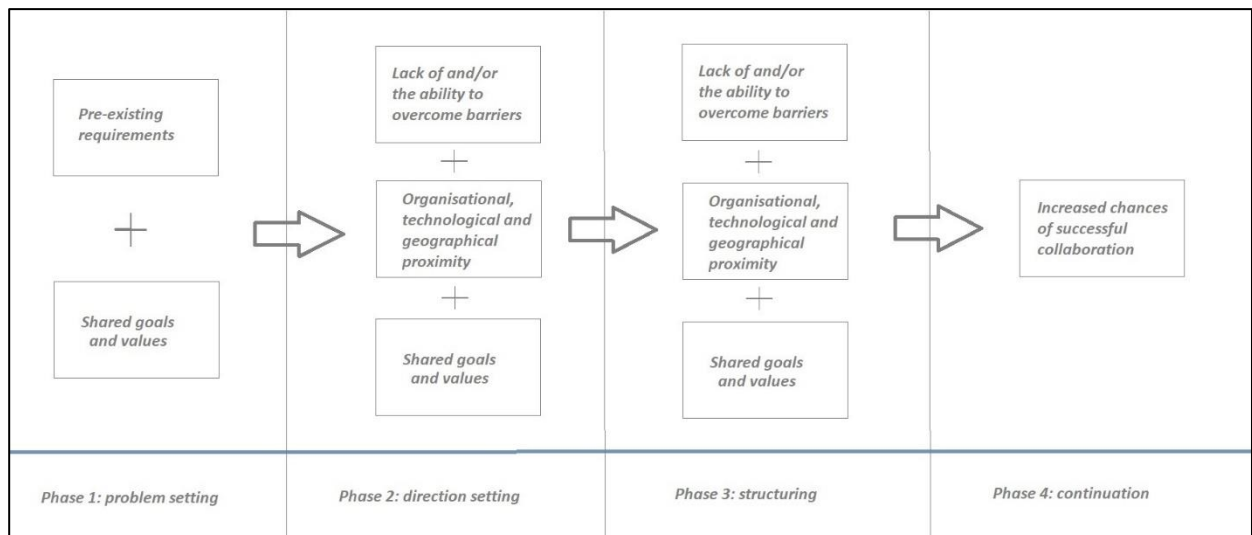
Figure 4: conceptual model (created by author, 2018).

The conceptual model shows the hypothesis that when new collaborative networks have created and/or met the required initial conditions for successful collaboration; have clearly formulated their shared goals and values in the problem setting phase; when they have the ability to overcome barriers during the direction-setting and structuring phase; create a good balance between the necessary proximities (organisational-, technological- and geographical proximity) and continue to develop and evaluate their shared goals and values in the direction-setting and the structuring phase and in the continuation of the collaborative network, this increases their chances of successful collaboration. The broad yet extremely important concepts 'trust', 'transparency', and 'effective communication' are all presented as part of the initial conditions and the ability to overcome barriers.

3. Methodology

The guiding research question of this master thesis is: *"Before and during the creation and start-up phases of new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"* This research question belongs to the scope of social sciences, making methodological choices based on clear argumentation extremely important (Bryman, 2012, p.5): *"Social research and its associated methods do not take place in a vacuum",* meaning that factors like the selected theories, the researchers' interpretations and values, the wider political context and the researchers view regarding the relationship between theory and research have impact on the research. In this chapter the main methodological choices regarding the research strategy (3.2) and the research methods (3.3) are explained. First however, the research philosophy is clarified (3.1).

3.1 Research philosophy

Epistemology means (Saunders, Lewis and Thornhill, 2007, p. 102): *"What constitutes acceptable knowledge in a field of study".* The research has characteristics of both the positivistic and the interpretivist research philosophy. On the one hand the research stresses that 'success is not guaranteed', it states that there are no 'law-like generalisations' possible when trying to create successful new collaborative networks. There is not one recipe for success, making the research not purely positivistic in nature. Nevertheless, one important aspect of the positivistic research philosophy that can be found in this research are the two hypotheses formulated in chapter 2: theoretical framework. These hypotheses are based on existing literature, making the research partly positivistic. On the other hand, this research belongs to the 'interpretivism' epistemology, meaning (Saunders, Lewis and Thornhill, 2007, p. 102): *"Interpretivism (…) advocates that it is necessary for the researcher to understand differences between humans in our role as social actors".* This research focusses on organisations and the people within those organisations who create collaborative network, focussing on the human agents and their perceptions regarding collaborative networks – making it also partly interpretivist research. These two research philosophies translate into the data analysis methods used, since both deductive and inductive data analysis methods were used (see chapter 3.3.4: data analysis and chapter 5: analysis).

Ontology, on the other hand, is concerned with the nature of reality (ibid). It focusses on the (ibid, p. 108): *"(…) assumptions researchers have about the way the world operates and the commitment held to particular views".* Ontology is about the structure and agency relationship: are structures formed and changed by actors, or are structures fixed realities independent of social actors? In the case of organisations, my personal opinion (strongly shaped by studying Human Resource Management) is that organisations are created and formed by people. Without people, organisations would not exist. The ontology 'subjectivism' means (ibid, p. 108): *"The subjectivist view is that social phenomena are created from the perceptions and consequent actions of social actors. What is more, this is a continual process in that through the process of social integration these social phenomena are in a constant state of revision".* When a new CEO is hired, an organisation can change completely. This shows that one single actor can change a social phenomenon, in this case being an organisation. Successful organisations never stop innovating, and this innovation is caused by people – which is a clear subjectivist opinion. The importance of the physical workspace, the machinery or the other resources should not be denied, but without

the people in an organisation these physical objects would not be there. When the people inside the organisations located at the Industry Park Kleefse Waard decide to form inter-organisation collaborative networks, this can change the social reality at the IPKW. Because of this opinion, this research is shaped by a subjectivist ontology.

3.2 Research strategy

This research can best be classified as 'explanatory' research (Saunders, Lewis and Thornhill, 2007), which means (ibid, p. 134): "*Studies that establish causal relations between variables may be termed explanatory studies. The emphasis here is on studying a situation or a problem in order to explain the relationships between the variables".* The aim of this master thesis is to understand which factors and actions influence the chances of creating successful collaboration. The objective to create a directly applicable list of actions for the creation of successful collaborative networks is relatively new, however the focus is on understanding the effects on multiple well-known concepts such as proximity and the impact of shared goals. The goal is thus to understand the relationships between these different well-known concepts, making this explanatory research.

Since this research aims to understand the factors and actions influencing the chances of success when creating a new collaborative network in practice, the best fitting research strategy case study research. A case study is defined as (Saunders, Lewis and Thornhill, 2007, p. 139): "*(…) a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon with its real-life context using multiple sources of evidence'.* The case of inter-organisational collaboration for the integration of corporate sustainability is clearly a contemporary phenomenon, which is why case study research strategy is interesting. Also, the turbulence of the environment is one of the factors influencing the chances of success when creating new collaborative networks (Bryson, Crosby and Stone, 2006) making it important to study the cases embedded in their context, their environment.

To increase the validity and reliability of this research, multiple cases – multiple collaborative networks - will be analysed and compared. The goal of researching multiple cases is not to reach generalisation, but mainly to get a deeper and more nuanced understanding of the relationships between the different factors presented in the conceptual model (see chapter 2.5) and the chances of creating a successful collaborative network. Since the selected cases, the inter-organisational collaborative networks, are considered as one network with a multitude of organisations and other institutions participating in the network, the term '*embedded case study'* is fitting. Embedded case study entails the analysis of more than one unit of analysis, that are however still part of a single 'case' (Saunders, Lewis and Thornhill, 2007). The individual organisations are all part of the single collaborative network, just as individual departments are part on one single organisations. Because of this, this is an '*embedded multiple case study'* research.

3.2.1 The orientation phase: explained and concluded

The Industry Park Kleefse Waard, located in Arnhem city, was selected as the perfect location for this embedded case study research. The location showed promising opportunities for creating new collaborative networks - the IPKW facilitates workspaces for 70-75 different organisations, which could theoretically all be part of the new collaborative networks - and the facilitating organisation behind the IPKW desired to increase the amount of collaboration for the purpose of corporate sustainability goals at the IPKW.

In the orientation phase of this master thesis it was unknown how much collaboration already happened at the IPKW. The original plan was to select organisation that were willing to collaborate, and to facilitate them in the creation on a new collaborate network – in doing so learning about the factors and actions making the creation of collaborative networks successful. In order to understand the current need- and willingness to collaborate among the parties located at- and surrounding the IPKW, the original plan was that most of the organisations located at the IPKW at that time would be interviewed and/or send a questionnaire.

	Name interviewee	Organisation	Collaborative network	Date interview
1	Erik Folgering	HAN	SEECE and CMC	April 10, 2018
2	Tinus Hammink	HAN	SEECE	April 26, 2018
3	Kevin Rijke	IPKW	-	April 18, 2018

Table 4. Interviewees phase 1

However, the first three interviews in phase 1 of the research (see table 4) made clear that there in fact already are many collaborative networks at- and surrounding the Industry park Kleefse Waard. Erik Folgering, Kevin Rijke and Tinus Hammink talked about the collaborative networks SEECE, CMC, Battery Valley and the IPKW design studio's (personal communication, April 2018). Appendix 1 shows the interview questions used during these first three interviews. Appendix 4 shows the coding process and results of these interviews. The conclusion is clear: there already are many collaborative networks at- and surrounding the IPKW. With this conclusion the orientation phase of this research was over and research strategy for phase 2 of the research changed.

3.2.2 Case selection criteria: phase 2
The Industry Park Kleefse Waard, located in Arnhem city, still is the perfect location for this embedded multiple case study research. There are many examples for new collaborative networks, in different development stages. Nevertheless, the location still shows promising opportunities for creating new collaborative networks and the facilitating organisation behind the IPKW, led by Kevin Rijke, desires to increase the amount of collaboration for the purpose of corporate sustainability goals at their industry park (which led to the hypothesis that the IPKW is unconsciously trying to increase the proximity, see chapter 2: theoretical framework). Multiple existing collaborative networks at- and surrounding the IPKW will be selected as the embedded cases for this research.

Besides the geographical criteria that the selected case studies must be located at the IPKW (meaning there is a close geographical proximity between the IPKW and the collaborate networks), there are other two criteria for selecting the collaborative networks:
1. *Corporate sustainability goals:*
   This master thesis focusses on the formation of new collaborative networks for corporate sustainability goals. The desire to solve large societal issues thus needs to be one of the motives for collaboration for the selected casusses, meaning that the collaborative networks aims to achieve social- and ecological goals besides economical goals.
2. *Early development stages:*
   This master thesis aims to understand how collaborative networks are created, focussing on the start-up and early development stages of the collaboration. Mature collaborative networks, which have been successful for more than 5-10 years, are excluded from the case selection.

3.2.3 The selected cases

Kevin Rijke, CEO at the Industry park Kleefse Waard, explained the five corporate sustainability themes they will focus on at the industry park (personal communication, 18 April 2018): "*We are going to work on five themes, being: energy, waste, our build environment, mobility and people*". The five themes are almost all represented in the selected cases, with 'people' focussing more on education and instead of 'our build environment' a few cases focus on the bio-based economy.
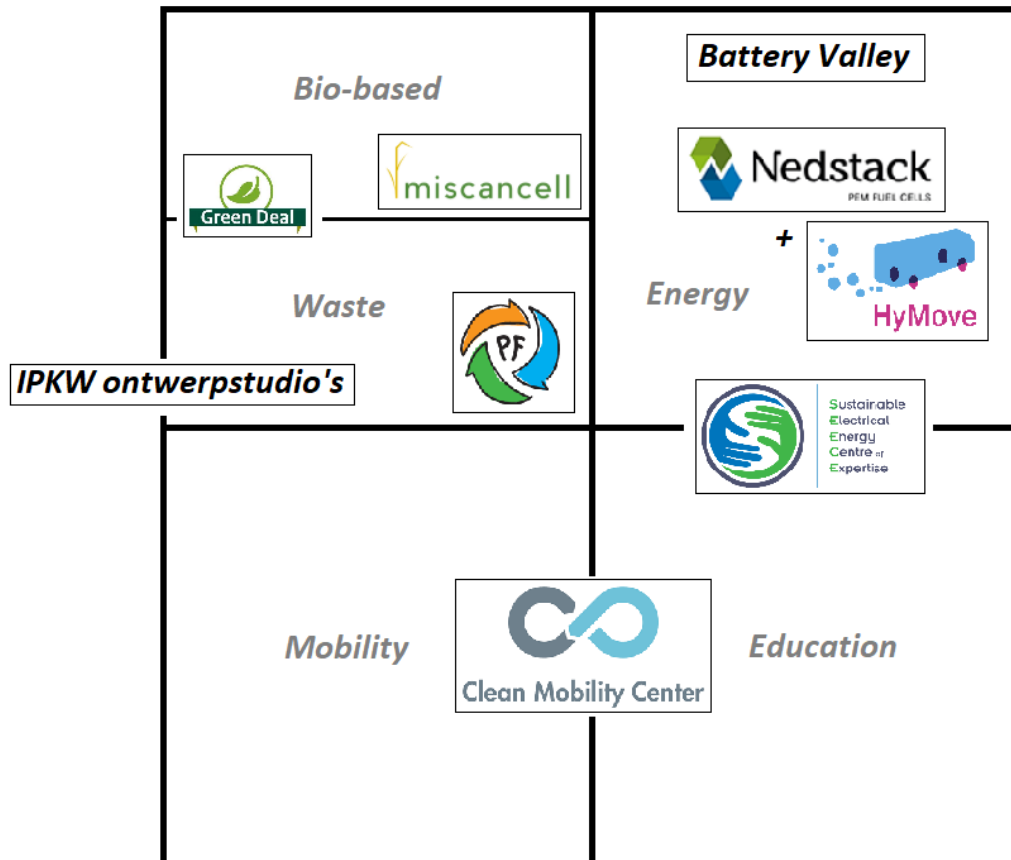
Figure 5: The selected case studies (created by author, 2018)

Figure 5 shows the eight selected collaborative networks in relation to the five themes: bio-based, waste, energy, mobility and education. The reasons for selecting these collaborative networks are briefly explained:

- *Battery Valley:*
  This collaborative network has the ambition to become known internationally as the experts regarding electricity storage using more sustainable methods than lithium. However, Battery Valley is still in the 'problem setting' development phase: they are still busy deciding which organisations can join the collaborative network and what their specific goals will be. An interesting collaborative network because of their incredibly early development phase.

- *Miscancell and Akzo Nobel:*
  Miscancell and Akzo Nobel are exploring and researching different opportunities for collaboration. Having signed a 'letter of intent' they are now in the direction-setting development phase. An interesting collaborative network because of the large size difference between the two organisations (= organisational proximity), with Miscancell being a small and relatively new organisation and Akzo Nobel being a large multinational.

- *Green Deal Natuurvezels (C-177):*
  The Green Deals are deals made between the Dutch national government and organisations, regarding several sustainability themes. The Green Deal Natuurvezels belongs to the bio-based economy since they focus on the applications of hemp. This collaborative network is interesting since the network is quite inactive (personal communication with Rene Sauver, 1 June 2018), showing how mistakes in the formation process of collaborative networks can lead to unsuccessful collaboration (see chapter 4: case descriptions and results).
- *IPKW ontwerpsstudio's:*
  The IPKW ontwerpsstudio's is formed by a group of creative designers and architects located at the IPKW. They all design and make products with corporate sustainability in mind. The IPKW ontwerpstudio's are in the structuring development phase, making it an interesting addition to this research.
- *Nedstack and HyMove:*
  This collaborative network is very production oriented, since the energy storage technology of Nedstack is used in the applications of HyMove. The two organisations have also formed a joint venture in China to market their products there. This collaborative network has an interesting intertwined history, showing the importance of organisational proximity (both institutional and social proximity) for successful collaboration.
- *Plastic Fantastic:*
  This collaborative network is formed by three different organisations: Saveplastics, Airhunters and Triple Benefit. The goal of Plastic Fantastic is to make machines which can be used to make new products out of recycled 'waste' plastics. This collaborative network is interesting because of the visionary yet practical mindset during the formation process, with a purposeful 'dream session' and other activities during the formation process.
- *Clean Mobility Center:*
  This collaborative network aims to make mobility cleaner, smarter and safer. With 11 partners this network is now in the 'continuation' development phase. This collaborative network is interesting because of the difference in organisations participating in the network: SME's, multinationals and higher education. Much can be learned from their success and from the barriers they faced.
- *SEECE (Sustainable Electrical Energy Centre of Expertise):*
  This collaborative network is explained on their website as (HAN, 2018): "*The Sustainable Electrical Energy Centre of Expertise (SEECE) helps to educate more and better trained engineers with a thorough understanding of renewable electric energy".* With six keypartners and more than other 40 participating organisations, SEECE is the largest collaborative network included in this research. It is however still relatively new, with much professionalisation needed in the future (personal communication with Erik Folgering, 10 April 2018). Much can be learned from their experience.

3.3 Research methods, data collection and data analysis

When doing case study research, it is advised (Saunders, Lewis and Thornhill, 2007, p. 139) to use and triangulate multiple sources of data. Triangulation means (ibid, p. 139): "*The use of different data collection techniques within one study in order to ensure that the data is telling you what you think they are telling you".* The following paragraphs explain the strategies used to achieve

triangulation and how this data is collected and analysed. Paragraph 3.3.1 describes the main research methods used in this research, being semi-structured interviews. Paragraph 3.3.2 presents the other forms of data collection used, in order to achieve triangulation. Paragraphs 3.3.3 and 3.3.4 explain how the data will be processed and analysed in chapter 5: analysis.

3.3.1 Research methods: semi-structured interviews

Interpretivism as epistemology and subjectivism as ontology are strongly related to 'qualitative research methods', meaning different forms of interviews. The goal of qualitative research is to understand rather than to quantify. Bryman (2012, p. 380) explains: *"Qualitative research is a research strategy that usually emphasizes words rather than quantification in the collection and analysis of data".* Since the aim of this research is to understand which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals, semi-structured one-on-one interviews were used as the main research method.

The semi-structured interviews were guided by the operational interview guide (see appendix 3: operational interview guide phase 2). The operational interview guide is based on the theoretical interview guide (see appendix 2: theoretical interview guide phase 2). The theoretical interview guide is based on the literature review and the conceptual model as presented in chapter 2. The operational interview guide is used as a guideline for the interview. When certain questions were not relevant or discussed already in the answer to another question, the question were skipped. However, it was important that the main concepts - motives for collaboration, pre-existing requirements, barriers, proximity and the factors leading to success – were all covered by the end of the interview. The focus was however on follow-up question regarding the main concepts, in order to understand which actions were taken in order to create the right circumstances for collaboration or to overcome barriers. The importance, and thus the quantity, of the follow-up questions resulted in relatively in-depth and long interviews: each interview took somewhere between 45 minutes and 1 ½ hours.

Table 5 shows an overview of the interviewees, the organisations and the collaborative networks the interviewees are a part of and the respective dates of the interviews. Kevin Rijke, CEO of the IPKW, supported the research by giving the name and contact information of the first interviewee of every collaborative network. These first interviewees were selected for their position in the collaborative network and the participating organisation. Most of the first selected interviewees play(ed) an important role in the collaborative network, by being one of the promotors of the network. The second (or third) interviewee of each collaborative network was recommended by the first interviewee. Most of the time the second (or third) interviewee comes from another participating organisation, in order to acquire a broader perspective regarding the collaborative network. A third interview was scheduled with participants from the two largest collaborative networks, CMC and SEECE.

The large number of interviews (21 in phase 2) can be explained by the fact that interviews were scheduled until the point of saturation: until no new factors, actions or other relevant information came to light during the interviews. The point of saturation was reached during the last 3-4 interviews.

	Name interviewee	Organisation	Collaborative network	Date interview
4	Theo Hendriks	HyMove	HyMove and Nedstack	June 5, 2018
5	Arnoud van der Bree	Nedstack	HyMove and Nedstack	June 7, 2018
6	Marcel van der Peppel	Miscancell	Miscancell and Akzo Nobel	June 7, 2018
7	Con Theeuwen	Akzo Nobel	Miscancell and Akzo Nobel	Juli 4, 2018
8	Guido Dallesi	Elestor	Battery Valley	June 12, 2018
9	Susan van Boxtel	Oost NL	Battery Valley	June 27, 2018
10	Bram Peters	SavePlastics	Plastic Fantastic	June 1, 2018
11	Rik Voerman	Triple Benefti	Plastic Fantastic	June 29, 2018
12	Renee Sauveur	Pantanova	GreenDeal Natuurvezels	June 1, 2018
13	Henk van Latesteijn	Value Medation	GreenDeal Natuurvezels	June 22, 2018
14	Marion Braams	CGI	Clean Mobility Center	July 5, 2018
15	Vincent Roes	DEKRA	Clean Mobility Center	June 14, 2018
16	Patrick Langevoort	Allego	Clean Mobility Center	June 14, 2018
17	Erik Folgering	HAN	SEECE	June 11, 2018
18	Tinus Hammink	HAN	SEECE	June 18, 2018
19	Robert Berends	Alliander	SEECE	July 4, 2018
20	Arno Geesink	KRAFT architecten	IPKW ontwerpstudio's	June 5, 2018
21	Joris de Groot	Studio Joris de Groot	IPKW ontwerpstudio's	June 20, 2018
22	Kevin Rijke	IPKW	-	June 25, 2018
23	Jacquelien de Koning	UTE	-	July 5, 2018
24	Marianne Mulder	Veolia	-	June 6, 2018

Table 5. Interviewees phase 2

Kevin Rijke was interviewed in order to understand the perspective and goals of the IPKW. Jacquelien de Koning from UTE and Marianne Mulder from Veolia were interviewed in order to understand the perspective of organisations located at the IPKW, that choose not to collaborate with other organisations at the IPKW. These two interviews were mainly to understand why they choose not to form collaborative networks, and which conditions need to be met before they'll consider joining collaborative networks.

3.3.2 Triangulation: other forms of data collection

Triangulation, the concept of using multiple sources for data collection, is important to increase the internal validity of the research. Internal validity means (Saunders, Lewis and Thornhill, 2007, p. 150): *"(…) whether the finding are really about what they appear to be about".* In order to increase the internal validity of the research, multiple data sources were used. Besides the semi-structured one-on-one interviews and the literature review (see chapter 2: theoretical framework), there were two other sources used: the websites from the collaborative networks and the signed collaboration agreements (that is: the letter of intents, heads of agreements, joint venture agreements and other forms of contracts). The website was used to gather background information about the individual companies and the collaborative network, and to check the goals and vision of the collaborative networks. The signed collaboration agreements were used to check the goals, vision, timeframe and other points of agreements. The signed contracts were also used to understand how formal, written agreements contribute to the chances of creating successful collaborative networks.

3.3.3 Coding of the data

The semi-structured interviews (see table 5) were audio-recorded and transcribed word-for-word. The data was coded using open-, axial- and selection coding methods (Bryman, 2012, p. 569):

> "*Open coding: the process of breaking down, examining, comparing, conceptualizing and categorizing data. This process of coding yields concepts, which are later to be grounded and turned into theories (…) Axial coding: a set of procedures whereby data are put back together in new ways after open coding, by making connection between the categories. (…) Selective coding: the procedure of selecting the core category, systematically relating to the other categories, validating those relationships".*

Appendix 5 (coding process phase 2: data collection) presents an overview of the coding process by presenting the open codes and the clustered axial codes. The open codes are the literal terms used during the interviews, the clustered codes are the results of the grouping and combining of these words. For example: 'shared goals' could be the clustered code, resulting from open codes like 'setting targets together', 'joint ambition' and 'shared objectives'. Notwithstanding that careful coding process that was followed, the relevant literal – however translated - quotes from the interviews will be presented in chapter 4: case description and results, in chapter 5: analysis, and in the conclusion of this research. The aim of using the real examples and quotes from the interviews, is to explain the relationships between the different concepts better and to increase the validity and reliability of this research, since the reader can follow the lines of thought better by reading the literal quotes for themselves.

3.3.4 Data analysis

The coded data will be analysed using the two main forms of critical data review: the inductive and the deductive approach. Combining the two data review approaches, combines the opportunities to learn to reality and the opportunity to learn from theory. First, the data will be analysed using inductive data review methods (Saunders, Lewis and Thornhill, 2007, p. 57): "*(…) To explore your data and to develop theories from them that you will subsequently relate to the literature."* Inductive analysis is strongly related to grounded theory, which entails the construction of new theories through the gathering and analysis of empirical data. Inductive review methods will be used to look to the collected data with an open mind, not considering the theoretical and conceptual framework as presented in chapter 2. The only question to ask the data during the inductive data review is the main research question of this thesis (see the introduction). The goal of using inductive review methods first is important since the focus of this research is on practice: the factors and actions influencing the chances of creating successful collaborative networks, in the real world. The chosen concepts can influence the eventual outcome of this research, and to decrease the chances of this happening, the data will first be reviewed inductively. Second, the data will be analysed used deductive review methods (Saunders, Lewis and Thornhill, 2007, p. 57): "*You use the literature to help you identify theories and ideas that you will test using data".* While deductive review methods, the concepts mentioned in chapter 2 will be tested using the gathered data. The third step of the data analysis, presented in chapter 5, is to compare the outcomes of both data review methods. In this way, the research can both review the existing literature regarding collaborative networks with the deductive approach, and also add new knowledge to the existing literature using the inductive review approach.

3.4 Research ethics

"Ethical issues arise at a variety of stages in social research" (Bryman, 2012, p. 130). Research ethics thus deal with the questions (ibid): *"How should be treat the people on whom we conduct research? Are there activities in which we should or should not engage in our relations with them?".* There are four main areas regarding ethical principles that can be distinguished, which are (ibid, p. 135):

- *"Whether there is harm for the participants;*
- *Whether there is a lack of informed consent;*
- *Whether there is an invasion of privacy;*
- *Whether deception is involved".*

Regarding the first issue, the interviewees were all informed beforehand that the interview would take at least one hour. However, some interviews took longer. The available time was however always discussed beforehand and during the interview, in order to check if the interviewees were okay with the time investment. The second issue, the issue of consent, was dealt with by inviting all participant personally for an interview. After the interview, permission was asked for using their name and quotes in this master thesis. This method is related to the third issue, the issue of privacy. Most interviewees gave their permission to used their name and quotes in this master thesis. Eight interviewees wanted to check the written transcripts of their interviews, and gave permission for the quotes used in this master thesis (meaning: some information was left out, as requested by the interviewees). One interviewee and the organisation they are connected to is anonymised by giving them a fake name and a fake organisation name. The fourth issue, the issue of deception, was handled by being transparent about the goal and research question of this master thesis. The aim of this master thesis, to understand how successful collaborative networks are created, was explained before each interview. The only information not given were the insights gathered during earlier interviews, since this would not be very ethical towards the other interviewees, and the conceptual framework was not explained to the interviewees. Nevertheless, all interviewees will receive the executive summary of this master thesis and upon request will receive the entire thesis.

4. Case descriptions and results

The results found during the semi-structured interviews, while reading the relevant websites and while analysing the signed collaborative agreements are presented here in chapter four. Each paragraph discusses the creation of one collaborative network and the results found regarding the concepts which were discussed during the interviews. The collaborative networks are presented in order of their development phases: collaborative networks in very early development stages first, collaborative networks in later development stages next. The results presented below are analysed in chapter 5: analysis.

4.1 Collaborative network 1: Battery Valley

The results from the collaborative network Battery Valley are based on the interviews with Guido Dalessi, CEO at Elestor B.V. and Susan van Bostel, advisor Cleantech & Energy at Oost NL. At the current development stage of Battery Valley there are no relevant websites to use as extra data and currently there are no signed collaboration agreements to analyse.

4.1.1 Case description: the start-up of the collaborative network

The collaborative network called Battery Valley is "*currently only a name*" (personal communication with Susan van Boxtel, 27 June 2018). The name was mentioned in the newspaper 'de Gelderlander' a few years ago, but no real collaborative network was created at that time. When Elestor B.V. moved to the IPKW and Guido Dalessi noticed the large quantity of electricity-related companies located at the industry park, he wanted to form a battery cluster (personal communication with Guido Dalessi, 12 June 2018). He contacted Oost NL and asked them for their help in creating Battery Valley. At the Start-up Delta, organized by the IPKW on the 19th of April 2018, a few organisations presented themselves as the collaborative network Battery Valley (ibid): "*We presented ourselves as a group at the Start-up Delta. We being: Elestor, E-stone, TimeShift energy, Exergy and Watson*".

The Start-up Delta was the result of Guido Dalessi contacting the other organisations (ibid): "*E-stone is located next to us, so I simply walked in. I e-mailed TimeShift and Exergy with the general idea of Battery Valley, asking: are you interested in joining us?*" Battery Valley is currently preparing for the next step (ibid):

> "*We are now in the stadium of having conversations. (…) We need to think about questions like: are we only a name or do we want to collaborate internally? What are we going to do? What will be our mission and how will we present ourselves? (…) We do not have any agreements, any signed documents. At this moment in time we have a few organisations that have stated: this is interesting. Now we need to figure out the purpose. We are not very far, but the enthusiasm is there*".

4.1.2 Incentives for collaboration

The incentives for Battery Valley are (personal communication with Guido Dalessi, 12 June 2018): sharing machinery, applying for subsidies together, related to branding – "*We will plant the energy storage flag here, so we will attract the right suppliers*," and because of reasons of scale and knowledge: "*The Netherlands relies on a knowledge-industry and less on production-industries. Together you have more knowledge and thus a stronger position in Europe*".

4.1.3 Pre-existing requirements, proximity and barriers

Paragraph 2.2.2 discussed the concept of pre-existing requirements: certain conditions that should be met before the different parties begin with the negotiations on forming the new collaborative network. Guido Dalessi mentions initiative-takers (personal communication, 12 June 2018): "*Collaborative networks always need one or two people who take initiative. You always have people who simply follow, but the initiative-takers are important*" and he mentions the importance of market demand: "*There must be a market for your products. The market potential for us is enormous. There is too much for us to do at the moment, there is no need for marketing*".

The second pre-existing requirement he mentioned, market demand, is related to something he mentioned while talking about proximity: the impact of competition among partners. Guido Dalessi explained that being competitors with your partners is no issue, when market demand is large enough:

"*TimeShift is our competitor is some ways. However, market demand is so large for energy storage products. I would even welcome a direct competitor for Elestor B.V. since I believe they would increase our market share, rather than steal it from us. Market demand is so large, it does not matter. We need people to know about our products since they are just as good as lithium batteries, and Battery Valley can help us with getting the word out there*".

The organisations interested in Battery Valley - Elestor, E-stone, TimeShift energy, Exergy and Watson – are all relatively small organisations. "*The benefit of this is that there are no dominant parties involved, which happens often when collaborating with a large organisation. We are all young, small organisations which makes us more equal*". This relates to the concept of organisational proximity/closeness, as well as their comparability regarding the technologies they produce and use (personal communication with Guido Dalessi, 12 June 2018).

Barriers

The result of the early development phase of the collaborative network Battery Valley is that there are a few barriers which need to be overcome. The first one is unclarity on the question who should join the network (personal communication with Guido Dalessi, 12 June 2018): "*The first question is: who belongs and who does not? There has been some e-mail contact. The clearer the definition of the group, the easier it is to select who should join the network and who should not. The barrier is unclarity about who belongs to the group and who does not: the definition of the group*".

Another barrier is the level of commitment caused by thinking of threats and competition (ibid): "*Some organisations are more extraverted, more open than others. Their actions feel sneaky. The commitment of the other organisations is difficult. Thinking about us being competitors and thinking about threats caused by this, while this is not the case*". Susan van Boxtel explains that smaller organisations tend to protect themselves more (personal communication, 27 June 2018): "*It is easy to say: we are competitors in these areas and we simply do not discuss these areas. But this is very difficult, especially for small organisations. For Elestor and the other organisations these issues get very personal. They have their own money invested in the companies, so most of the time they would rather solve their issues themselves than through collaboration with others*". Opening up to collaborative networks is simply put, 'scary' for small organisations (ibid).

4.1.4 Factors leading to successful collaboration

Labelling Battery Valley as a 'successful collaboration' would be too premature. The collaborative network has potential, according to Guido Dalessi (personal communication, 12 June 2018). There is however a large chance of failure, according to Susan van Boxtel (personal communication, 27 June 2018). She mentions a few reasons for this, which could be interpreted as factors increasing the chances for successful collaboration:

> "There is not a lot of content yet. People are not transparent about their issues at this point in time. Transparency is very important, but giving insight in your organisation's issues is extremely scary for small organisations. So, you need a few people who do share their problems, and these people should be rewarded so others want to join too. There is a chance that Battery Valley will not succeed now, but then maybe they will in a couple of years when they try again".

Other factors mentioned, which might increase the chances for successful collaborations, were: trust and open communication (personal communication with Susan van Boxtel, 27 June 2018); shared themes and challenges (ibid) and shared interest (personal communication with Guido Dalessi, 12 June 2018). Another factor mentioned is a return on investments (ibid): "*For example: E-stone wants to purchase measuring equipment for the collaborative network, requiring financial investments to be made. These investments can be shared among the other partners. In this way, you can gain something from the collaboration*".

Guido Dalessi explained the steps to take when trying to create collaboration (ibid): "*Step 1 is: identify which parties want to join. Then organise a meeting and discuss: what are we going to do? Who should join? Who should not be a part? Step 2 is: select initiative-takers, leaders. People who will make the final decisions, who say: this is our identity, we collaborate for these reasons, and communicate this to the outside world. (…) Step 3 is: you should show your brand in PowerPoint presentations and your other forms of external communications. Publicity is important*".

4.2 Collaborative network 2: Miscancell and Akzo Nobel

The results from the collaborative network formed by Miscancell and Akzo Nobel Functional Chemicals B.V. are based on the semi-structured interviews with Marcel van de Peppel, founder and co-owner of Miscancell and Con Theeuwen, Technology Manager at Akzo Nobel Functional Chemicals. The letter of intent signed by Miscancell and Akzo Nobel was used as extra data, as well as Miscancell their website (Miscancell, 2017) and the Akzo Nobel Global website called Imagine Chemistry (Akzo Nobel Global, 2018).

Figure 6: Logo Akzo Nobel (Akzo Nobel Global, 2018).   **Figure 7:** Logo Miscancell (Miscancell , 2017).

4.2.1 Case description: the start-up of the collaborative network

The collaborative network between Miscancell and Akzo Nobel Functional Chemicals B.V. is the result of the marketing strategy from the IPKW (personal communication with Marcel van de Peppel, 7 June 2018 and Con Theeuwen, 4 July 2018). Marcel van de Peppel explains: "*The collaboration with Akzo is the result of the Kleefse Waard. They published a press release about us and other new tenants, in January 2017. Akzo was looking for alternative resources for a long time, and contacted us immediately*". Con Theeuwen stated: "*The beginning of our collaboration was when I saw the article about new tenants published by the IPKW. They wrote about Miscancell building a biorefinary for the purpose of processing miscanthus, in order to produce cellulose. I contacted them and one thing led to another. This was in the beginning of 2017*".

The creation of their collaborative network was not easy. Marcel van de Peppel explains (personal communication, 7 June 2018): "*The creation of our collaboration with Akzo Nobel has been a long process. This has to do with the other initiatives they supported. They wanted to merge all the project, and we strongly disagreed with this plan. To let all the other projects join in on our success – with whom we did not want to collaborate – we did not want this. This discussion was even held in the board meeting of Akzo Nobel. Thanks to the internal support from Akzo Nobel we eventually got to an agreement. Akzo Nobel decided to continue collaborating with us and not with those other parties. We really held our ground: we have the knowledge of the resources, the technology and knowledge about the products… making our collaboration the logical choice*".

4.2.2 Incentives for collaboration

The incentives for the collaboration between Miscancell and Akzo Nobel Functional Chemicals are first and foremost product-based. The product Miscancell produces can be used as a resource by Akzo Nobel Functional Chemicals (personal communication with Con Theeuwen, 4 July 2018). Another reason for collaborating is the need for more resources in order to deliver high quality products (personal communication with Marcel van de Peppel, 7 June 2018): "*You cannot do anything by yourself. We are unable to build a factory by ourselves. We cannot test products by ourselves, we cannot develop them. We need partners do produce the right quality; and to truly test the quality of our products in the market. Partners also contribute money and knowledge which enables us to do these things*". The third reason for collaboration mentioned during the interviews was business development (ibid): "*The goal of collaboration is to grow, to develop the organisation. Because of this we strive for long-term collaborative networks*".

4.2.3 Pre-existing requirements, barriers and proximity

The first pre-existing requirement, a condition already met before the collaboration started, was knowledge about the product. Marcel van de Peppel (personal communication, 7 June 2018) states: "*Before Miscancell we already did a lot of research (…) meaning we already had all the relevant knowledge needed*". The second pre-existing requirement mentioned was having a well-connected network (ibid): "*We already had a large network. Knowledge institutes, suppliers, customers. (…) We get approached by large market players – where the case is usually the other way around. Our well-connected network is extremely important for this. Once we were even found through Google, since we are very active on social media: Facebook, Twitter - and LinkedIn is the next step. On social media we show what we are doing, which research, interesting pilots, products we are developing… because of this, organisations can find us*".

Per request of the interviewees, the barriers faced in this collaboration will not be presented.
The concept of proximity, the closeness of the Miscancell and Akzo Nobel Functional Chemicals was discussed extensively. Related to the organisational proximity, Miscancell prioritises personal relationships (personal communication with Marcel van de Peppel, 7 June 2018): "*We only collaborate with people we like. No ego's, no difficult relationships. We make sure to know each other on the border of friendships. This create a better foundation for trust, and trust is everything. You can build on trust. You can build trust by living up to your agreements and offer help when necessary. When talking about partnerships these are important conditions*". Related to the concept of trust, is the selection criteria for partnerships as formulated by Miscancell: they strive for complementarity as a foundation for trust among there partners (ibid):

"*We look for complementarity in our partnerships. We all work from the same basic principles, but this selection criteria is extremely important when building trust. When I work on something together with Akzo Nobel, I will not copy the project with a competitor of Akzo Nobel. You need to be able to each other in the eye. Competition is a fact of life, but you should make your decision and stick to it*".

The technological proximity between Miscancell and Akzo Nobel is rather close, with small differences (ibid): "*We share our interest in chemical knowledge. We have different products and applications, but the differences do not have a lot of impact. We can easily bridge these differences*".

The most noticeable difference between Miscancell and Akzo Nobel Functional Chemicals is the fact that Miscancell is a small - 2 employees - and new organisation – it exists since 2016 (Miscancell, 2017), where Akzo Nobel has existed since 1994 and has over 45.000 employees worldwide. However, this difference in organisational proximity does not impact their collaboration (personal communication with Con Theeuwen, 4 July 2018): "*No, this does not matter. We like collaborating with start-ups, what Miscancell of course is. What matters is commitment on the strategic level of the organisations. This is an important condition for collaboration for us. It takes time to create this commitment, but that is only normal*". Marcel van de Peppel stated (personal communication, 7 June 2018): "*Akzo is extremely good at this. They have created the 'Imagine Chemistry' competition. They select a few topics each year and adopt ideas and start-ups in order to support the further development of these ideas*". Akzo Nobel has created 'Imagine Chemistry' to find start-ups for the purpose of joint development agreements (Akzo Nobel Global, 2018). With this competition and the joint development projects that follow, they create collaborative networks with small organisations. The idea of these collaborations is not to take over the intellectual property of these start-ups (personal communication with Con Theeuwen, 4 July 2018): "*This is the general idea. Of course, there are start-ups who come with an idea and hope you take over the entire idea and all the IP related to it. However, this is not our preferred strategy. We notice that leaving the IP with the start-ups and collaborating with them offers far more opportunities for both parties*".

Concluding the concept of proximity with a quote on geographical proximity, Marcel van de Peppel stated (personal communication, 7 June 2018): "*It is a no-brainer collaboration: we are located very close by, we could almost deliver our products with a wheelbarrow*".

4.2.4 Factors leading to successful collaboration

Labelling the collaborative network between Miscancell and Akzo Nobel as successful is too premature. Con Theeuwen explains (personal communication, 4 July 2018): "*It is too early to say. Our collaboration looks promising, but I cannot say yet if it will be successful. It will be successful if we start buying their products. At this moment their products are still in development*". Marcel van de Peppel (personal communication, 7 June 2018) stated: "*We are still in the development phase*".

Nevertheless, both interviewees mentioned factors which could increase the chances of creating successful collaborative networks. The first factor is the recognition of shared interests. Con Theeuwen (ibid): "*We quickly recognised our shared interest. This makes our collaboration easier*" and Marcel van de Peppel seems to agree (personal communication, 7 June 2018): "*First, you should identify your shared interests. On the basis of clear agreements and visions about the future. This is a key requirement*". The shared interest is important because collaborations should search for the WIN-WIN situation. Marcel van de Peppel (ibid) explained: "*It should always be a WIN-WIN collaboration. A clear goal is necessary, so both parties can get something from the collaboration*". The way the people within a collaborative network act towards each other is very important as well, according to Marcel van de Peppel (ibid): "*The way you act towards others: respect, trust, those things. This is created though open and honest communication. It is important to be very clear: people usually do not like to hear to whole trust, but I think this is important. Speaking the trust is of critical importance in collaborative networks*". Another important factor Marcel van Peppel mentioned is the synergy at the Industry Park Kleefse Waard, creating the opportunity for collaborations (personal communication, 7 June 2018).

The importance of signed agreements was also mentioned. Con Theeuwen (personal communication, 4 July 2018): "*We have written down our agreements. Signed a letter of intent together*" and Marcel van de Peppel (personal communication, 7 June 2018): "*We have signed a letter of intent. With our guiding ideas and a timeframe written down*". Their letter of intent contained to following things: the names of both parties; the shared goals of the collaboration; a statement about the non-bindingness of the letter of intent; how decisions are made between both parties; the responsibilities and tasks division for the collaboration; a non-disclosure agreements; agreements on the involvement of other parties; a timeframe plus a statement about when the collaborative network is successful, and agreements on the needed resources (money and funding, time, supplies, et cetera).

4.3 Collaborative network 3: Green Deal Natuurvezels

The results from the collaborative network GreenDeal Natuurvezels (C-177) are based on the semi-structured interviews with Rene Sauveur, CEO and owner at Pantanova B.V. and Henk van Latesteijn, CEO and owner at Value Mediation Partners. The Green Deal Natuurvezels signed by all involved parties was used as extra data (GreenDeal Natuurvezels, 2015).

Figure 8: Logo Green Deals (Greendeal Natuurvezels, 2015).

4.3.1 Case description: the start-up of the collaborative network

The Green Deals are deals made between the Dutch national government and different organisations, regarding several sustainability themes. The Green Deal Natuurvezels focusses on the possible applications of hemp. In the year 2012 Rene Sauveur and Henk van Latesteijn analysed the possibilities for the nationwide introduction of hemp and developed a program called: 'kansrijke ketens voor een bio-circulaire industrie' (personal communication with Rene Sauveur, 1 June 2018 and Henk van Latesteijn, 22 June 2018). This program was adopted by the provincie Gelderland. At the same time, during Rutte 2, the Ministry of Economic Affairs developed an instrument called Green Deals. Rene Sauveur and Henk van Latesteijn saw the Green Deal as an instrument to connect people to their hemp ambitions (ibid). "*For the Green Deal Natuurvezels, I asked sixteen other parties to join us",* Rene Sauveur explained (personal communication, 1 June 2018). The parties whom signed the Green Deal Natuurvezels in 2015 are (GreenDeal Natuurvezels, 2015): De Rijksoverheid, Pantanova, Dun Agro, OICAM, NPSP Composieten, Stichting Agrodome, Maatschap Van Loenhout-Jansen, Nationale Maatschappij tot Behoud, Ontwikkeling en Exploitatie van Industrieel Erfgoed (BOEI), Steenoven Randwijk, Rondeel, Oskam, StexFibers, Stichting Texperium and Vandinter Semo. The goal formulated by these parties was to increase the amount of hemp used as a resource in four main areas: textile, animal feed, building materials and composites (ibid).

4.3.2 Incentives for collaboration

The main incentive most of these parties joined, according to Henk van Latesteijn (personal communication, 22 June 2018) was that they were already working on the goals formulated in the GreenDeal Natuurvezels: "*They were already working with hemp – and nobody else was. This was their argument to join in with our story".* Incentives for collaboration other than the nationwide introduction of hemp, which most of the parties who joined were already working on, were not mentioned during the interviews nor in the GreenDeal Natuurvezels itself.

4.3.3 Pre-existing requirements, proximity and barriers

No pre-existing requirements were specifically mentioned during the semi-structured interviews. Since most parties involved in the GreenDeal Natuurvezels already worked within one domain – textiles, animal feed, building materials or composites – they already knew each other within those domains. Rene Sauveur stated, related to organisational proximity (personal communication, 1 June 2018): "*Within each domain the people know each other quite well. We organised a few meetings – three generic once and a couple domain specific meetings. During these meetings people got to know each other better. This has a positive effect on the collaboration".*

The GreenDeal Natuurvezels collaborative network struggles with many barriers, and have trouble overcoming these barriers (personal communication with Rene Sauveur, 1 June 2018). The first one is legislation: The Opium wet. Rene Sauveur: "*In the Netherlands we still struggle with the 'stootblok', the enormous barricade of the Opium wet. The Opium wet is in high need of improvement and actualisation, especially because of the economic value of hemp".* Henk van Latesteijn explained how Rene Sauveur and himself had hoped that the GreenDeal Natuurvezels would have helped in trying to convince the government to change the legislation regarding hemp (personal communication, 22 June 2018): "*If the GreenDeal would have helped, for example through changed legislation and other insights so these kinds of developments could have happened. The GreenDeal struggled under the Opium wet. It should have been changed".*

The second barrier mentioned during the semi-structured interviews is the lack of real commitment of most partners towards the GreenDeal Natuurvezels. Rene Sauveur explained (personal communication, 1 June 2018): "*This has everything to do with the fact that there is no direct interest from the partners in the collaboration. They want to hear my story, but they do not want to pay – they often do not have the money for this. It all are small organisations. (…) At the moment I do most things by myself. I have very limited resources. I must do it all by myself now".* Rene Sauveur talked about the differences between the partners (ibid): "*When talking about our interests, we always find differences, other interests. Some parties think we move too fast, others think we move too slow and want to continue by themselves. Collaboration fails because of this".*

4.3.4 Factors leading to successful collaboration

The collaborative network GreenDeal Natuurvezels is not considered as a successful collaborative network by Rene Sauveur and Henk van Latesteijn (personal communication with Rene Sauveur, 1 June 2018 and Henk van Latesteijn, 22 June 2018). Rene Sauveur explained:

"*I do not consider the GreenDeal Natuurvezels as a real collaborative network. I see the instrument as a 'blessing from above', from the national government. A blessing to find parties willing to collaborate for the purpose of expanding the hemp market. We have had a couple of meetings and you can see small collaborations start within the domains. We'll continue this process. But the idea is that I stimulate collaborations with these meetings and that the parties involved take initiative to contribute to the network as well. This does not happen often enough now".*

The GreenDeal Natuurvezels does not seem to inspire much action from the parties involved. Henk van Latesteijn explained in which ways he is disappointed in the instrument, labelling it as a 'one-sided contract' in which the government takes no action at all (personal communication, 22 June 2018):

"*The GreenDeal is an instrument developed by the government, in which they delegate one of their own tasks using the GreenDeal: they delegate their tasks to take care of our society. This makes the GreenDeals a one-sided contract. The government says to the parties involved: you must do all these things… and then they do not contribute in any way. The contract is not about real collaboration, and thus not very successful. When I agree on a deal I expect all parties involved to contribute. The GreenDeal is thus not a deal. It is simply a letter of intent, a memorandum of understanding. It means nothing".*

The GreenDeal Natuurvezels is considered successful by the Ministry of Economic Affairs (personal communication with Rene Sauveur, 1 June 2018): "*There might be another GreenDeal Natuurvezels, or the current one might be continued".*

The GreenDeal Natuurvezels is not considered as a successful collaborative network by Rene Sauveur and Henk van Latesteijn (personal communication with Rene Sauveur, 1 June 2018 and Henk van Latesteijn, 22 June 2018). Nevertheless, lessons can still be learned from this case. Rene Sauveur and Henk van Latesteijn presented a multitude of factors increasing the chances of creating successful collaborations – even by telling about the factors leading to their lack of success.

Henk van Latesteijn spoke about there being an order of the steps to take when trying to create collaborative networks (personal communication, 22 June 2018): "*When you have not finished the first step – when you have not yet formulated a shared ambition – and you do things which belong in step two or three, your collaboration might fail. Entrepreneurs have a tendency to do this. You cannot do this: there is an order in the steps to take before you can collaborate, or solve a problem, or start a company".* The order is explained by Rene Sauveur as (personal communication, 1 June 2018): "*Step 1: define a societal issue, step 2: figure out which parties are needed to solve this societal issue, step 3: follow the right approach, in which trust is one of the most important things. Trust is created by bringing people together and sharing each other's viewpoints and ideals".* Henk van Latesteijn calls the first step (personal communication, 22 June 2018): "*The Guiding idea".* He discussed that the intake fell short in the formation process of the GreenDeal Natuurvezels (ibid):

"*If you really want to collaborate, then you must agree on a shared goal and a timeframe. The GreenDeal Natuurvezels has not clarified this enough, the goal and timeframe are too vague. All the parties involved are still in the I-mode: they do not seem to have a desire for collaboration. One part of the intake process should be to figure out: are the parties involved able and willing to collaborate? Able and willing to look at the problem at hand through the eyes of the others? If they cannot do that than collaboration is not possible. In this group, in the GreenDeal Natuurvezels, there are parties who do not want to collaborate. So, they should not have joined. This means that the intake process fell short"*

Last but not least the importance of the IPKW was mentioned by Rene Sauveur (personal communication, 1 June 2018): "*The IPKW creates space for entrepreneurship, there is someone to tell the stories about the industry park in the region… Kevin Rijke his idealism, the position and policy arrangements regarding legislation, subsidies, the support of the province. All of this makes the IPKW a very valuable place".*

4.4 Collaborative network 4: IPKW ontwerpstudio's

The results from the collaborative network IPKW ontwerpstudio's are based on the semi-structured interviews with Arno Geesink from KRAFT architecten and Joris de Groot from Joris de Groot studios. Their 'statutten IPKW ontwerpstudio's' was used as extra data, as well as the website from KRAFT architecten (KRAFT architecten, 2018).

4.4.1 Case description: the start-up of the collaborative network

The IPKW ontwerpstudio's, or the HE ontwerpstudio's – named after the building they are located in at the IPKW, building HE – were created very gradually. Joris de Groot (personal communication, 20 June 2018) explained the early start of the studio's:

"*The creation of the studio's, us being located together… In the beginning a couple of us were located in the building on the other side of the road. This park, the IPKW, wanted to give the designers a place here. They wanted to create a diverse industry park, meaning they did not only want the production-oriented organisations but also create a place for creativity. They had the idea to invest in a building where designers could start their own workshop and studio's, but where those designers could also collaborate with each other and the other companies at the IPKW. Then they, the IPKW, asked us to join: they could offer us a place and we accepted immediately"*

The start of the IPKW ontwerpstudio's was with seven people. They placed the machines they already owned in the HE building and created the workshop. In the last 3-4 years since the start, many other people joined. Arno Geesink stated (personal communication, 5 June 2018):

"The entire building collaborates with each other, which is so amazing so see. We try to diversify more. In the beginning we mainly had product designers and us as architects. Now we also have a graphic designer. This complementarity is important – the different parties can require each other's skills and knowledge. With a project you sometimes need different specialisations too. And the different disciplines bring new networks and new assignments too. At the IPKW ontwerpstudio's we can design and produce products, which most design studios cannot"

The last few years the IPKW ontwerpstudio's became more professional. In the beginning people moved to the building to design for their hobby. The last few months the tenants have created a contract stating that every tenant must be serious about their design work, doing it for a living (personal communication with Arno Geesink, 5 June 2018): *"In the beginning there were no criteria for who could work here. At a certain point in time there were hobbyists working here too. Then we created a profile for new tenants, which we are formalising now. We have a tenant's association now, with formal written agreements and contracts. The space in the building is limited, so we want the talented people with the right goals to come here".*

The designers working in the HE building, who are participating in the IPKW ontwerpstudio's are (KRAFT architecten, 2018): Apetrots, Atelier Rick Tegelaar, Charley Reijnders, Dana Dijkgraaf Design, Klaas Kuiken, Marjolein Grotenhuis, Mieke Lucia, Minusplusminus, Studio Joris de Groot, Studio Erik Stehmann, Studio Robbin Baas, Suzanne Oude Hengel, Tijn van Orsouw and KRAFT architecten. There is a total of fourteen studio's, and fifteen people working there – excluding some (graduate) interns (personal communication with Arno Geesink, 5 June 2018).

4.4.2 Incentives for collaboration

The interviewees mentioned four incentives for collaboration. One is the location of the building, being close to the production industry (personal communication with Joris de Groot, 20 June 2018): *"I came here because I thought it is interesting to be located close by the production companies. Since I collaborate a lot with those kinds of organisations".* The shared vision of the designers is another incentive mentioned (ibid): *"I think it is awesome that everybody here is the same kind of designers. We have differences: some are graphic designers, others architects. That difference is really cool. And I think it is important not to the same things. Nevertheless, we have a similar vision: we really want to make and create things and not only design on paper".* The people running the studios can learn from each other, especially about how to run a company (personal communication with Arno Geesink, 5 June 2018): *"A glimpse into how to run a studio, a company. You do not learn this during your bachelor. This is about how you present yourself, how much time to invest in acquisition, how to act towards your customers, how to sell your products in stores. You can learn these things from each other".* Last but not least, earning extra money is an incentive (ibid): *"The collaboration makes you earn extra money. We tell our clients: 'look at this wonderful heater' about the product of another designer. We always show the entire building to our clients and tell about the work of the others, hoping it gets them assignments too".*

4.4.3 Pre-existing requirements, barriers and proximity

The collaborative network IPKW ontwerpstudio's started with friendships and a shared passion for designing (personal communication with Arno Geesink, 5 June 2018): "*In the first place there were friendship between some of the designers and a shared passion for designing. All the designers were educated in similar ways, since most people come from Artez. We appreciate each other's skills since we are educated in similar ways*".

Nevertheless, collaboration brings difficulties. One example are tensions caused by people their personalities (personal communication with Joris de Groot, 20 June 2018): "*The tension that exist because of the collaboration… I can't put my finger on the cause. Perhaps the different personalities of the people working here. You are working next to each other day in and day out, which is quite intensive*". Arno Geesink seems to agree (personal communication, 5 June 2018): "*People clash on the personal level. This can be caused by so many things: leaving materials in places they do not belong, the feeling that other designers steal away your clients…*" They have created different strategies of overcoming this barrier (ibid): "*We always talk about internal clashes. Usually this is pretty easy. When a problem relates to the entire building we discuss it during our quarterly meetings. All the agreements formulated during these meetings were written down in our regulations, with fitting sanctions*". Practical things like cleaning, buying lunch, buying machines and tools together can lead to these clashed too, and should be solved accordingly (personal communication with Joris de Groot, 20 June 2018 and Arno Geesink, 5 June 2018).

Related to the concept of proximity, the personal relationship between the designers is important (personal communication with Joris de Groot, 20 June 2018 and Arno Geesink, 5 June 2018). Joris de Groot asked: "*How do you measure how well you know each other? We know each other quite well – we have been collaboration for a couple of years. A few new people joined, but we already knew those people too from before since most of us went to Artez*". Arno Geesink explains: "*We know each other well. We often have lunch or drinks together. If we give a party we make sure to invite our clients – which possibly can lead to new assignments. Knowing each other is important, especially since we are competitors. We try to work without non-disclosure agreements as much as possible, trust each other. But sometimes this is difficult*". Joris de Groot mentioned other benefits of knowing each other well (personal communication, 20 June 2018): "*Another benefit can be new assignments. My website and everything are made by Dana Dijkgraaf Design – a graphic designer located next to me*". He continues with a statement about the benefits of geographical proximity (ibid): "*It helps to be located next to each other. You can just walk in with a question, without having to wait days for an answer. You can share knowledge and experience, there is always someone around who knows how to do a certain task*". In order to give each other assignments and tell clients about the other designers, it helps to know each other well and to work in similar ways (personal communication with Joris de Groot, 20 June 2018 and Arno Geesink, 5 June 2018). Joris de Groot stated: "*80-90% of the people here work in similar manners*" and Arno Geesink explained: "*We, KRAFT architecten, work on very different products and projects. Our projects take much longer too. The other designers work much faster most of the time. We know this since we collaborated on projects together before: we know what our strengths are and in which ways we can help each other*".

4.4.4 Factors leading to successful collaboration

Joris de Groot and Arno Geesink both believe the IPKW ontwerpstudio's to be a successful collaboration (personal communication with Joris de Groot, 20 June 2018 and Arno Geesink, 5 June 2018). Joris de Groot stated: "*I think the HE studios are collaborating successfully with each other, most of the time. Not always. We are successful because we have many different disciplines and qualities here. We can use each other's talents for projects or for improving your own studio*" and Arno Geesink said: "*For the designers the collaboration is successful. Because of the quick development of the studio's, the professionalisation. We have a strong profile, since we wrote it down in communication towards the IPKW and our clients. You notice the value of our collaboration more and more*".

The relationship between the partners, knowing each other, was mentioned often as an important factor in the success of their collaboration (personal communication with Joris de Groot, 20 June 2018 and Arno Geesink, 5 June 2018). Arno Geesink stated: "*Finding the right people is very important*" and Joris de Groot explained: "*We have been collaborating for quite some time, so we can depend on each other, we can trust each other. We are all running our own company's (…) we are competitors, meaning that trust is very important. In the beginning we discussed 'trust', and now sometimes still. In order to create trust, the contract is important. We make clear agreements together. You learn these things as you go along, with time*". When a new people settle in the HE building, getting to know each other is important too (ibid): "*When a new person comes into the building they are introduced. Often, they already know someone in the building. We introduce ourselves and the new person shows how they work, what they plan to do and what they can add to the collaboration. It is more difficult when nobody knows a new person, since then you do not know if what they say and plan to do is the truth*". For successful collaboration it is thus very important to know if you can depend on each other (personal communication with Joris de Groot, 20 June 2018): "*You need to know how people work, what they make. And you need to know the person: what is their personality? Can I collaborate with this person? Do I want to collaborate with this person? These things are very important*". Honesty is thus very important in collaboration (ibid): "*Being honest about everything. If you want to collaborate you should be open toward each other. Do not hide things from the others. You should be able to discuss things without being afraid that the other will do the wrong things with that information*".

Equal relationships are key as well. Arno Geesink (personal communication, 5 June 2018) stated: "*Equality among the partners is important. Even if you partner is a rather large organisation. If we want to collaborate with an organisation and they ask 6.000 euros for their advice, then we cannot join*". Equal relationships are important since they can lead to the freedom to take initiative, to try new things (ibid): "*You need to make space for crazy ideas and small projects. This should be organised top-down in the organisation. You need to able to take initiative, try new things, see if they work out and then decide if the thing works or not*". This has everything to do with hierarchy (ibid): "*You need to create a culture of flexibility. People should be able to make decision easily, without asking four management levels for permission. An organisation should offer this freedom to their employees, if they want to collaborate*". Arno Geesink declares that collaboration is about taking risks, trying things together and not expecting results immediately. People should get the opportunity to try things and make mistakes (personal communication, 5 June 2018).

Last but not least, clear agreements are important (personal communication with Joris de Groot, 20 June 2018 and Arno Geesink, 5 June 2018). Joris de Groot stated: "*Making agreements is very important. About how you work together, in which ways, what is expected of everybody. These rules should be written down. This is important".* For this reason, the IPKW ontwerpstudio's have created their 'statutten IPKW ontwerpstudio's', containing the following paragraphs (among others): the names of the parties involved, the purpose of the document and the collaboration, finances, criteria for joining and leaving the IPKW ontwerpstudio's, decisions about the board and board meetings, sanctions, and financial year agreements.

Arno Geesink also spoke about the importance of the relationship with the IPKW (personal communication, 5 June 2018): "*We have built a good relationship with the IPKW. By helping each other and not always sending an invoice. By asking each other for favours. The IPKW visits us with groups of people from the municipality, the province, other organisations. They present us as the 'innovative designers' and they know they can count on us to have an interesting and well-organised story to tell their visitors. We really benefit from the IPKW".*

4.5 Collaborative network 5: HyMove and Nedstack

The results from the collaborative network formed by HyMove and Nedstack are based on the interviews with HyMove's CEO (founder and co-owner) Theo Hendriks and Arnoud van der Bree, CEO at Nedstack. Their intent agreement and joint venture contract are used as extra data, besides the websites from both HyMove (Hymove, 2017) and Nedstack (Nedstack, 2017).

Figure 9: Logo HyMove (HyMove, 2017).

Figure 10: Logo Nedstack (Nedstack, 2017).

4.5.1 Case description: the start-up of the collaborative network

HyMove and Nedstack's collaboration is the result of their intertwined history and their matching technologies. Arnoud van der Bree (personal communication, 7 June 2018) states:

"*The people who founded HyMove, came from Nedstack. This makes our collaboration sort of special. The expertise and knowledge of HyMove started within Nedstack. HyMove is technically a spin-off of a couple activities that Nedstack no longer wanted to do. A couple of people created a new company by taking over these activities. This makes our collaboration sort of special, since we are part of the same family."*

The foundation for collaboration was created in the year 2000, when Nedstack contacted Theo Hendriks for a feasibility study of the hydrogen fuel cells. In the year 2003 Theo Hendriks became chairman for the board of directors of Nedstack. In the year 2008-2009 they concluded that the

technology was developed enough, resulting in the foundation of HyMove in 2012 (personal communication with Theo Hendriks, 5 June 2018). HyMove and Nedstack collaborate by combining their products (HyMove, 2017; Nedstack, 2017) and by together trying to breach the Chinese fuels cell market (personal communication with Theo Hendriks, 5 June 2018).

4.5.2 Incentives for collaboration

One incentive for the collaboration between Nedstack and HyMove is product-oriented (personal communication with Theo Hendriks, 5 June 2018): "*We buy Nedstack their fuel cells for our own systems, on the one hand. We collaborate by doing marketing and sales together for the market of busses and trucks, we make sure that we are known together in this market. We also created a joint venture together in China where we built fuel cell systems. We plan to start building there in October 2018*". The development of the fuel-cell and hydrogen market is an important incentive too for Theo Hendriks (ibid): "*My goal, why I collaborate, is to develop the industry together*". He explains that it is necessary to collaborate with others when trying to have an impact in this world (ibid):

"*You are unable to do everything yourself. We are too small to have an impact in this world. Changing the market requires large investments and as a small organisation you simply cannot afford these investments. I believe that when you share your knowledge and experience, you can reach your goals together. A collaboration with a large organisation gives a small organisation credibility, but even large organisations need to collaborate. The world is a complex place and two know more than one. Because of this opinion I say: collaboration is the key to success*".

Arnoud van der Bree adds that it is better to excel in one particular thing than to do everything in a mediocre way (personal communication, 7 June 2018): "*It is better to excel in one particular thing. I believe this gives a competitive advantage*".

4.5.3 Pre-existing requirements, barriers and proximity

Pre-existing requirements, conditions which should be met before collaboration is possible, mentioned during the semi-structured interviews were: one, mutual respect (personal communication with Arnoud van der Bree, 7 June 2018): "*Mutual respect. On the personal level but via the personal level mutual respect should also be created at the organisational level. If you do not respect each other's added value to the collaboration, then collaboration is futile. Respect needs to be a basis attitude in the collaboration. You need to talk about the value each party can add and recognise this, and I believe this is not possible without mutual respect*". Another pre-existing requirement mentioned is the technical capacity of the partners (ibid): "*Each partner should be capable, have the technical knowledge and experience needed. During the first few conversations together, you figure out if this is the case of not*". Arnoud van der Bree explained that good relationships are not a pre-existing requirement, since good relationships develop over time (ibid): "*Relationships develop naturally. There are parties you know from the past – this makes it easier to create collaborations since you already know who they are and what they do. However, new contacts will come in this stage of market development and these relationships will develop over time*". Good relationships are not necessary before collaboration, according to him.

The main barrier mentioned during the semi-structured interviews was the financial barrier (personal communication with Theo Hendriks, 5 June 2018 and Arnoud van der Bree, 7 June 2018). Theo Hendriks explains: "*Every small organisation struggles with financing their ideas. At the*

moment we pay most things from our own money, from sales and from a few subsided projects. Structural financing our organisation is our main challenge. At the moment we are able to survive, but we are looking for a strong partner who can help us make the transition to 'the big world' – and this is not easy to find". Arnoud van der Bree (personal communication, 7 June 2018) agrees with this barrier: "*Lack of subsidies. Every emerging market needs financial support via subsidies. In the development process of every new technology you depend on financial support, and for fuel-cells we needed subsidy too".* According to Theo Hendriks one other issue with financing the realisation of their ideas is the subsidy strategy of the Dutch government (ibid):

"*You have an idea. The Dutch government says: we will help finance the development of your idea. You work hard to develop your technology, but when you want to introduce your product to the market there aren't any subsidies to help you anymore. This is the main problem for us: the government subsidises technological development, but they will not help with the market introduction of the product. It is not only about money, it is also about creating demand. The government could help for instance by changing regulations so the demand for hydrogen busses increases. This does not happen here, and we thus focus on the German and Chinese markets".*

Regarding the concept of proximity, Theo Hendriks and Arnoud van der Bree spoke about the impact of their different technologies and products on the collaboration (personal communication with Theo Hendriks, 5 June 2018): "*Our technologies are connected: Nedstack develops and builds the stack, we develop the products that are necessary to use the stacks. When we sell something, they sell something. Because of this it is in both of our interests to sell our products".* Arnoud van der Bree states that the differences in the technologies have no impact on the collaboration: "*We can talk about our differences very well, so it does not matter that our products are different. We can collaborate in many different ways because of this".* Because of their collaboration and close geographical collaboration, they can collaborate very well (personal communication with Theo Hendriks, 5 June 2018): "*Being close by is good for our collaboration, of course. We even considered moving to their building, but decided it was too early for that. They have plenty of space for us, but now is not the right time for moving into their building".*

The concepts connected to organisational proximity were discussed as well. Theo Hendriks states that the people within both companies know each other well (personal communication, 5 June 2018): "*We know each other very well. We see each other every week, sometimes every day. We have created the joint venture for China of course. This makes our collaboration more intensive. Objectively speaking there might come a moment where both organisations will merge again, but now is not the right time for that.".* The impact of different attitudes of people within the organisations impacts the collaboration, according to Theo Hendriks (ibid):

"*Both of our organisations are very informal and young. HyMove was created only a few years ago and you can see this in the attitudes of the people: most people act and think in similar ways. This is different for Nedstack. Nedstack was created 20 years ago and has had different managements with different management styles. You can see this in the people: employees who have worked at Nedstack since the beginning do not recognize themselves in the later management styles. The three different management styles can still be seen in the organisation, in the attitudes of the people. This impacts the collaboration: depending on who you are speaking with, you get*

different reactions. The basis attitudes of some people are more: let us meet and fix this issue, where other employees react more in the way of: this is not our problem, sorry. Nevertheless, Nedstack has worked very hard in trying the breech these differences and the situation is already much better".

Arnoud van der Bree spoke about the differences between collaborating with a small organisation and collaborations with large organisations (personal communication, 7 June 2018):

"Collaborations are all different. Nevertheless, larger organisations tend to adopt a more dominant position in collaborations, especially when they are operating worldwide: these are our rules, this is our non-disclosure agreement… The creation of collaborations with large organisations is more formal, but they do have all the knowledge and experience. Collaborations with smaller organisations are more equal most of the time, but they do not have all the expertise. Both examples have their benefits".

4.5.4 Factors leading to successful collaboration

Theo Hendriks and Arnoud van der Bree label their collaboration as successful (personal communication with Theo Hendriks, 5 June 2018 and Arnoud van der Bree, 7 June 2018). Arnoud van der Bree said: "*HyMove and the collaboration are worth the investment of time and money. When I collaborate, I make sure that it is worth it. I love this part of my job, collaborating with others. You can learn so many new things from it".* Theo Hendriks seems to agree: "*Nedstack and HyMove are successful together. We could however be even more successful. This is goal for the future. We are successful because we share our profits and our losses, and because we collaborate in China. The fact that we have other, separate business goals is okay for now".*

Theo Hendriks and Arnoud van der Bree mentioned multiple factors which helped in making their collaboration successful. First of all, everybody in the organisation should be convinced that collaboration leads to better results (personal communication with Theo Hendriks, 5 June 2018): "*Everybody should be convinced that intensive collaboration means better results. Everybody has strategies and goals, these should be guided towards a common goal. If you do this you can collaborate for the purpose of reaching this goal".* Theo Hendriks explained how working towards a common goal and the conviction that collaboration adds value, makes that the people in the collaboration are willing to share knowledge and information (ibid). Arnoud van der Bree called this 'WIN-WIN collaborations' (personal communication, 7 June 2018): "*We always strive for WIN-WIN collaborations. Otherwise you should not become partners. I strive for long-term partnerships. You should not pressure partners, because then collaboration will become short-term. Make sure both parties enjoy the collaboration for a long time, otherwise it is no real partnership".*

Second, you should look for the added value of each party and these added values should fit together (personal communication with Arnoud van der Bree, 7 June 2018): "*I am the drummer in a band. We all play our own part, but we must match our individual parts – otherwise the music will sound horrible. I am not a guitarist. I do not sing. Everybody has their own expertise. You need to collaborate in order to make sounds that sounds somewhat pleasant".* The culture, the attitudes of the people involved in the collaboration should thus match, according to Theo Hendriks (personal communication, 5 June 2018): "*If one organisation want to move quickly and the other wants to move slower, then the collaboration will fail. The cultural distance should not be too large".*

The third factor is trust. Arnoud van der Bree explains (personal communication, 7 June 2018): "*Trust is essential in collaborations. It is just like a relationship at home: when there is no trust, an action is required. Perhaps you should break off the relationship, or try to win back the trust through many open conversations".* He mentioned a few actions necessary to build trust (ibid): "*You need to open and transparent, you need to do what you promised; you need to be very clear about what you want and what you do not want in a collaboration. Trust has everything to do with your personal side: do not pretend to be someone you are not. And of course, trust is not received without giving trust to others. It is a balance that works in both ways".* Theo Hendriks mentioned how he build trust with Nedstack by being the chairman of their board. Because of this he builds trust with the shareholders and management (personal communication, 5 June 2018).

The fourth factor mentioned is something that is still missing. Theo Hendriks and Arnoud van der Bree both spoke of other organisations located at- or close to the IPKW with whom they would like to collaborate in the future. However, they require someone to take initiate in the formation of these new collaborative networks. Theo Hendriks stated (personal communication, 5 June 2018): "*Every organisation has their own strategy. It would be a good thing to collaborate for a few projects, but we cannot achieve this by ourselves. We talked about this with the provincie Gelderland: someone needs to take initiative, bring these parties together. The individual organisations are unable to do this themselves, so a neutral party is needed who can say: this is what we are going to do, move in this direction. Nobody is doing this at the moment".*

Last but not least, the balance between contracts and informal agreements was discussed. Arnoud van der Bree explained (personal communication, 7 June 2018): "*We have clear agreements written down in contracts, but this is not the start. First you need to agree on your ideas and plans informally. This is one hundred times more important than the contract. The contract matter because of legal reasons, but mutual trust and respect comes first. Which is why it is important to always check: do you agree with what is written? Have you understood everything?"* Because of this reason, HyMove and Nedstack have first signed a letter of intent. The letter of intent is about the shared intentions and goals of the collaboration, but the contract is non-binding. Next, they signed a 'heads of agreement', which is binding and much more detailed. Third they signed the joint venture contract for their collaboration in China. Important in all contracts is the clear division of tasks and responsibilities (personal communication with Arnoud van der Bree, 7 June 2018). Their letter of intent contains to following paragraphs: actions and intentions of the collaboration, background information of both parties, goal of the collaboration, future ambitions, division of tasks and responsibilities, finances and management agreements and a non-disclosure agreement. Their joint venture agreement contains the following chapters: the names of both parties, which binding agreements were reached, due diligence, contract for the creation of the joint venture, a signed business plan, the timeframe and agreements on the finances.

4.6 Collaborative network 6: Plastic Fantastic
The results from the collaborative network Plastic Fantastic are based on the interviews with SavePlastics CEO Bram Peters and the owner of Triple Benefit, Rik Voerman. Their website about Plastic Fantastic is used as extra data (Plastic Fantastic, 2017).

Figure 11: Logo Plastic Fantasic (Plasticfantastic, 2017).

4.6.1 Case description: the start-up of the collaborative network

Plastic Fantastic is created for the purpose of burning less plastic (personal communication with Bram Peters, 1 June 2018): "*How can we make sure that we burn less plastics? We cannot go to the municipality and say: build another bridge from recycled plastics. They do not have the budget. So, we decided: we will try other ways of reaching our goal. Because of this we created Plastic Fantastic in 2017".* Rik Voerman from Triple Benefit explains (personal communication, 29 June 2018):

>   "*There were a few entrepreneurs discussing the plastic waste issue. They said: there are so many initiatives to collect plastic waste, like the stichting Noordzee. The remaining question is: how to take the next step? There is lack of organisations adding value to the collected plastics. Because of this question I got involved. We went through the 'brainstorming' years with quite a few people – and eventually we created a cooperation with three parties, to collaborate for the purpose of adding more value to plastics".*

The three parties who created the cooperation together were: Saveplastics, Airhunters and Triple Benefit. Bram Peters explained (personal communication, 1 June 2018):

>   "*Plastic Fantastics is a start-up now, with a couple of 'big guys' participating in it. We, SavePlastics, with all our knowledge on how to process plastics. Airhunters, a sustainable transporter, also located at the IPKW. And Rik Voerman, professor Plastic from Enschede – he knows everything about plastics. (…) The three of us created the non-profit Plastic Fantastic. We are able to do this since our individual organisations are doing good enough. We do not need to make money with Plastic Fantastic. The money we do make – for instance by making benches for the IPKW – is used to buy new machinery".*

The purpose of Plastic Fantastic, the 'why' (personal communication with Bram Peters, 1 June 2018) is: locally process and recycle local plastics, worldwide. Bram Peters stated: "*With Plastic Fantastic we are doing something that everybody is talking about, but it is not mainstream to do. There is no large-scale business model for this purpose. We as Plastic Fantastic have said: we will build machines which can be used to process plastics. This is our 'how': 1. Build machines, 2. Create awareness and 3. Consultancy".* The machines can be used to process plastic waste and make chairs, benches, roof tiles, and many other products (Plastic Fantastic, 2017).

4.6.2 Incentives for collaboration

The main incentive for the creation of Plastic Fantastic can be read in the case description: the idealistic 'why': taking care of our Earth (personal communication with Bram Peters, 1 June 2018):

>   "*The spiritual background, the 'why' that we should take good care of our Mother Earth is important. There are people who simply do not care about this, but we do. This project is a bit of an ego-booster, so people who do not share this idealism are not welcome. That won't work. Intrinsic you should just be a 'geitenwollen sok'. Meaning you should be prepared to work for nothing, since the revenue of this cooperation will come much later".*

Related to this incentive is the incentive that you can only make a difference via collaboration and that collaboration is necessary to reality-check your ideas (personal communication with Bram

Peters, 1 June 2018): "*Collaboration is a part of the new economy. If you want to do everything by yourself, you will not make an impact. Besides, if I have an amazing idea and want to do everything myself… who is to say my idea is a good idea? Development goes so quickly, it is almost impossible to follow all the trends regarding plastic waste. I once started doing something with plastic and now we are building extruders. I would never have thought of this idea without the collaboration*".

4.6.3 Pre-existing requirements, barriers and proximity

One pre-existing requirement mentioned indirectly is the fact that the individual organisations are successful and earn enough money without the collaborative network. This does not necessarily mean that this is a pre-existing requirement for every collaborative network, but it has helped in the creation of Plastic Fantastic (personal communication with Bram Peters, 1 June 2018): "*We are able to do this since our individual organisations are doing good enough. We do not need to make money with Plastic Fantastic*".

The main barrier mentioned during the semi-structured interviews is the focus, in combination with the time and energy available for Plastic Fantastic (personal communication with Bram Peters, 1 June 2018): "*Time and energy: we invested far too much time and energy. You need to make good choices, keep your focus. I spend too much time and energy on Plastic Fantastic now*". The main action taken to deal with this barrier is choosing projects together, for the purpose of investing their time smarter (ibid). Bram Peters explains:

"*Every week we get so many requests in our e-mail, for projects or events or interviews… Because of this we have created a way to choose the things which matter the most to us. We score each request on: 1. Benefit: the profits. 2. How well it fits with our 'why' and 3. Time. Automatically this leads to a top-100 and then we select the top-10 projects and score them again. We check: are these the right once? Is the score correct? If Shell says: we want to buy 100 machines than the financial benefits are huge. But the why can be zero since I do not think Shell fits with our why. This is always a point for discussion. Eventually I personally always defend our why*".

Another barrier are the culture clashes within Plastic Fantastic: the people and organisations involved are quite different. This barrier thus related to the concept of organisational proximity. Bram Peters explains how he deals with these culture clashes (personal communication with Bram Peters, 1 June 2018): "*After a culture clash I always make a new document with our decision. I ask: do you all agree? This matters since our relationship is very important. For example: we want to build Tiny Houses. This will cost a lot of money and ask a big-time investment. We discuss all the pro's and cons. Eventually we write down a proposition and discuss: do we all agree? This is the way we make decisions: together.*"

Regarding the concept of organisational proximity, the relationship between the partners was discussed. Rik Voerman (personal communication, 29 June 2018) stated: "*We know each other well. When we first started, in the early beginning, we did not know each other at all. Plastic Fantastic did not exist yet. We got to know each other along the way*". Bram Peters claims (personal communication, 1 June 2018): "*We know each other well, almost as friends. But I try to keep our relationships professional. During meetings we always have agenda's, we make notes. And we have fun together, drink a beer and eat something*".

The three main organisations – SavePlastics, Airhunters and Triple Benefit – are very different. According to Bram Peters this greatly benefits the collaboration, since they can learn from each other. Bram Peters explains (personal communication, 1 June 2018):

> "The three organisations are very different. SavePlastics belongs to a very traditional market. Airhunters sells very innovative mobility solutions, they are extremely successful. Triple Benefit optimises windmills. I could say: Rik from Triple Benefit is a millimetre, I am a centimetre and Airhunters focusses on the metre. This is amazing for our collaboration, we can learn so much because we are complementary towards each other".

Regarding geographical proximity, the statement made is: plastic knows no borders. Bram Peters stated: "*The partners are located in Arnhem and Enschede. Plastic has no borders. If you check our website you can see we have projects all over the world. We also have a partner from Limburg and Hengelo, but this is not important. We use Skype and WhatsApp*". He also mentions a downside of being located close by (ibid): "*You know what is dangerous about being located very close by? Constantly talking about small things, bullshitting about every detail*".

4.6.4 Factors leading to successful collaboration

Bram Peters labelled Plastic Fantastic as a successful collaboration (personal communication, 1 June 2018): "*When looking at our impact I think we increase the level of conversation. Besides that, we as SavePlastics sell a lot more because of Plastic Fantastic. The indirect benefits are enormous. People like telling about Plastic Fantastic and our mission. People start recycling their plastic more. I think we are successful and I also believe our 'blooming' moment must still come. We believe in Plastic Fantasic, making it successful*".

Multiple factors increasing the chances for successful collaboration were discussed during the interviews. Factor one is having a clear goal, a showcase (personal communication with Bram Peters, 1 June 2018): "*The main thing is having a showcase, a physical point on the horizon*". When trying to decide on the showcase, the partners did two things (personal communication with Rik Voerman, 29 June 2018): "*First, we researched the recycling of plastic waste. Which processes are needed and how we could do this ourselves. Each party did this at their own expenses and risks. Second, we brainstormed about the problems of the plastic recycling industry and about how to solve these issues. Because of these two steps we eventually came up with the idea to make machines*", thus: learning about the problem, the existing market and possible solutions.

Second, good leadership is essential according to Bram Peters (personal communication, 1 June 2018): "*Good leadership is essential. But, what is good leadership? Good leadership thinks of the strengths of others and can use these strengths for their own goals. A good leader represents the 'why' and uses the talents of others to reach the shared goals. Not paving the road: how are we going to do it but more: what are we going to do, what is the goal*". Related to this is the third factor, trust. According to Rik Voerman and Bram Peters trust is built simply by doing. By collaborating with each other trust will develop over time. Being clear about who is responsible for what, having a clear division of tasks, is important too when trying to create trust according to both interviewees (ibid; personal communication, 29 June 2018).

Bram Peters has explained his vision regarding the steps to take when trying to create collaborative networks. He states (personal communication, 1 June 2018):

"Phase 1: know your why, how and what very clearly, but not to detailed. This can be called: know yourself: know your identity, know how you are perceived. Decide if you want to be an organisation, a cooperation, a non-profit…. Phase 2: know the other. For who will you exist? Do market research until you know everything, as much as possible. Phase 3: fighting a thousand battles. Just do, act. Open a bank account. Invest money. Build a website. Create your business model. When you do these three things with 100% commitment, you will get there in no time".

4.7 Collaborative network 7: Clean Mobility Center

The results from the collaborative network Clean Mobility Center are based on the interviews with the chairman of the board: Vincent Roes from DEKRA, the ex-chairman of the board: Patrick Langevoort from Allego and with the operational chairwoman, Marion Braams from CGI. An empty version of their collaboration agreement was used as extra data, as well as the website of the Clean Mobility Center (Clean Mobility Center, 2018).

Figure 12: logo Clean Mobility Center (CMC, 2018).

4.7.1 Case description: the start-up of the collaborative network

The collaborative network 'Clean Mobility Center' or CMC started with a couple organisations thinking (personal communication with Vincent Roes, 14 June 2018): "*The energy transition and the transition towards clean mobility are so complicated and challenging, we cannot do this alone".* Anja van Niersen, CEO of Allego, walked around with the idea to collaborate with a few organisations to do something regarding this challenge (personal communication with Vincent Roes, 14 June 2018 and Patrick Langevoort, 14 June 2018). Patrick Langevoort explains: "*Our CEO invested a lot of time and energy in this idea. The original reason why Allego moved to the IPKW was because of the campus feeling the IPKW was striving towards – in combination with their sustainability goals".* Eventually a group of people from different organisations gathered, initiated by Anja van Niersen. They said (personal communication with Vincent Roes, 14 June 2018): "*We should discuss this subject together. We need to speed up the transition, and we cannot do this alone. We need each other if we want to speed up and take a step towards clean mobility. During a couple breakfast meetings different invited parties were asked: what do you think of this idea? How could we do this? Do you want to be a part of it?"* These meetings led to the creation of the CMC in 2016.

Currently the following ten parties participate within the Clean Mobility Center (CMC, 2018): Allego, CGI, DEKRA, DNV-GL, Industriepark Kleefse Waard; KplusV; EVconsult, GLOEDcommunicatie, Ernst&Young; HAN (and SEECE, see paragraph 4.8). These organisations collaborate by doing projects together and they have created the 'Mobility Innovation Center' or MIC located at the IPKW, where students from the HAN can do projects on clean mobility themes (personal communication with Marion Braams, 5 July 2018 and with Vincent Roes, 14 June 2018). Vincent Roes added (personal communication, 14 June 2018): "*The CMC is not just these ten organisations. These ten organisations lend us people and donate hours so their employees can work at the CMC.*

Besides this, we also try to use our personal- and organisation networks to involve new parties. There organisations are the frontrunners of the CMC, but the goal is that the CMC grows and that many more parties become a part of the collaborative network".

The goal of the Clean Mobility Center is (CMC, 2018): *"A clean, smart and safe mobility system: this is the purpose of the Clean Mobility Center. The Clean Mobility Center is the European centre regarding clean mobility, where knowledge and experience about sustainable mobility is gathered and shared. In collaboration with companies, knowledge institutes and governmental bodies we facilitate product- and service innovations".*

4.7.2 Incentives for collaboration

One incentive for collaboration within the Clean Mobility Center is already mentioned in the case description: the inability to speed up the transition to clean mobility alone (personal communication with Patrick Langevoort, 14 June 2018): *"This market is to enormous and complex, nobody can do this alone. Even the largest organisations on this planet, like Facebook and Google cannot do it alone. The financial resources these organisations have are still not enough to change our current mobility systems to clean mobility".* Marion Braams believes in the importance of IT with regard to the transition towards clean mobility, and strongly believes her organisation CGI can contribute with their IT experience (personal communication, 5 July 2018):

"We think the energy transition will fail without using more IT. If you want clean mobility or clean energy you need to know who is where and who needs what. For 'mobility as a service' you need to know where every vehicle is and which vehicles can be used by who at all times. With CGI we believe: this is only possible with IT. And we believe we need to collaborate with many different parties, we need to collaborate in the ecosystem. Especially since nobody knows what the future will look like. We are changing the world, but we do not know yet which parties will be involved. The question is: how can we make sure the energy transition develops okay for everyone? We think CGI can contribute a lot since we make IT-solutions for transportation, logistics and energy".

DEKRA their incentives for collaboration are both the 'fit' of the subject clean mobility with their organisation and the desire to follow market trends more closely (personal communication with Vincent Roes, 14 June 2018): *"First, we have a double background: the electrical energy branch and the automotive world. The subject clean mobility is a combination of both of these backgrounds. These subject fits perfectly with the thematic DEKRA is working on. Second, as certification company we are located late in the supply chain. You are involved when the designs have been made, or even later. For DEKRA it is important to know: what is happening in the market? What are the trends? To be involved earlier in the supply chain, we joined the CMC too".*

Last but not least, the human capital agenda was mentioned as an incentive for collaboration (personal communication with Vincent Roes, 14 June 2018 and Patrick Langevoort, 14 June 2018). Patrick Langevoort explained: *"We grew quite a lot the last few years, and finding the right personnel is difficult at the moment. Experienced people are expensive and already working somewhere else. Educating people ourselves costs too much time and is very labour-intensive work. We are unable to do this – which is why we asked the HAN to join us".*

4.7.3 Pre-existing requirements, barriers and proximity

Pre-existing requirements, the conditions which should be met before creating collaboration is possible, were only mentioned during the interview with Vincent Roes. He named three: commitment, capacity and fit (personal communication, 14 June 2018):

> "*The first important conditions for collaboration is the support, the commitment from the top-management. Our CEO immediately said: 'We need to join. This is about our thematics, we will be a part of this'. The buy-in from the top is very important. The second thing is that there should be a couple free spirits waling about in the organisation who have the time and the desire to invest time in the collaboration, who are capable of collaborating (…) The third requirement is the fit: the collaboration should fit with the DNA of the organisation. When I tell about the CMC, nobody even askes: why are we a part of this? The subject of the collaboration should match, the fit matters*".

Last but not least Vincent Roes spoke about the added value of the individual organisations. He explained that each organisation should be able to contribute to the collaboration (personal communication, 14 June 2018): "*Quality slash content. Organisations should have something to offer. They need to have added value for the collaboration: knowledge, physical facilities, experience… It does not matter what, as long as each party has added value compared to the other participating parties*".

Barriers

The barriers mentioned can be categorized roughly into two groups: the barriers which are case specific – caused by the choices the CMC made, and more general barriers. The more general barriers will be presented first. One, Vincent Roes explained how misunderstanding each other was a barrier (personal communication, 14 June 2018): "*Another barrier is misunderstanding each other. All the different parties involved, with other background, they need to get used to each other*". He explained that he underestimated how much time it would take to create a shared vision (ibid): "*I underestimated how much time it would take to form a shared vision. You think: we all think the same, it is clear what we are going to do. And then you figure out that some parties have interpreted the ideas very differently, because our backgrounds are so different*". Second, the different levels of commitment of the partners, related to their capacity to participate in the collaborative network is a barrier (personal communication with Patrick Langevoort, 14 June 2018):

> "*The commitment of the partners involved is not the same. It however can even depend over time with a single party, even for us: our CEO took initiative in forming the CMC. This is why we decided the chairman position should rotate, since this asks for the largest time investment. When someone from your organisation is the chairman you easily make your promised hours. Now, since we are no longer part of the core of the initiative, we focus a bit more on our own organisation. Because of our quick growth it has been difficult to invest enough hours in the CMC*"

Third, the number of people involved in the collaborative network from one single partner creates an enormous risk for the CMC, according to Vincent Roes (personal communication, 14 June 2018): "*Something which can become a barrier is the number of people involved from one single organisation. Say the collaboration depends on just a few people… this is not a good situation. The collaborative network should be supported by organisations, with people realising the goals. Some*

partners of the CMC have plenty of different people working in the collaborative network, with other organisations this could improve a lot. We really should discuss this issue more, but we are aware of the risks of this issue".

The way the CMC is organised created a few barriers as well, related to the finances of the collaborative network and the hours of work needed for the CMC, which are not easy to overcome (personal communication with Vincent Roes, 14 June 2018 and with Marion Braams, 5 July 2018). Vincent Roes explained how the collaborative network is organised: *"Each partner invests work hours, labour capacity. No money, but hours. The human capacity is used to do all the work needed to run the CMC and do the projects we aim to do. The provincie Gelderland partly takes care of the finances, since you simply need a steady cash flow and it can be difficult to get money from organisations. I often say: the larger the company, the more difficult it is to get cash".*

Marion Braams explained that it can be difficult to receive the hours promised by the individual partners (personal communication, 5 July 2018): *"Since we work with free hours, invested by the partners, it can be difficult to actually receive these hours. Which is difficult, since each project requires time. (…) This is caused since most companies have the same process: a client makes a request, you create an invoice and the client signs this invoice. Only then will you work for your client. The CMC was promised free hours, so we do not have invoices – and still the work needs to be done. This impacts the collaboration tremendously. Most companies find it difficult to process these hours, since we do not follow the correct invoicing process".* Related to this is the issue of financing the CMC and the projects (personal communication with Vincent Roes, 14 June 2018 and with Marion Braams, 5 July 2018). Most of the money for the CMC comes from the provincie Gelderland. However, the provincie struggles with actually giving the money because of the laws- and regulations about the State not being allowed to aid companies. At the moment the CMC is discussing this issue with the provincie (personal communication with Vincent Roes, 14 June 2018): *"We are currently discussing this – what does the provincie need so they can say yes? How do we make sure everything is arranged correct when looking at the laws- and regulations?"* The main action for dealing with these barriers, according to Marion Braams, is sharing them. Discussing the issues with the board and the partners involved in order to overcome the barriers together (personal communication, 5 July 2018).

Proximity
Related to the concept of proximity, the CMC tends to look for complementarity with their partners (personal communication with Vincent Roes, 14 June 2018): *"We look for additional partners who add complementarity. The missing pieces. Now we have a mix of smaller and larger organisations – only the partnership with the very small organisations did not work out, since their direct business interest is too large. (…) This collaboration is unique because of different backgrounds: consultancy, IT, accountancy, loading stations for electrical cars… because of this we can look at the subject clean mobility from many different angles. You get different discussions, also caused by the more technical backgrounds compared to the general backgrounds of our partners. They look at the subject differently".* Nevertheless, complementarity does not make collaborations easier (personal communication with Marion Braams, 5 July 2018): *"The ten partners are very different. They thus have very different goals and interests, and very different internal processes. (…) Every organisation has rules about how to use their logo's, for example, making joined marketing strategies more*

difficult". Vincent Roes (personal communication, 14 June 2018) explains: *"All the different partners involved have very different ways of thinking and working. This is very noticeable in collaborations".*

Marion Braams made sure that the differences between the organisations, the different ambitions and interests, were known to the partners (personal communication, 5 July 2018): *"What I did: I make our different ambitions and interests explicit. And I created the collaboration-day at the CMC, so one day a week there are people from each organisation working at the CMC. Making sure they get to know each other. Knowing each other increases the sense of urgency for collaboration".* Vincent Roes explained the importance of getting to know each other and developing an own way of working within the CMC (personal communication, 14 June 2018): *"The CMC needed to create an own way of working – this took time. It takes time to get used to each other, to get to know each other and clarify: why are you involved in this network? We spend a lot of time and attention of clarifying the 'why are you involved' question with each partner"*

Their efforts payed off: currently most partners, or at least the people who work a lot at the CMC from the individual organisations, know each other quite well (personal communication, 14 June 2018): *"This is important so you understand why someone responds and acts the way they do. The different organisations make that people communicate in different ways – making it very important to get to know each other personally. Also, knowing each other's organisations makes it easier to help each other, to be the linking pin for them. Knowing each other thus makes communication better".*

4.7.4 Factors leading to successful collaboration

Patrick Langevoort and Vincent Roes both are careful with labelling the Clean Mobility Center as a successful collaboration. Patrick Langevoort states (personal communication, 14 June 2018): *"Tricky question. We still exist and we are still growing. Allego is still participation so we believe the CMC is worth the investment".* Vincent Roes explains: *"Change the question to: are you satisfied now? Then no. We are not moving as fast as I want us to move. Because of the difficulties with the finances from the provincie. Although perhaps I simply want to move too fast. (…) We are still in the development phase and creating collaborations takes time".* On the other hand, Marion Braams is proud of the position the CMC has created for themselves in the energy transition regarding mobility (personal communication, 5 July 2018): *"Municipalities, Dutch provinces, organisations come to us. We are asked for subsidies and international collaborations. The independence of the CMC is appreciated greatly. We always want more, but we do get recognition and I really notice our impact in the region and at the IPKW".*

The first important factor increasing the chances of creating successful collaborations is to clarify the goals of your collaboration (personal communication with Vincent Roes, 14 June 2018): *"The goals should be clear".* Patrick Langevoort explained (personal communication, 14 June 2018):

> *"Collaborating is fun, but it will not work without a clear shared goal. With an answer to the question: which resources are we willing to use in order to reach our goals? The risk of these kinds of collaborations is that they are very 'fun', they are socially desirable. Nevertheless, the partners involved should first ask themselves: is this really a good idea? And why? Not as a marketing strategy, a sales pitch, but in the core? The goals should be made SMART. To collaborate efficiently together the shared goals should be formulated using the SMART method".*

The second important factor is clarifying why each individual partner wants to collaborate (personal communication with Vincent Roes, 14 June 2018 and Patrick Langevoort, 14 June 2018). Vincent Roes explains: "*Clarifying towards each other why you want to collaborate. What are your interests? What do you have to offer? What is the intrinsic motivation of each party involved? (…) We started the collaborative network with six partners. Then we invited new parties. And then you discover you need to take two steps back: you need to start the discussion again – where are we going, what are our goals? What are the intrinsic incentives of this new party? This might feel like a step in the wrong direction, but it is very important for the success of the collaboration".* Patrick Langevoort seems to agree with Vincent Roes (personal communication, 14 June 2018): "*They should first listen to each other and discuss: why do we want to collaborate? Which reasons do the involved parties have for joining the collaboration? (…) I believe our primary intentions were similar, but our interpretations were very different. We misunderstood each other in the beginning".*

The third factor mentioned is related to the personal relationship between the people involved: mutual respect and a match among the people collaborating (personal communication with Vincent Roes, 14 June 2018): "*What is important, there should be a certain match between people. Not between everyone, but it really helps if there is a group of people who can collaborate well together – that this is a cosy group of people. We are not the best of friends, but we have fun together. There is mutual respect among the people involved".*

The rhythm of meeting each other matters as well (personal communication with Vincent Roes, 14 June 2018): "*Every two weeks we meet with all the partners and the other people involved. Not everybody is there – a while ago we decided not to follow the rhythm of the slowest moving partners, since their priorities might just lie elsewhere and this would slow us down too much. The rhythm of seeing each other is important. We have set moments of meeting each other and we stopped moving these meetings to other dates. This works. You need to stick to a rhythm of meeting each other to get rid of non-commitment".*

Last but not least, the impact of the IPKW is clear. Marion Braams explained (personal communication, 5 July 2018): "*The IPKW's location is very inspiring of course, since there are so many other start-ups located there. The facilities help a lot too: the meeting rooms and the catering. These can be used when you need it, meaning your costs stay low. The IPKW also provides new contacts via marketing and communication".* Thanks to the IPKW the CMC now has their own building, located at the IPKW. Marion Braams states (ibid): "*It was amazing that the IPKW could give us the building, because we could never have afforded commercial prices".* Vincent Roes (personal communication, 14 June 2018) explained the benefits of having your own building: "*Since we have our own building, our own place, we are much more recognizable. When people come and visit us they know: we really are visiting the CMC. Having your own place is so important for your sense of belonging, your sense of 'together-ness'. I was really surprised by the importance of having your own location".*

The Clean Mobility Center has signed agreements which every individual partner. Vincent Roes (personal communication, 14 June 2018) explained: "*We have deliberately decided to but the foundation in the centre and have contracts between the foundation and each individual partner, instead of one contract with all the partners. This makes the foundation more responsible and gives the foundation more power to make decisions without the approval of each individual partner".*

The signed agreements contains the following things: the goals of the foundation, the rights and responsibilities of each party, how many hours each party will invest in the foundation, liability agreements, agreements for the termination of the collaboration, agreements on the protection of intellectual property and confidentiality, how to resolve disputes. The contact is the same for most parties, the HAN being the exception since they are also responsible for the students working on projects at the MIC. This agreement is not a letter of intent, it is a binding contract.

One last statement: Vincent Roes stated that eventually collaborative networks should just start working (personal communication, 14 June 2018): "*You should just start: do. In these kinds of collaborations, a lot of time is wasted on making long-term plans, but you should just start*".

4.8 Collaborative network 8: SEECE

The results from the collaborative network SEECE are based on the interviews with Tinus Hammink, program manager of SEECE, Eric Folgering – program leader of one of the four main programs of SEECE – and Robert Berends from Alliander, one of the key partners of SEECE. The website of SEECE, created by the HAN, was used as extra data (HAN, 2018).

Figure 13: Logo SEECE (HAN, 2018).

4.8.1 Case description: the start-up of the collaborative network

SEECE is explained on their website (HAN, 2018): "*The Sustainable Electrical Energy Centre of Expertise (SEECE) is one of 26 centres of expertise in the Netherlands that aims to enhance the quality of technical education at the Bachelors level. Entrepreneurs, scientists, governments, lecturers and students form public-private partnerships that seek alignment with the regional knowledge infrastructure. These centres contribute to both student recruitment and innovation processes*". SEECE was created in 2013, for the purpose of educating the next generation for the Electrical energy transition (personal communication with Tinus Hammink, 18 June 2018). The Centres of Expertise were created as a tool to focus the research done by universities of applied sciences. Tinus Hammink (personal communication, 18 June 2018) explained:

"*The creation of the centres of expertise is rather interesting. We have about 30-40 universities of applied sciences. These schools used to be classical education institutes. The classical division between HBO and university: we educate, they research. Us HBO-schools do practice-oriented research and in the first few years of doing this we had to figure out everything. All these universities of applied sciences had to learn how to do research, which meant a proliferation of researches. Six years ago, the Minister said: Universities of Applied Sciences will specify your research. Focus on the things you are good at in your region. Collaborate with the companies in your region and if you do this you will be granted the title centre of expertise*"

Because of companies like Alliander and Tennet, focussing on electrical energy, it made sense that the HAN would become the centre of expertise for electrical energy. The title 'centre of expertise' grants them public money and because of this SEECE can contribute to society (personal communication with Tinus Hammink, 18 June 2018). The purpose of SEECE is (ibid): "*Affordable, available electrical energy*" and not sustainable energy specifically.

4.8.2 Incentives for collaboration

The main incentive for the collaborative network SEECE is the alignment of the knowledge infrastructure with the regional organisations, the work field (personal communication with Erik Folgering, 11 June 2018):

> "*The connection with the work field is our main incentive. There is always a shortage of technical personnel. Networking clubs and parties like Tennet can hire entire classrooms at the HAN, and that is a good thing: there are plenty of employment opportunities in the region. However, you also want to give other organisations in the region the chance to hire personnel. Human capital is thus very important for our partners. And in order to educate our students properly we need to know what knowledge and skills our students should have developed before they graduate. In SEECE all partners come together and share their needs, and that is a very good thing".*

Robert Berends from Alliander shares the perspective of the key partners (personal communication, 4 July 2018): "*In the first place you have a centre which bundled knowledge relevant to us. Where research and innovation can happen. The second thing is that having an interesting centre of expertise draws students who will study subjects relevant for Alliander. Labour capacity can be a benefit. And the sense of innovation caused by SEECE creates opportunities to collaboratively develop products relevant for us as well. There are thus multiple benefits".*

4.8.3 Pre-existing requirements, barriers and proximity

The one pre-existing requirement mentioned during the interviews for SEECE was: the need to collaborate (personal communication with Erik Folgering, 11 June 2018): "*The feeling that there is a need to collaborate, caused within SEECE by the shared human capital agenda".* The organisations in the region require well-trained technical personnel (personal communication with Robert Berends, 4 July 2018) and SEECE can contribute to this need. This necessity is an important pre-existing requirement, according to Erik Folgering (ibid).

During the creation of SEECE, multiple barriers were mentioned which have either been overcome already or where the people involved are still struggling with. Related to the latter, one barrier is the bureaucracy of the HAN (personal communication with Erik Folgering, 11 June 2018 and Tinus Hammink, 18 June 2018). Tinus Hammink explained: "*What I used to say in the beginning: the most time was invested not in the building of the network or placing the students – but in the 'kitchen'. Sorting through the internal bureaucratic processes of the HAN".* Erik Folgering mentioned the same (personal communication, 11 June 2018): "*The biggest barrier was the bureaucracy of the HAN. It remains a challenge. Nowadays you notice that SEECE, although strongly connected to the HAN, works quite agile. Thanks to our partners and the subsidy we received. If we would have waited for the HAN, nothing would have happened so far. At this moment in time, there has no official decision from the HAN regarding SEECE. We are working nonetheless, but the internal HAN processes should be arranged better".*

Another barrier mentioned is uncertainty regarding market developments. Tinus Hammink stated (personal communication, 18 June 2018): "*Uncertainty about the directions the energy transition will develop in. Because of our strong connection to the topsector Energy we have placed ourselves above national developments, but this took time. Now we can say: it will develop in these ways".*

The third barrier mentioned is the overlap between the collaborative networks SEECE and CMC (see paragraph 4.7). Tinus Hammink describes (personal communication, 18 June 2018): "*The overlap between the two networks – SEECE and CMC – is difficult. Some of our partners are partners in both networks. Depending on who you are speaking with they will either feel connected to SEECE or to the CMC. Because of this you can see how important the personal relationship is for collaborations*".

Proximity

Regarding the concept organisational proximity, or organisational closeness, it is clear that the approximately 40 partners involved in SEECE at quite different (personal communication with Tinus Hammink, 18 June 2018 and Erik Folgering, 11 June 2018). Tinus Hammink stated:

"*The partners of SEECE are very different. Their products – electricity or loading stations – and their sizes: large multinationals or SME's. The amazing story that they are complementary. Their products align complementary. We strive for collaborations across the supply chain. Complementarity is very important: 1+1 =3, creating synergy is our goal. Creating collaborations since you can do something I cannot. However, collaborating with all these different organisations is quite difficult. It asks for situational leadership*".

Erik Folgering (personal communication, 11 June 2018) told about the cultural differences between the partners involved: "*There are large cultural differences between the partners. This is mainly caused by the nature of the companies – being a production company or an engineering company. There are inherent culture differences, but there are no real culture clashes. During our meetings I notice a high level of empathy and adaptability towards each other, caused by our shared agenda. We need each other, we can find each other because of our dependency. This makes it easy to bridge culture differences.*" One example where empathy and adaptability towards each other is extremely useful, is caused by the difference year rhythm of the partners (personal communication with Robert Berends, 4 July 2018): "*The rhythm of a knowledge institute is very different from the rhythm of an employer. The school year is divided into semesters: they start in September and stop in July. Regular organisations work year-round. This difference in year rhythms requires some extra effort, to try and understand each other's limitations*".

Related to this, all three interviewees state that the people within the collaborative network know each other well (personal communication with Erik Folgering, 11 June 2018 and Tinus Hammink, 18 June 2018 and Robert Berends, 4 July 2018). Tinus Hammink said: "*I always make sure to know at least two colleagues from an organisation. Relations are personal, but should never be exclusive when collaborating – if someone were to leave, then your connection to the organisation would be gone. Personal relations are very important when collaborating.*" Robert Berends stated: "*I know all key-players from SEECE well, we work together often. In this first place, SEECE is a virtual organisation. The people within the organisations do all the projects together.*" Erik Folgering explained: "*We know each other well, the partners of SEECE. The world is not such a big place, after all. We all come together in a board meeting 2-3 times a year and whenever we see each other I notice cross connections between our partners – they can clearly find each other. Knowing each other is very important, since it speeds up the process of clarifying the shared visions, requirements and shared trends*".

Regarding the concept geographical proximity, SEECE is a regional collaborative network, as it was intended to be (personal communication with Erik Folgering, 11 June 2018 and Tinus Hammink, 18 June 2018). Erik Folgering explained: "*SEECE is formed by the big guys from the energy market and the suppliers of materials. And they are all located here, in the Arnhem region. Which is why they want to collaborate with the HAN and SEECE*". Tinus Ham mink explained that this is kind of the nature of the centres of expertise: "*Most companies are located here in the region, or part of a national or international organisation. Like DEKRA. A centre of expertise must be focused on a specific region, close to a university of applied sciences*".

4.8.4 Factors leading to successful collaboration

The collaborative network SEECE is labelled as a successful collaboration by all three interviewees (personal communication with Erik Folgering, 11 June 2018 and Tinus Hammink, 18 June 2018 and Robert Berends, 4 July 2018). Tinus Hammink said: "*SEECE is able to achieve its goals. It is recognised. We do all we can with the resources we get. I would much rather talk about impact – and I believe we have impact. SEECE makes things happen. We are a relatively successful centre of expertise*". Erik Folgering agrees: "*I think SEECE is successful. With the limited resources and human capacity enough is happening (…) We are also successful because of the number of students. 120 students have been placed in the first semester and this semester 80 students found a project. The fact that we implemented our education like this is a success in itself*". Robert Berends adds: "*SEECE is not only successful because I believe that to be true, but the Ministry of Education has labelled us as successful too. She has giving us a renewed subsidy*".

The factor increasing the chances of creating successful collaboration mentioned most often was about the creation of shared visions and shared goals (personal communication with Erik Folgering, 11 June 2018 and Tinus Hammink, 18 June 2018 and Robert Berends, 4 July 2018). Robert Berends said: "*The collaboration should have a purpose. Often these kinds of collaborations only happen at the strategic level of the organisation… we have always done projects together. When you collaborate and get results… this makes the collaboration better by itself. What makes collaboration successful? Being ambitious, doing ambitious projects together and find passionate people to collaborate with*". Tinus Hammink stated: "*Invest in the search: what is the value you can create by collaborating? Is nobody else doing this? If they are, join them. You should find a shared goal where nobody else is working on yet – so you truly believe you can have an impact by collaborating*". As Erik Folgering put it: "*You need a good beer and time to get to know each other. Find your shared interests and dependency. Shared interest to get everybody to move in the same direction, dependency in order to do it together, not alone*".

A second factor mentioned is trust (personal communication with Tinus Hammink, 18 June 2018 and Robert Berends, 4 July 2018). Robert Berends spoke about needing trust when trying to do ambitious projects together: "*Normally the board of directors would want to know that everything is correct and well-organised, thought-through carefully. When pioneering with these kinds of projects you will bump into things you have never seen before. If you can collaborate well together and you trust each other, then you will get there*". According to Tinus Hammink trust is created by balancing your interests, your goals and your contribution: "*If your interest are high and your goals ambitious, you should contribute more. Creating trust start with balancing these three things*". Related to the factor trust is the importance of a neutral party, when there are competitors

involved in a collaborative network. Erik Folgering explained (personal communication, 11 June 2018): "*In the SEECE network we have a few competitors as partners, so a neutral party is very important in order to keep the story straight. When looking at Tennet and Alliander, who are competitors, the neutral setting caused by SEECE is important. It gets them both to join the table and to admit they need human capital. The neutral setting makes difficult issues negotiable. Eventually you have a shared problem, so it is nice if you dare to share your issues*". Tinus Hammink agrees: "*Each student who goes to Tennet, will not go to Alliander. This is why these organisations go to a neutral party like the HAN, and ask them to by facilitators. It is greatly appreciated when the initiative comes from a neutral party*".

A fourth factor is about the people in the network, who form the core of the collaboration (personal communication with Tinus Hammink, 18 June 2018): "*You should build your network by selecting a core group of people. Build a strong core team. Not with people who have some time to spare, but with people who have the mission of your network in their DNA. This takes time*". Related to this is the need to give each other space, recognize the limitations someone or an organisation has. Tinus Hammink (ibid) explained: "*Collaboration is about people. Meaning you need to give each other space, recognize limitations. When I need to collect money, the partners understand that I need to ask the Board of Directors – and that this will take more than three days. You need to show understanding towards your partners qualities and limitations, and try to figure out the issues at hand together. This is an important part of the personal involvement of the partners*".

Related to this, a fifth factor mentioned is taking good care of the collaborate network as a leader. Tinus Hammink mentioned a few things required if you want to take care of your collaborative network: "*The three A's: affable, available and able. You should be affable – friendly, easy-going. You should be available – pick up the phone, even on weekends. And able – be good at what you do, know what you are talking about. Make good on your promises and pay attention to the personal relationships. A fourth A: authenticity. People should not get the feeling you have a hidden agenda. Be authentic. You need to be brave enough to be vulnerable, to show yourself and what you stand for*".

The role of the IPKW is once again important. The interests of the HAN and the IPKW aligned, since the IPKW wishes to create a campus on their industry park. Erik Folgering explained (personal communication, 11 June 2018): "*This summer we spoke with the IPKW about our shared interests and wishes. The IPKW wanted to create a campus as did we, meaning we could help each other. We had a shared interest. Our mutual dependence was important as well: if the IPKW had not wanted to create a campus here at the IPKW, it would not have worked out*".

Last but not least, in order for SEECE to take the next step and become even more successful, they need to become more professional. Erik Folgering explained: "*We have come very far with 'cowboy' like behaviour. But in the coming years we want to become more professional. The MIC is not much more than a shed. If we want to organise professional symposia – for which the IPKW has plenty of space – we should professionalise our facilities and the way we are organised. This is a goal for the future*".

4.9 Results of the organisations not collaborating at the IPKW

As written in paragraph 3.3.1 Research methods: semi-structured interviews, Jacquelien de Koning from UTE and Marianne Mulder from Veolia were interviewed in order to understand the perspective of organisations located at the IPKW, that choose not to collaborate with other organisations located at the IPKW. The purpose of these two interviews was to understand why these organisations choose not to form collaborative networks, and which conditions need to be met before they'll consider joining collaborative networks located at the IPKW. Both organisations do have collaborations with other (international) partnerships. The results from these interviews are discussed in this paragraph.

Side note: Veolia has signed a 30-years lasting letter of intent with the IPKW – however this has not yet inspired any actions (personal communication with Marianne Mulder, 6 June 2018). Veolia have been discussing the possibilities for real action-driven collaboration with the IPKW (personal communication with Kevin Rijke, 25 June 2018).

4.9.1 Reasons not to collaborate

Marianne Mulder wanted to clarify that they have good reasons for saying 'no' to collaboration request, and that she feels the 'big, bad capitalistic wolf' perception of some start-ups located at the IPKW is unjustified (personal communication, 6 June 2018). Veolia is often asked to support start-ups and other initiatives at the IPKW, mainly with financial resources or by creating the opportunity for start-ups to test their products at Veolia. Sometimes Veolia chooses to offer opportunities for start-ups to test their products, but these may never interfere with the obligations Veolia has to deliver the utilities to the companies located at the IPKW. If the test does interfere, it is quickly stopped (ibid). The main reason why Veolia chooses not to collaborate with parties at the IPKW, is that most requests for collaborations are not about WIN-WIN collaborations (personal communication with Marianne Mulder, 6 June 2018):

"Almost everything that is developed here at the industry park, is developed small-scale. The moment we could use these technologies and want to scale up the technologies, they are not applicable anymore. Suddenly some small part of the technology fails, or safety regulations can be violated. We support start-ups and we think it's amazing they exist, but for us there is no WIN-WIN with most start-ups".

Another reason why Veolia chooses not to collaborate most of the time, is because of laws- and regulations, policies and delivery obligations they have to keep (personal communication with Marianne Mulder, 6 June 2018):

"A multinational like us must stick too international rules made by the multinational. This is no reason not to collaborate, but it impacts the way collaborations are created. We are a large, commercial organisation. We have to deal with permits, delivery obligations, laws- and regulations. Dealing with these takes time. At the moment we are building a biomass power plant. Organising everything for this project took two years and now we finally have a green light. In the meantime, we had to say no to some start-ups, who then think we do not want to collaborate – which is a shame. Our scale is just very different: they talk about a subsidy of 50.000 euro and producing 7 megawatts. We need a subsidy of millions of euros. The scale is so different and this can be difficult to explain to start-ups".

4.9.2 Important conditions for possible future collaborations

One important condition which needs to be met before these organisations would consider collaboration, is that the proposed collaborations needs to have the ability to be WIN-WIN (personal communication with Marianne Mulder, 6 June 2018 and Jacquelien de Koning, 5 July 2018). Jacquelien de Koning stated: "*Our collaborations with large organisations are successful, since there is a WIN-WIN. We can truly help each other, which is the strength of good collaborations. When it is disproportionate – people will feel something is off*" Related to this is to cost-benefit of the proposed collaboration (personal communication with Marianne Mulder, 6 June 2018): "*In the beginning you should really think about: okay, what are our goals? And which strategies will we use to reach these goals? What will it cost us? We are a commercial organisation, so the cost-benefit analysis is important. You will decide based on these considerations*".

The applicability of a new technology is important too, it is important that the ideas can be implemented in the current infrastructures (personal communication with Marianne Mulder, 6 June 2018): "*It is important that a scientific development of a new technology can be implemented in our current society, as it is. This aspect is often forgotten by start-ups. Since their ideas often focus on the small scale too much, upscaling the technologies would cost too much money and there are safety regulations which need to be considered by start-ups. Often they are very creative, but they have no knowledge about laws- and regulations*". According to Marianne Mulder collaborations with start-ups would be easier if their business model is finished already (ibid).

The relationship with the IPKW

The IPKW try to stimulate collaboration as much as they can. Jacquelien de Koning explained however that their proposals are not always necessary (personal communication, 5 July 2018):

"*The IPKW organises a lot for the purpose of bringing people together. They absolutely stimulate collaboration. But they do not ask us: does this idea fit with your organisation? At the same time, I wonder if this would work. I believe collaboration should come from the partners themselves, during all the events organised by the IPKW. Organisations often approach you with proposals and ideas – so often you already have plans. When a third party comes with a proposal it of course can always be a great idea, but often you are already working on things*".

5. Analysis

The gathered data (presented in chapter 4: case descriptions and results) was analysed using the two main forms of critical data review: the inductive and the deductive approach (Saunders, Lewis and Thornhill, 2007). First, the results from the inductive data review method are presented (paragraph 5.1) and then the results from the deductive data review method are shown (paragraph 5.2). Paragraph 5.3 is a comparison of these two data reviews methods.

5.1 Inductive analysis

Inductive analysis means (Saunders, Lewis and Thornhill, 2007, p. 57): "*To explore your data and to develop theories from them that you will subsequently relate to the literature.*", which is the main idea of the Grounded Theory methodology. As explained in chapter 3: methodology, the inductive review method was used to look at the data presented in chapter 4 with an open mind – meaning not considering the theoretical and conceptual framework as presented in chapter 2: theoretical framework. The inductive analysis was guided only by the main question of this research: "*Before and during the creation and start-up phases of new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?*" The inductive analysis was written down in bullet points after transcribing all the semi-structured interviews. The inductive analysis as presented below is based on those bullet points, which were checked using the open and clustered codes of the interviews (see appendix 5: coding process phase 2: data collection) and the results as presented in chapter 4: case descriptions and results.

5.1.1 How to create new collaborative networks

When asked how to create successful collaborative networks, Henk van Latesteijn spoke about there being an order of the steps to take when trying to create collaborative networks (personal communication, 22 June 2018): "*When you have not finished the first step – when you have not yet formulated a shared ambition – and you do things which belong in step two or three, your collaboration might fail. Entrepreneurs have a tendency to do this. You cannot do this: there is an order in the steps to take before you can collaborate, or solve a problem, or start a company*" While analysing all the data inductively, an order in the steps to take when trying to create collaborative networks became clear. These steps are (the numbers of the interviewees in parentheses):

1. Formulate the reasons for collaboration (4, 6, 7, 8, 10, 11, 13, 14, 15, 17, 19, 21, 24).
2. Share personal- and organisational interests (5, 12, 13, 15, 16, 18)
3. Officially decide who joins the network (8, 13, 15)
4. Find a good (process)leader (4, 8, 10, 17)
5. Form a passionate and diverse core team (18, 20)
6. Formulate SMART goals together (16)
7. Divide tasks and responsibilities clearly (5, 6, 10)
8. Sign a contract that everybody agrees on (15, 21, 24)
9. Build strong personal relationships (4, 12, 14, 15, 17)
10. Do. Work with focus towards your goals (10, 18).

It should be clarified that following these steps in order is not a guarantee for creating successful collaborations. As written in chapter 2: there are many factors and conditions influencing the chances of success for creating successful collaborative networks, success is never guaranteed.

Figure 14: How to create collaborative networks (created by author, 2018).

5.1.2 Creating successful collaborations

Figure 14 shows the steps to take when trying to create new collaborative networks, with side notes presented in grey. These side notes might be some of the factors and actions increasing the chances of creating successful collaborations, as is the main research question: *"Considering the processes of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"* While analysing the data inductively (for the data, see chapter 4: results and appendix 5: coding process phase 2, data collection), other important factors and actions became clear. These factors and the (related) actions are presented in table 6 (the numbers of the interviewees in parentheses).

Factors	Actions
Good leadership (4, 8, 10, 12, 15, 17)	-
Trust (5, 6, 9, 12, 21)	Make true on promises (6, 9, 12) Be honest and open (6, 21) Build strong relationships (4, 12, 14, 15, 17, 20) Recognize each other's limitations (19)
Commitment of top-management (15, 16, 20, 22)	Get the trust from the top-management by building relationships and working with them (4)
Fit of the organisation and organisations cultures with the collaboration (4, 15)	-

Everybody in the organisation should experience the need to collaborate (4, 17, 18, 23)	Build strong relationships (4, 12, 14, 15, 17, 20) Create a collaboration-day (14) Have regular meetings (15, 20)
Enough resources: finances (4, 5, 12, 12), time and energy (10, 11)	Focus on the goals, on the 'why' (10, 11)
Laws- and regulations should not block the ability to achieve goals (12, 13, 15)	-
Complementarity (6, 8, 10, 11, 14, 15, 18, 20, 21). Every party should add value (4, 5, 6, 18)	Discuss differences during meetings (14)
Mutual dependence (5, 17)	Create WIN-WIN collaborations (5, 6, 12, 18, 23)
Mutual respect (15)	Build strong relationships (4, 12, 14, 15, 17, 20)
Have a meeting place (15)	Create a meeting place (14, 15)
Base the shared goals on market research (10, 11)	Do market research (6, 8, 10, 11, 18)
-	Develop a communication plan (8, 18)

Table 6. Inductive analysis: factors and actions increasing the chances of creating successful collaboration.

Reflection

The 'how to' process presented in figure 14 and the factors and actions presented in table 6 are an inductively collected answer to the main research question. When creating new collaborate networks, it might be beneficial to take these results into consideration. Nevertheless, the factors impacting the success of new collaborative networks can be labelled as 'obvious'. Mutual respect, enough resources, good leadership: these factors are mentioned in many academic publications on collaboration (Murray, Haynes and Hudson, 2010; Sharma and Kearins, 2011; Gray, 1985). These results are very likely true, as the data can be confirmed using the literature, but they are slightly obvious all the same. The added value of this inductive analysis is the more practical action-oriented 'how to' overview – which parties wanting to create a new collaborate network can follow step-by-step – and the actions presented in table 6. Organisations wanting to create a new collaborative network could learn from these actions and possibly do some of them, to increase the chances of their collaborative network becoming successful. However, as mentioned before, following the steps of figure 14 and doing all the actions of table 6 does still not guarantee success. Creating successful collaborative networks is not easy as many barriers need to be faced (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006 and Hardy, Lawrence and Grant, 2005). As the results in chapter 4 show: even the more successful collaborative networks still mentioned barriers and difficulties which they still need to overcome (see textbox 1: example SEECE).

SEECE still struggling with the bureaucracy of the HAN

Erik Folgering explained (personal communication, 11 June 2018): "*The biggest barrier was the bureaucracy of the HAN. It remains a challenge. Nowadays you notice that SEECE, although strongly connected to the HAN, works quite agile. Thanks to our partners and the subsidy we received. If we would have waited for the HAN, nothing would have happened so far. At this moment in time, there has no official decision from the HAN regarding SEECE. We are working nonetheless, but the internal HAN processes should be arranged better*".

Textbox 1. Example SEECE.

5.2 Deductive analysis

The deductive review method means (Saunders, Lewis and Thornhill, 2007, p. 57): *"You use the literature to help you identify theories and ideas that you will test using data".* Using the deductive review method, the concepts mentioned in chapter 2: theoretical framework, were tested using the gathered data as presented in chapter 4: case descriptions and results and in appendix 5: coding process phase 2: data collection. The concepts of chapter 2 are discussed below. The interviewees are referred to with the number placed in front of their name in table 5: interviewees phase 2.

5.2.1 Reasons and incentives for collaboration

The first subquestion of this research was: *"Why is collaboration between organisations necessary? What motivates organisations to form collaborative networks?"* A few reasons for organisations to collaborate were presented in chapter 2, for example: creating innovative products (Yang, et al, 2015; Sharma and Kearins, 2011) and gaining access to new resources (Yang, et al, 2015; Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006). Most of the incentives found in the literature were also mentioned during the semi-structured interviews (see chapter 2, table 1: motives for creating collaborative networks and appendix 5: coding process phase 2, data collection). The introduction of this research discusses the need for inter-organisational collaboration in order to 'wicked' societal problems, since organisations *"lack the knowledge, resources and political power to solve the issues related to corporate sustainability by themselves"* (Sharma and Kearins, 2011). This particular incentive was mentioned quite often during the semi-structured interviews: the inability to do everything alone, as an individual organisation because of the necessary investments (personal communication with interviewees 4, 5 and 6) and the inability to make an impact in this fast-changing world as an individual organisation (personal communication with interviewees 10, 15 and 16). Since all selected case studies focus on issues related to corporate sustainability – either on energy, biomass, clean mobility, waste and/or education – it makes sense that the desire to make an impact in the world and the inability to do so was mentioned often. Appendix 5 (coding process phase 2: data collection) gives a complete overview of all the incentives for collaboration mentioned by the interviewees.

More interesting than the list of reasons for collaboration by itself, is the importance of sharing the incentives for collaboration: each individual person- and organisation should honestly share their reasons for joining the collaborative network - the results they want to achieve for their individual organisations (personal communication with interviewees number 5, 12, 13, 15, 16 and 18). As Vincent Roes (personal communication, 14 June 2018) stated: *"Clarifying towards each other why you want to collaborate. What are your interests? What do you have to offer? What is the intrinsic motivation of each party involved? We started the collaborative network with six partners. Then we invited new parties. And then you discover you need to take two steps back: you need to start the discussion again – where are we going, what are our goals? What are the intrinsic incentives of this new party? This might feel like a step in the wrong direction, but it is very important for the success of the collaboration".* These incentives should be known by the leaders, the core team of the collaborative network (personal communication with interviewee number 15) and the individual organisations should be able to realise these aimed results (personal communication with interviewee number 8): *"Organisation should be able to gain something from the collaboration for their individual organisations".*

5.2.2 Development process of collaborative networks

The second subquestion was: "*How are collaborative networks created? What does the development process of a new collaborative network entail? Which specific actions are taken in the development process of new collaborative networks?*" As explained in chapter 2: theoretical framework, not much is published about the development process of new collaborative networks and about the specific actions taken when creating collaborations. Chapter two does discuss the developments phases as published by McCann (1983) and Spekman (et al, 1996). According to them the creation of collaborative networks passes through different development phases. McCann (1983) distinguishes the following three phases: problem setting, direction setting and structuring. Spekman (et al, 1996) distinguishes the development phases: vision, values and voice. As written in chapter 2 these phases show the steps which are necessary when creating new collaborative networks (Spekman, et al, 1996; McCann, 1983; Gray, 1985). They stress the importance of an *order* in the actions and steps to take when trying for form a new collaborate network. For example: without first distinguishing the societal issue at hand during the problem setting phase, formulating a solution - a clear goal - would not be possible. The importance of the following the correct order of the steps to take when creating new collaborative networks was mentioned as well during the interview with Henk van Latesteijn (personal communication, 22 June 2018): "*When you have not finished the first step – when you have not yet formulated a shared ambition – and you do things which belong in step two or three, your collaboration might fail. Entrepreneurs have a tendency to do this. You cannot do this: there is an order in the steps to take before you can collaborate, or solve a problem, or start a company*". The idea of there being an order in the actions and steps to take when creating new collaborative networks can be confirmed with the gathered data.

Since the development phases of McCann were used in the conceptual model (see paragraph 2.5) these will be used for the comparison with the gathered data. When comparing McCann his development phases with the steps to creating successful collaborations mentioned during the interviews, certain similarities can be noticed. McCann (1983) his first phase, the problem setting phase is about: "*Setting the environmental and developmental context; articulating a shared definition of the problem; and fact finding and identification of cause-effect relationships among problem variables*" (Gray, 1985, p. 916-917). The interviewees (personal communication with interviewees 10 and 11) stressed the importance of doing market research and relating the shared goals of the collaborative network to the outcomes of this market research. Patrick Langevoort (14 June 2018) stated the importance of really thinking critical about the proposed goals: "*The partners involved should first ask themselves: is this really a good idea? And why? Not as a marketing strategy, a sales pitch, but in the core?*" McCann his problem setting phase is more extensive, it truly stresses the importance of understanding the problem you want to try and solve. Most of the selected case studies did not do this consciously. However, with most cases the people involved already knew enough about the market – since they were already involved in it: Rene Sauveur from Pantanova already knew a lot about hemp (personal communication, 1 June 2018), Marcel van der Peppel (personal communication, 7 June 2018) said: "*Before Miscancell we already did a lot of research (…) meaning we already had all the relevant knowledge needed*" and Nedstack had already spend ten years developing their technology before they even considered collaborations (personal communication with Arnoud van der Bree, 7 June 2018).

The second phase of McCann, the direction setting phase is about (Gray, 1985, p. 916-917): "*Creating an awareness of desired values and ends; articulating desired ends and directions for actions; and identifying specific steps and implementation issues".* Most of the, during the interviews mentioned, steps can be linked to the direction setting phase of McCann: sharing personal- and organisational interests (personal communication with the interviewees number 5, 12, 13, 15, 16 and 18), formulating the reasons for collaboration (personal communication with interviewees number (4, 6, 7, 8, 10, 11, 13, 14, 15, 17, 19, 21 and 24), formulate SMART goals together (personal communication with interviewee number 16) and divide tasks and responsibilities clearly (personal communication with interviewees 5, 6 and 10). The interviewees did not consciously follow the steps as formulated by McCann in 1983, but unconsciously they did mention all actions required in the direction-setting phase of McCann.

The third and last phase of McCann called structuring, is about (Gray, 1985, p. 916-917): "*Enriching and evaluating organizing options; articulating stakeholder roles and control strategies; and monitoring and regulating action step performance".* Related to the first step, Bram Peters (personal communication, 1 June 2018) mentioned: "*Decide if you want to be an organisation, a cooperation, a foundation, a non-profit".* Stakeholder roles and control strategies were often agreed upon in the formal signed agreements. The evaluation and regulation of performances was not specifically mentioned. The structuring of the collaborative networks for the interviewees was more about finding the right people (personal communication with the interviewees number 18 and 20), signing a contract (personal communication with the interviewees number 15, 21, 24) and building strong relationships (personal communication with the interviewees number 4, 12, 14, 15, 17).

Reflection

In conclusion, McCann his model on the development phases of collaborative networks is a good model, when looking at the gathered data. A few elements from each phase were mentioned during the interviews. Nevertheless, it is not applied consciously when trying to create collaborative networks. Nobody spoke about McCann his model, as can be expected. Only Henk van Latesteijn spoke about the order of steps to take when creating a new collaborative network (personal communication, 22 June 2018). Applying the model of McCann is practice does not seem necessary, so it not an issue that the different phases were not mentioned during the interviews. When creating new collaborative networks, it mainly matters that the involved parties are aware that there is an order in the steps to take (for example the order presented in figure 14).

Still, the collaborative networks could learn something from McCann, especially in regard to the importance of "*monitoring and regulating action step performance"* (Gray, 1985, p. 916-917). This final step as presented by McCann (Gray, 1985) was not mentioned during the interviews, but evaluating the performance of the collaborative network can be very important for the success of the collaborative network. This was not mentioned specifically during the interviews, but most interviewees clearly did reflect on the performance of the collaborative network. Especially since they were able to answer the interview questions quickly and coherently, it can be expected that they reflected (at least individually) on the performance and added value of the collaborative networks. Evaluating on the performance of the collaborative network during meetings might be interesting – as McCann his model shows (1983; Gray, 1985).

5.2.3 Pre-existing conditions

Subquestion three was: "*What (pre-existing) conditions must be met within and between organisations before they can create collaborative networks?*" As written in chapter 2: theoretical framework, pre-existing requirements are the conditions that should be met before the different parties begin with the negotiations of forming the new collaborative network (Bryson, Crosby and Stone, 2015). Not all interviewees were able to name pre-existing requirements, but most of them were. The statement that the pre-existing requirements are important during the entire duration of the collaboration, as mentioned in chapter 2 (Bryson, Crosby and Stone, 2015), was recognised by most interviewees. In chapter 2 the most important pre-existing requirements found in the literature were presented: committed and well-qualified leadership with a collaborative mindset (Bryson, Crosby and Stone, 2015; Spekman, et al, 2015); the belief that it is necessary for the problem to be addressed within the organisations (ibid); interdependence of stakeholders organisations regarding the problem and knowledge of the former – positive and negative - relationships and collaborations between the participating organisations (Bryson, Crosby and Stone, 2015). The latter was not mentioned during the interviews; however, the factors trust (personal communication with interviewee number 9) and mutual respect for both the people and the organisations involved (personal communication with interviewee number 5) were mentioned. Committed and well-qualified leadership was mentioned as "*someone to be the driving force and take initiative*" (personal communication with Theo Hendriks, 5 June 2018). The belief that it is necessary for the problem to be addressed within the organisations was mentioned as experiencing the need and the desire to collaborate (personal communication with interviewees number 17, 18 and 23). Interdependence of stakeholder organisations was not mentioned during the interviews, but the similar pre-existing requirement commitment from the top-management (personal communication with interviewees number 15 and 22) was. Table 7 shows an overview of all the pre-existing requirements, found in the literature and/or during the interviews.

Found in literature	Found during the interviews
Committed and well-qualified leadership	Someone to be the driving force (4, 8)
The belief that the problem needs to be addressed within the organisations	The need and desire to collaborate (17, 18, 23)
Interdependence of stakeholder organisations	Commitment from top-management (15, 22)
Knowledge of former relationships	Trust (9) and mutual respect for both the people and the organisations involved (5)
Agreement on the problem definition	Knowing the market (8)
-	FIT of DNA organisation with the collaboration (15)
Formal and informal agreement on the collaboration	-
-	The capacity to collaborate: people with the required knowledge, experience and time (15)

Table 7. Overview of pre-existing requirements (created by author, 2018).

The pre-existing requirements presented in table 7 all are important conditions before-, during and after the creation of collaborative networks. This does not mean that the collaborations will always fail when one pre-existing requirements has not been met. Nevertheless, these pre-existing requirements can increase the chances of creating successful collaborations.

5.2.4 Barriers

The fourth subquestion of this research was: "*Which barriers do new collaborative networks face during and after the start-up phase? Which actions can new collaborative networks take to overcome these barriers?*" As written in chapter 2: theoretical framework, collaborating is difficult. Especially because of all the possible barriers collaborative networks can face, like a lack of one of the pre-existing requirements presented in table 7, not having enough available resources (e.g. money, time or knowledge) or conflicts among the involved actors (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006). As written in chapter 2: it is extremely likely that organisations will face barriers when creating a new collaborative network, and all researched collaborative networks did (see chapter 4: case descriptions and results). The hypothesis (see chapter 2: theoretical framework) was that barriers do not necessarily decrease the chances of creating a successful collaborative network: "*When organisations can overcome these barriers, it might even increase the chances of success for a collaborative network, since the organisations probably had to collaborate in order to overcome the barrier and this might strengthen their trust and commitment towards each other*". Two hypotheses were formulated:

H1a: barriers that are not overcome, will decrease the chances of successful collaboration.
H1b: barriers that are overcome through collaboration, will increase the chances of successful collaboration.

Hypothesis 1a is plausible. This hypothesis was based on extensive literature review, which support the statement (Bryson, Crosby and Stone, 2006; Ingirige and Sexton, 2006; Hardy, Lawrence, and Grant, 2005). The gathered data also seems to support this hypothesis. There are a few examples of collaborative networks really struggling because of the barriers they mentioned (see chapter 4: case descriptions and results). The most important example is the GreenDeal Natuurvezels (see paragraph 4.3), because of the enormous impact of the barriers they faced. The limiting laws- and regulations, specially the Opium wet, and the lack of commitment from the partners are the main barriers they struggle with and they have not yet been able to overcome these barriers (see textbox 2: example GreenDeal Natuurvezels). The current situation is an unsuccessful collaborative network – partly because of the inability to overcome these barriers (personal communication with Rene Sauveur, 1 June 2018 and Henk van Latesteijn, 22 June 2018).

GreenDeal Natuurvezels struggling to overcome barriers

Rene Sauveur explained (personal communication, 1 June 2018): "*In the Netherlands we still struggle with the enormous barricade of the Opium wet. The Opium wet is in high need of improvement and actualisation, especially because of the economic value of hemp*". Henk van Latesteijn (personal communication, 22 June 2018) seems to agree: "*The GreenDeal struggled under the Opium wet. It should have been changed*".

The second barrier the GreenDeal Natuurvezels struggled with is the lack of commitment from some of the partners, who do not activily collaborate in the network (personal communication with Rene Sauveur, 1 June 2018). According to Henk van Latesteijn, a better intake could have helped in overcoming this barrier (personal communication, 22 June 2018).

Textbox 2. Example GreenDeal Natuurvezels.

Hypothesis 1b is less unambiguous, it is less clear if this statement is plausible or improbable. The main reason for this is that the hypothesis is not supported by the literature as it is an original hypothesis. The gathered data does show many examples of collaborative networks who have figured out ways to deal with barriers or even overcome barriers (see chapter 4: case descriptions and results) and some of the actions taken to overcome these barriers have been named as increasing the chances for creating successful collaboration (see textbox 3: example IPKW ontwerpstudio's and textbox 4: example Plastic Fantastic). These two examples show that hypothesis 1b is not improbable. Nevertheless, concluding that the hypothesis is plausible would require more evidence for the conclusion to be trustworthy.

The IPKW ontwerpstudio's overcoming their barrier

The IPKW ontwerpstudio's overcame the barrier of conflicts between the partners by making and writing down clear agreements (see paragraph 4.4). Arno Geesink explained (personal communication, 5 June 2018): "*People clash on the personal level. This can be caused by so many things: leaving materials in places they do not belong, the feeling that other designers steal away your clients…".* They created different strategies for overcoming this barrier (ibid): "*We always talk about internal clashes. When a problem relates to the entire building we discuss it during our quarterly meetings. All the agreements formulated during these meetings were written down in our regulations, with fitting sanctions".* Joris de Groot then mentioned having clear agreements as an important factor for creating successful collaborative networks (personal communication with Joris de Groot, 20 June 2018): "*Making clear agreements is very important. About how you work together, in which ways, what is expected of everybody. These rules should be written down. This is important".* By making clear agreements and writing these down in formal agreements, they overcome the barrier of conflict between the partners of the collaborative network.

Textbox 3. Example IPKW ontwerpstudio's.

Plastic Fantastic overcoming their barrier

Plastic Fantastic overcame the barrier of the limited available amount of time and energy by focussing on the 'why'. Bram Peters labelled time and energy as their main barrier (personal communication, 1 June 2018): "*Time and energy: we invested far too much time and energy. You need to make good choices, keep your focus. I spend too much time and energy on Plastic Fantastic now".* The main action taken in order to overcome this barrier is choosing projects carefully, keeping their focus on what matters the most (ibid): "*Every week we get so many requests in our e-mail, for projects or events or interviews. Because of this we have created a way to choose the things which matter the most to us. We score each request on: 1. Benefit: the profits. 2. How well it fits with our 'why' and 3. Time. Automatically this leads to a top-100 and then we select the top-10 projects and score them again. We check: are these the right once? Is the score correct? (…) This is always a point for discussion. Eventually I personally always defend our why".* Focussing on the why, as a point on the horizon, was mentioned as an important factor increasing their chances of successful collaboration (personal communication with Bram Peters, 1 June 2018 and Rik Voerman, 29 June 2018). By focussing on the 'why' they overcome their barrier and this made them more successful as a collaborative network.

Textbox 4. Example Plastic Fantastic.

Moving back to the subquestion: how can collaborative networks overcome these barriers? Which actions can the actors involved take to overcome them? There are roughly three categories of barriers extracted from the gathered data: 1. Barriers which can be overcome by walking through all the necessary steps as presented by McCann (1983) and the inductive analysis, 2. Barriers which can be overcome with other relatively easy strategies, and 3. Barriers that are very difficult to overcome. These barriers and the examples of actions to overcome the barriers are presented in table 8. Important to note is that the presented actions are not the only options for dealing with these barriers, and the actions presented give no guarantee of successfully overcoming the barriers. As mentioned before: collaboration is difficult, and so is overcoming these barriers.

Barrier	Actions to overcome barrier
1. Barriers which can be overcome by creating collaborative networks in the right order	
Lack of commitment of partners	- Formulate the reasons for collaboration together; - Share personal- and organisational interests and make sure these interests can be achieved; - Officially decide who joins the network.
Unclarity of who should join	See above.
Collaboration resting on the shoulder of only 1-2 people from a single organisation	- Form a passionate and diverse core team; - Create a collaboration-day at a central location, increasing the perceived need for collaboration.
Lack of time and energy	- Formulate the reasons for collaboration; - Divide tasks and responsibilities clearly and work with focus towards the shared goals.
Different desired timeframes between the partners	- Formulate SMART goals together; - Have regular meetings to discuss the progress of the collaborative network.
Lack of leadership	- Find a good (process)leader; - Form a core team of passionate and capable people, who can take initiative when leadership fails.
2. Barriers which can be overcome with relatively easy strategies	
Lack of time and energy	Choose projects consciously, focussing on the aimed shared goals.
Different desired timeframes between the partners	- Recognize limitations; - Realise that some partners might have other priorities – in that case move along with the other partners who want to move faster.
Conflict among actors	- Have regular meetings to discuss conflicts; - Write down behaviour rules in a formal agreement.
3. Barriers that are very difficult to overcome	
Lack of financial resources, caused by subsidy difficulties	Collaborate with other partners, to get access to financial resources;

	• Discuss the issue with the municipality or the province, to find ways to get extra subsidies.
Limiting laws- and regulations	Collaborate with organisations and/or collaborative networks who struggle with the same laws- and regulations: together you have a stronger position towards policymakers.
Bureaucracy of stakeholder organisations	• Try to work around the bureaucratic systems (for example how the HAN Technology department started with SEECE without the formal agreement of the board of directors).
	• Build strong relationships with the top-management and other shareholders.

Table 8. How to overcome barriers (created by author, 2018).

Reflection

When looking at the gathered data and the literature, the hypothesis that 'barriers that are not overcome, will decrease the chances of successful collaboration' can be labelled as plausible. The hypothesis that 'barriers that are overcome through collaboration, will increase the chances of successful collaboration' can be plausible, but more evidence needs to be gathered before this conclusion is trustworthy. Nevertheless, it is clearly very important to try and overcome barriers when trying to create a successful collaborative network. Table 8 shows a very extensive list of barriers (gathered from the literature and the interviews) and possible actions for overcoming these barriers. The list is quite long, but gives interesting insights for collaborative networks. It is important to realise that there are three different kinds of barriers: 1. Barriers which can be overcome by walking through all the necessary steps as presented by McCann (1983) and in figure 14 of the inductive analysis, 2. Barriers which can be overcome with other relatively easy strategies, and 3. Barriers that are very difficult to overcome. Especially the last kind of barriers, the barriers that are very difficult to overcome, can make it very difficult to collaborate and to reach the goals set by the collaborative network.

The main importance when it comes to barriers, is that the collaborative networks collectively identify their barriers and collectively brainstorm on the possible actions to take to overcome their barriers. Overcoming barriers requires action, and identifying the barriers as a collaborate network is the first step in overcoming barriers.

5.2.5 The concept proximity related to creating successful collaborative networks

The fifth subquestion was: "*What is the impact of the concept 'proximity' in relation to creating successful collaborative networks? Are organisational-, technological- and geographical proximity important for the success of collaborative networks?".* As explained in chapter 2: theoretical framework, the definition of success means: *to achieve the goals set by the collaborative network in an efficient way.* The proximity theory by Boschma (2005) and Knoben and Oerlemans (2006) is about creating successful inter-organisational collaboration through the creation of proximity, or closeness. As written in chapter 2, proximity is about the *closeness,* the *compatibility* of the multiple actors in a collaborative network. Knoben and Oerlemans (2006) distinguish three forms of proximity: organisational proximity (with cognitive, institutional, cultural and social proximity),

technological proximity and geographical proximity. Knoben and Oerlemans (2006) state that not all forms of proximity are necessary at the same time, as the different forms of proximity can compensate for each other. One example of this from the gathered data is that technologies like Skype and WhatsApp (technological proximity) are used to compensate for the larger geographical distance (geographical proximity) between the different parties (personal communication with Bram Peters, 1 June 2018).

Geographical proximity
The results on the impact of the latter form of proximity, geographical proximity (territorial, spatial, local or physical proximity: the physical distance between the actors within the alliance and the network) are slightly ambiguous (see chapter 4: case descriptions and results). Theo Hendriks (personal communication, 5 June 2018) states that it is nice to be located close to their partner Nedstack, that is makes their collaboration function better. Joris de Groot (personal communication, 20 June 2018) explained that being able to walk into the offices of his partners and quickly asking a question helps a lot, since it means he does not have to wait for days before getting an answer. On the other hand, Bram Peters (personal communication, 1 June 2018) explained how he tends to discuss too many irrelevant details with the partner located at the IPKW too, and that he does not mind the geographical distance between himself and the other partners. In conclusion, it is plausible that impact of geographical distance is strongly impacted by the behaviour and attitudes of the people involved in the collaborative networks: can they stay focussed on their work during the day or do they waste a lot of time discussing irrelevant information while this actually bothers them.

Technological proximity
Knoben and Oerlemans explain technological proximity as (2006, p. 77): *"Technological proximity is based on shared technological experiences and knowledge bases. Technology can be defined as those tools, devices and knowledge that mediate between inputs and outputs (process technology) and/or that create new products or services (product technology)"*. The results in regard to technological proximity were quite unambiguous: most of the collaborative networks strive towards complementarity among the partners (personal communication with the interviewees: 6, 8, 10, 11, 14, 18 and 20). In the case of most selected case studies, the opposite of technological proximity was strived towards. They strive towards complementarity in the backgrounds of the organisations involved, the knowledge sets of the people collaborating in the network and complementarity in the markets the partners employ. As explained by Vincent Roes (personal communication, 14 June 2018) complementarity gives the opportunity to look at subjects – in their case: clean mobility – from different viewpoints. Joris de Groot simply states that complementarity *"is a reason for success"* (personal communication, 20 June 2018). Marcel van der Peppel (personal communication, 7 June 2018) explained that complementarity between partners was important in relation to trust: they asked Akzo Nobel to collaborate only with them – Miscancell – and not with other similar partners. This has to do with trust: Miscancell wants to know for certain that Akzo Nobel does not share the ideas and knowledge from Miscancell with other organisations. Technological proximity thus is not very important for these specific collaborate networks, since the opposite of technological proximity – complementarity – is strived towards.

Organisational proximity

Organisational-, cultural and social proximity were discussed the most during the interviews, with a strong focus on the latter two forms of proximity. Organisational proximity is about the similarity in organisational systems, like the levels of hierarchy and the rules and routines within organisations. Cultural proximity is about (Knoben and Oerlemans, 2006, p. 76): "(…) *the pattern of thoughts, feelings, behaviours, symbols and so forth that give meaning to actions and behaviours, and provide interpretations of situations for people*" and social proximity is about the closeness and strength of relationships between actors within alliances and networks. The most important result from the semi-structured interviews with regard to proximity, is the importance of strong personal relationships: knowing each other well matters (personal communication with the interviewees 4, 12, 14, 15 and 17). It makes the collaboration more intensive (personal communication with the interviewees 4 and 12) and it speeds up the process of figuring out the shared visions, shared needs and the trends of the market (personal communication with interviewee number 17). Understanding how a person reacts makes communication better and knowing the involved organisations makes it easier to support and help each other (personal communication with interviewee number 15). Building strong relationships by eating together, having meetings regularly and collaborating on projects is thus extremely important for the success of the collaborative network. As Marion Braams stated (personal communication, 5 July 2018): "*You cannot only communicate via e-mail".* Many of the selected collaborative networks strive towards complementarity, but Marion Braams (personal communication, 5 July 2018) explained that is can be quite difficult to collaborate with all these different organisations. With all their different goals and interests, she called them 'complicated collaborations'. Nevertheless, having strong personal and organisational relationships makes it easier to discuss these differences openly during board- and general meetings, which is an important way of dealing with these differences (ibid).

Last but not least, related to organisational proximity, a discussion started during the interviews. The discussed question: Can large multinationals and small start-ups collaborate together, on equal footing? The opinions vary, with some parties stating this is very difficult to achieve and other parties being sure that these collaborations are possible (see chapter 4: case descriptions and results). Two important conditions were mentioned during the interviews: 1. The involved parties should both add value, the parties involved should look for the WIN-WIN in the proposed collaborations (personal communication with interviewee number 23) and 2. The commitment on the strategic level of the organisations is important (personal communication with interviewee 7): "*What matters is commitment on the strategic level of the organisations. This is an important condition for collaboration for us. It takes time to create this commitment, but that is only normal".* Akzo Nobel has an very interesting technique for starting collaborations with start-ups (see textbox 5: example Akzo Nobel Imagine Chemistry).

Imagine Chemisty

Each year Akzo Nobel organises 'Imagine Chemistry', a multiple day event where they invite start-ups and academics to work with them in order to find solutions to some of the most urgent chemistry-related challenges (personal communication with Con Theeuwen, 4 July 2018). The winners of this event get to collaborate with Akzo Nobel – in which Akzo Nobel aims to leave the IP with the start-ups and to create WIN-WIN collaborations with equal partnerships.

Textbox 5. Example Akzo Nobel 'Imagine Chemistry'

The position of the IPKW in relation to proximity

In chapter 2: theoretical framework, the following hypothesis was formulated: "**H2:** In relation to the IPKW, the hypothesis is that the organisation behind the IPKW – probably unconsciously - creates proximity by bringing likeminded organisations together and by striving towards the creation of a community".

When looking at the data, the strong impact of the IPKW becomes clear (see textbox 6: example Miscancell and Akzo Nobel, textbox 7: example IPKW ontwerpstudio's and textbox 8: example CMC). The IPKW brought Miscancell and Akzo Nobel together via their external communication strategy, they facilitated a physical place at the IPKW for both the IPKW ontwerpstudio's and the CMC and they offer many useful facilities to their tenants. The IPKW brings people together physically, also with their events like the start-up Delta (personal communication with Guido Dalessi, 12 June 2018) and by trying to create a community they inspire people to move towards the Industry Park Kleefse Waard. The IPKW does these things very consciously, trying to improve the level of collaboration at the Industry park (personal communication with Kevin Rijke, 25 June 2018). With these things it could be said that the IPKW tries to create proximity at the IPKW consciously – although they do not call it proximity. Hypothesis 2 is thus probable.

Impact IPKW on the collaboration between Miscancell and Akzo Nobel

Marcel van de Peppel explains: "*The collaboration with Akzo is the result of the Kleefse Waard. They published a press release about us and other new tenants, in January 2017. Akzo was looking for alternative resources for a long time, and contacted us immediately*".

Textbox 6. Example Miscancell and Akzo Nobel.

Impact IPKW on the IPKW ontwerpstudio's

Joris de Groot (personal communication, 20 June 2018): "*The creation of the studio's, us being located together… In the beginning a couple of us were located in the building on the other side of the road. This park, the IPKW, wanted to give the designers a place here. They wanted to create a diverse industry park, meaning they did not only want the production-oriented organisations but also create a place for creativity. They had the idea to invest in a building where designers could start their own workshop and studio's, but where those designers could also collaborate with each other and the other companies at the IPKW. Then they, the IPKW, asked us to join: they could offer us a place and we accepted immediately*"

Textbox 7. Example IPKW ontwerpstudio's.

Impact IPKW on the collaborative network CMC

Marion Braams explained (personal communication, 5 July 2018): "*The IPKW's location is very inspiring of course, since there are so many other start-ups located there. The facilities help a lot too: the meeting rooms and the catering. These can be used when you need it, meaning your costs stay low. The IPKW also provides new contacts via marketing and communication*". Thanks to the IPKW the CMC now has their own building, located at the IPKW (ibid): "*It was amazing that the IPKW could give us the building, because we could never have afforded commercial prices*".

Textbox 8. Example CMC.

Reflection

In conclusion, when looking at the literature (Knoben and Oerlemens, 2006) and the gathered data, it is probable that creating proximity is important for the success of collaborative networks. As explained by Knoben and Oerlemans (ibid) not all forms of proximity are always necessary. The case studies showed that technological proximity was not strived towards at all: the parties looked for complementarity among their partners instead. Social proximity, building strong personal- and organisational relationships, is of critical importance for the success of these collaborative networks and can compensate for the lower levels of technological proximity. The role of the IPKW, creating geographical and organisational proximity at their industry park, is very important. Their role as 'linking-pin' cannot be underestimated and makes this case study so interesting.

5.3 Comparison

The third step of the data analysis, as explained in chapter 3: methodology, is to compare the results from the inductive and the deductive analysis. However, in order to prevent overlapping information with the conclusion - in which the conceptual model will be discussed and the main research question will be answered - the concepts presented in the conceptual model will not be compared. Meaning: the deductive analyses of the pre-existing requirements, the barriers and the concept proximity will not be included in the comparison. When comparing the inductive analysis and the development phases based on the model by McCann (1983), the main thing is that a few changes should be made to figure 14. Some steps of the problem setting phase – *making sure the 'wicked' societal problem is known and understood* (McCann, 1983) - and the structuring phase – *the evaluation of the progress* (McCann, 1983) - should be added. Figure 15 gives the final step-by-step process of how to create collaborative networks for corporate sustainability purposes.

Figure 15: How to create collaborative networks for corporate sustainability goals 2.0 (created by author, 2018).

6. Conclusion, recommendations and discussion

Using all the analysed data (see chapter 5: analysis), the main research question is answered in the conclusion – in part by reflecting on the conceptual model (see chapter 2.5: conceptual framework). Paragraph 6.2 contains recommendations for creating new collaborate networks and for park management. The discussion entails a critical evaluation of the case selection, the trustworthiness of the results, recommendations for further research and a critical review of the chosen theories and methodologies used in this research.

6.1 Conclusion

Collaborating is not easily done well. Creating new successful collaborative networks is difficult and time-consuming. Nevertheless, collaboration is extremely important when trying to solve 'wicked' societal issues (Sharma and Kearins, 2011) and many benefits can be gained by organisations through the collaborations with other organisations. The main research question of this master thesis was: *"Considering the processes of creating new inter-organisational collaborative networks, which factors and actions increase the chances of creating successful collaborative networks for corporate sustainability goals?"* Most of the specific factors and actions, with a more practical focus, already are presented in chapter 5: analysis. The need for a more high-level theoretical answer remains. The conceptual model as presented in chapter 2: theoretical framework (see figure 16) shows the hypothesis that the chances for creating successful collaborative networks increases when:

- The pre-existing requirements have been met, and;
- Clear shared values and goals were formulated in the problem setting phase, and;
- When there is a lack of barriers and/or these barriers are overcome, and;
- There is a good balance between the three forms of proximity: organisational-, technological- and geographical proximity;
- While evaluating the shared values and goals regularly during the direction setting and structuring development phases.
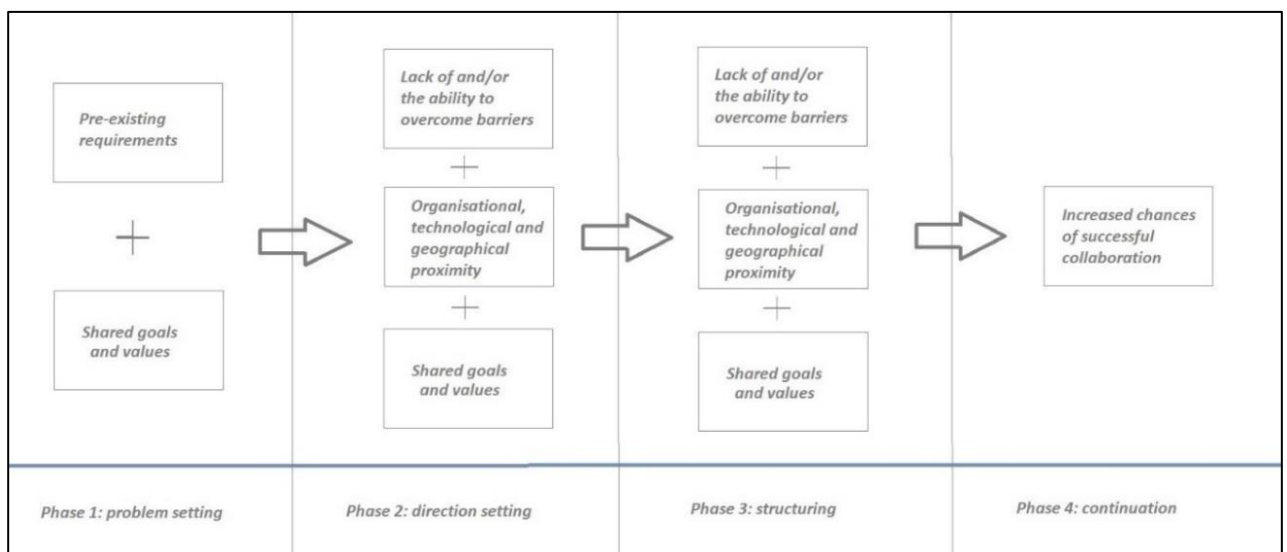
Figure 16: Conceptual model (created by author, 2018).

First and foremost, the division of the three development phases of McCann (1983), the problem setting phase, the direction setting phase and the structuring phase, is a good model. Many of the steps he proposed were also mentioned during the interviews. Nevertheless, the model was not consciously applied during the creation of the selected collaborative networks. The main thing that parties wanting to create new collaborate networks should realise beforehand, is that there is an order in the steps to take when creating collaborations (see the order presented in figure 15), for example: before formulating a clear problem statement, SMART goals cannot be formulated.

Pre-existing requirements
The analysis (see paragraph 5.2.3 pre-exiting requirements) shows that it is plausible that certain pre-existing conditions should be met before creating collaborative networks. Committed and well-qualified leadership, experiencing the need and desire to collaborate, trust, mutual respect and commitment from the top-management were mentioned both in the literature (Bryson, Crosby and Stone, 2015; Spekman, et al, 2015) and during the interviews (see appendix 5: coding process phase 2, data collection). The complete overview of pre-existing conditions is presented in table 7 in paragraph 5.2.3. The conclusion of this paragraph is that it is plausible that certain pre-existing requirements are necessary, thus proving the first part of the hypothesis as presented in the conceptual model (see figure 16). However, this does not mean that collaborative networks will always be unsuccessful when one of these pre-existing requirements is lacking. For example: if the involved organisations do respect the added value of the other organisations but since they have not collaborated together before there is no real foundation of trust – and no reason for distrust - between the people of the organisations, this trust could just as well be created during the development of the collaborative network. Nevertheless, some pre-existing requirements cannot be compensated for. For example, the need and desire to collaborate.

Formulating shared values: the value of Corporate Sustainability goals
The second part of the hypothesis, as presented in the conceptual model (see figure 16), is that clear shared values and goals need to be formulated in the problem setting phase. The gathered data showed that formulating shared visions and goals is indeed extremely important (see appendix 5: coding process phase 2, data collection). In regard to the development phases of McCann (1983) his problem statement phase focusses more on learning about the problem, understand the cause-and-effect relationships between the different aspects of the problem thoroughly. Formulating the reasons for collaboration should be done in the direction setting phase, according to McCann (1983). Nevertheless, the impact of forming shared visions and goals cannot be underestimated.

The focus of this master thesis was on collaborative networks specifically for the purpose of Corporate Sustainability goals. Most of the conclusions, factors and actions presented in this master thesis are also true for non-idealistic collaborative networks like corporate trade deals. For example: mutual respect, commitment from the top-management and good leadership are critical in any collaborative relationship. The question remaining is: what is the impact of these 'idealistic' Corporate Sustainability values in collaborate networks? The first benefit of these shared 'idealistic' values is that it is easier to create commitment. Creating mutual commitment is extremely important when trying to create collaborate networks: one goal of the 'how to' list in figure 16 is to create this commitment, to make sure every party is- and stays completely on board. When multiple parties have shared goals – for example, earn money – this creates commitment to a

certain level. But parties sharing values – for example about ecological sustainability – this creates a much deeper level of commitment. Wanting to reach goals together is important, but sharing the need to make improvements in the world creates an amazing foundation for long-lasting collaboration. The interviewees from the researched collaborate networks showed an openness towards each other, and a willingness to share knowledge and resources for a greater purpose. This is partly the result of their shared values, they shared commitment to solve societal issues.

A second benefit is strongly related to this: it is probable that these shared idealistic values results in more collaboration. The IPKW has the vision to become the first eco-industrial park of the Netherland (personal communication with Kevin Rijke, 18 April 2018). Because of this they attract tenants who are inspired by this vision – who share values related to Corporate Sustainability. This creates opportunities for increased collaboration. Most of the researched collaborative networks decide to collaborate for Corporate Sustainability reasons, and for other reasons like business opportunities or their human capital agenda. Their shared values related to Corporate Sustainability made them more willing to collaborate, and increased their level of experiencing the need to collaborate with others. Multiple interviewees stated something along the lines of: "*These problems are too complicated, too wicked to solve alone*". Shared Corporate Sustainability values thus probably create more collaborate networks.

The question remaining is whether the collaborate networks are successful in reaching their Corporate Sustainability goals. Some collaborate networks have quite high expectations of their collaborative network and the question is how realistic these expectations are. Most of the wicked societal issues these collaborative networks wish to solve – the energy crisis, climate change, pollution – are extremely difficult to solve. It is quite unrealistic to expect that either one of these collaborative networks, located at the IPKW, can solve these issues by themselves. Currently most of the collaborate networks are in quite an early development stage, meaning they have potential but at the moment do not contribute to solving the wicked societal issues yet. However, most of the analysed collaborative networks have the potential to make an impact and should thus keep striving towards their Corporate Sustainability goals.

Overcoming barriers
The third part of the hypothesis focusses on the barriers, saying that the chances of creating successful collaboration increases when there is a lack of barriers and/or these barriers can be overcome. As written in paragraph 5.2.4, there were two hypotheses formulated:

H1a: barriers that are not overcome, will decrease the chances of successful collaboration.
H1b: barriers that are overcome through collaboration, will increase the chances of successful collaboration.

The conclusion of paragraph 5.2.4 is that hypothesis 1a is plausible: barriers that are not overcome, will decrease the chances of successful collaboration. So much so that the combination of two barriers which the collaborative network could not overcome, made them call their collaboration 'unsuccessful'. Hypothesis 1b is not improbable. The gathered data shows promising results, leading to the careful conclusion that hypothesis 1b could be plausible. However, more empirical evidence is needed for the conclusion to be trustworthy.

The impact of proximity

The fourth part of the hypothesis, as presented in the conceptual model is: there is a good balance between the three forms of proximity: organisational-, technological- and geographical proximity. Knoben and Oerlemans (2006) state that creating proximity, or the *compatibility* of the different partners involved in a collaborative network, is important for the success of the collaboration. The gathered data showed that geographical proximity, the physical distance between the partners, depends strongly on how the partners dealt with it: whether they use their geographical closeness to discuss things quickly or use it to discuss too many irrelevant details (see paragraph 5.2.5). One important factor in regard to geographical proximity, is the importance of the Industriepark Kleefse Waard. The IPKW connects all these organisations – and they play an important role in the stimulation of collaboration. It could be stated that the IPKW creates both organisational- and geographical proximity consciously, for the purpose of increasing the level of collaboration at the IPKW. First of all because of their location, their industry park where like-minded organisations can settle, but also with their efforts to connect these organisations. The importance of the IPKW will be discussed further in the recommendations (see paragraph 6.2). In regard to the second form of proximity, technological proximity, the selected organisations strived for the opposite. They strived for complementarity rather than compatibility: searching for different partners among the supply chain, with different knowledge sets (see paragraph 5.2.5). Last but not least, the extreme importance of organisational proximity was recognised. More specifically: the importance of social proximity, having strong personal relationships. Building strong relationships with the people involved in the collaborative network is of key importance, according to the data. In conclusion, creating proximity is important for the success of collaborative networks, but geographical and organisational proximity are more important than technological proximity.

Furthermore

Finally, the gathered results showed that many more factors increase the chances of creating successful collaboration. The conceptual model is incomplete. The importance of a passionate and diverse core team (with multiple people from each individual organisation collaborating in the network), a clear division of tasks and responsibilities, a signed contract that every party agrees on and regular meetings to evaluate progress are just a few other factors important when creating new collaborative networks. These factors cannot be linked to any of the included concepts, but they cannot be forgotten when creating a conceptual model about which factors increase the chances for creating successful collaborative networks. Figure 17 shows the concluding conceptual model. This updated conceptual model shows that the chances for creating successful collaborative networks increases, when:

- The pre-existing requirements have been met, and;
- There is a thorough understanding of the societal problem, and;
- Clear shared values and goals were formulated in the direction setting phase, and;
- When there is a lack of barriers and/or these barriers are overcome, and;
- There is a high level of organisational proximity, a good amount of geographical proximity and there is technological complementarity;
- There are shared goals and values, and every party their personal- and organisational incentives for collaborating are clear to all the partners as well, and;
- SMART goals are formulated; a clear task division is made, there is a strong core team, a signed agreement that everybody agrees on and there are regular meetings.
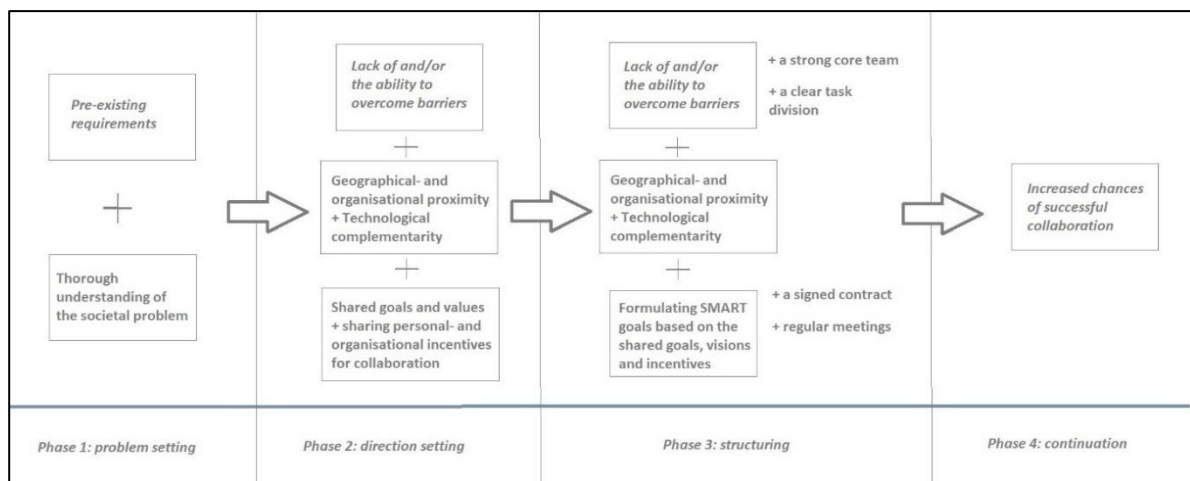
Figure 17: concluding conceptual model (created by author, 2018).

6.2 Recommendations

Based on the results, the analysis and the conclusion, recommendations can be given for both creating new collaborative networks (for corporate sustainability purposes) and for park management.

6.2.1 Recommendations for creating collaborative networks

These recommendations are meant for organisations that want to create new collaborative networks (for corporate sustainability purposes).

1. Create collaborations consciously – follow the order of steps of take

Figure 15 shows an order of steps to take when creating collaborative networks. The first recommendation for organisations who want to create collaborative networks is: follow these steps. Being conscious of the order in the steps when trying to create collaborations is important, since they increase the chances that every single partner is fully committed to the network. If an organisation feels they cannot gain anything from the collaboration, or they do not fully agree with the formulated goals or the signed contract, then collaborating with this partner will most likely be very difficult. To get every single party completely on board, following all the steps is important.

2. Be aware of the needed time-investment when wanting to create collaborations

Collaborating is difficult and time-consuming. It cannot be done 'on the side'. Collaborations ask for the commitment from both the top-management, but also from the rest of the organisation. Every organisation should deliver at least a couple of people with the capacity, skills and the time to invest in the collaboration. When organisations want to create collaborative networks, they should be very aware of the needed time-investment. If organisations do not have enough time available, perhaps they could search for an already existing collaborative network and see if they can join.

3. Create proximity, search for a favourable business climate

Many of the researched collaborative networks partly exists because of the IPKW. The favourable business climate, the proximity created by the Industry park Kleefse Waard played an important role in the creation of most of these collaborative networks. When organisations want to collaborate, they could look for parties like the IPKW or Oost NL for help. These kinds of organisations can help with finding other parties who might want to join the collaborative network.

6.2.2 Recommendations for park management

These recommendations are meant for park management organisations who want to stimulate collaboration. The recommendations are mainly based on the experiences from the selected collaborative networks with the IPKW. There are a few actions the IPKW does very well, which help enormously when trying to stimulate collaboration at an industry park.

1. Have a vision, create a unique proposition

The IPKW wants to become the first eco-industrial park of the Netherlands. This vision attracts like-minded organisations to the IPKW, and the chances are bigger for like-minded organisations to create collaborations. These organisations often already share ecological values, making the formulation of shared goals easier. Simply put, the vision of the IPKW inspires collaborations.

2. Bring people together

Collaborations are born when like-minded people get to know each other. An industry park should thus strive to bring people together. The IPKW does three things which bring people together:

- Organise events where the organisations located at the park can present themselves;
- Be a linking-pin: bring people together by showing the organisations located at the industry park to the other organisations located at the park, municipalities, provinces, outside organisations and other interested parties;
- Tell about the organisations and their products/services via websites, newspapers and social media. The world should know about the amazing things the organisations located at the industry park are working on.

3. Have fantastic facilities which everybody can use

The IPKW offers a range of facilities at the park which everybody can use: the restaurant, meeting rooms, the nature, and spaces to have symposia. They are busy adding other facilities like sport areas and showers. An industry park that feels more like a community, where everybody works-, eats and does sports together, brings people together. When striving to inspire collaborations, industry parks should look alive: people should walk around during the breaks, people should be able to work flexible in flex offices, people should be able to grab a bicycle towards their next appointment, the restaurant should be a place for inspiring lunches instead of a place for quickly buying a sandwich. The facilities an industry park offers are very important.

4. Give people space: collaborations will be born when people meet each other

The last recommendation is directed specially at the IPKW: give people the space to find other organisations for collaborations themselves. An industry park should bring people together, but it is the task of the organisations to create their own collaborations. Be the linking-pin when two organisations located at the industry park could benefit from collaborating together, but do not insist that every organisation should be involved actively in the community. Some organisations simply have different priorities – and when these priorities change they will be able to find you all the same. The IPKW is an amazing place already, with great potential for further development and increased collaboration. Bring people together, and collaborations will be born.

6.3 Discussion

The discussion entails a critical evaluation of the trustworthiness of the results , recommendations for further research, a critical review of the chosen theories and methodologies used in this research.

6.3.1 Trustworthiness of the results

The main goal of the discussion is to compare the found results with what was already known about the concepts from the literature (Bryman, 2012), for the purpose of evaluating the trustworthiness of the found results. The gathered data has already been compared to the existing literature in chapter 5: analysis and in the conclusion of chapter 6. McCann (1983) his model was compared to the gathered data and this comparison showed many similarities. It was concluded that McCann his model of the three development phases when creating collaborative networks is a good model, even though it is not applied consciously in practice. The concept pre-existing requirements, as presented in the articles by Bryson, Crosby and Stone (2015) and Spekman (et al, 2015), was proven to be plausible as certain pre-existing requirements were mentioned during the interviews. The concept of barriers and the statement that not overcoming barriers will decrease the chances of creating successful collaborations, an idea coming from the articles of Bryson, Crosby and Stone (2015), Hardy, Lawrence, and Grant (2005) and Ingirige and Sexton (2006) was found to be plausible as well. These results are trustworthy since they can be confirmed with existing literature.

The main difference between the existing literature and the results was found in regard to the concept proximity, by Knoben and Oerlemans (2006) and Boschma (2005). Especially the importance of technological proximity was deemed as far less important by the researched collaborative networks, as Knoben and Oerlemans (2006) and Boschma (2005) stated. Their explanation of technological proximity is (2006, p. 77): *"Technological proximity is based on shared technological experiences and knowledge bases. Technology can be defined as those tools, devices and knowledge that mediate between inputs and outputs (process technology) and/or that create new products or services (product technology)"*. Most of the selected collaborative networks however strive towards complementarity in regard to the technological experiences and knowledge bases. This difference can probably be explained by the case-selection, as most collaborative networks strive for other goals than product design – making similar knowledge bases less important. Only two collaborative networks focus on product design, while still striving for complementarity: Miscancell in the collaboration with Akzo Nobel and HyMove and Nedstack collaborate for the purpose of selling their products together. Their knowledge bases are complementary, but their products are related in the supply chain – meaning that the product from the one organisation can be used by the other organisation. This makes these organisations at least somewhat comparible in regard to technological proximity. All the other researched collaborative networks strive towards other purposes, like the human capital agenda and making an impact in the clean mobility industry. Because of this, technological proximity might be less important for them. Knoben and Oerlemans (2006) and Boschma (2005) their statement that creating technological proximity is important is trustworthy, but this research brings nuance to their statement. Knoben and Oerlemans (2006) did however explain that not all forms of proximity were necessary at the same time if the other forms of proximity can compensate. For example: having built strong relationships (social proximity) compensating for a lack of technological proximity. The results in regard to the concept of proximity can thus still be labelled as trustworthy.

6.3.2 Recommendation for further research

Two hypotheses were formulated in regard to the concept barriers (see chapter 2, paragraph 2.2.3). Hypothesis 1a was labelled as plausible (see chapter 5, paragraph 5.2.4). The conclusion in regard to hypothesis 1b was that hypothesis 1b is not improbable and could very well be plausible, but it was explained that more evidence needs to be gathered in order for the conclusion to be trustworthy. Further research on this hypothesis could be very interesting and worthwhile. The statement made in regard to the concept barriers was: "*When organisations can overcome these barriers, it might even increase their chances of success for a collaborative network, since the organisations probably had to collaborate in order to overcome the barrier and this might strengthen their trust and commitment towards each other",* summarised as: barriers that are overcome through collaboration, will increase the chances of successful collaboration.

6.3.3 Reflection on the used theories

As written in chapter 2: theoretical framework, collaboration is often the subject of academic publications. While gathering and reading academic literature on collaboration and on inter-organisational collaborate networks, the wide variety of theories became clear. This made selecting the best fitting theories not easy. Especially since the creation of new collaborate networks (for the purpose of Corporate Sustainability goals) was not researched before in this way, making that not one theory fit perfectly with the early version of the main research question. A combination of multiple theories needed to be made. This led to the decision to first write down my personal thoughts on the things which could impact the creation of new collaborate networks – sort of using the Grounded Theory principles. This resulted in the following list: initial conditions, multiple steps in the process of creating collaborative networks, barriers to overcome and the relationships/connections between the organisations. These four things were used to reflect on the existing theories and concepts. First, the concepts 'pre-existing conditions' (initial conditions) and barriers were found quickly: their impact of collaborate networks was already mentioned in publications and multiple specific pre-existing requirements and barriers were presented as well (see chapter 2: theoretical framework). These concepts fit with my expectations and with the main research question. Second, there was hardly written anything about the multiple steps in the process of creating collaborative networks. The three-phase models of McCann (1983) and Spekman (et al, 1996) were already discovered before writing down my initial ideas – and their models seemed to fit best – there lacked a better fitting model or theory in academic publications. Third, the concept of proximity was found. This model was even better than my initial 'relationships/connections between the organisations' concept. It described perfectly what I meant with this concept: the compatibility or closeness between the organisations. The proximity theory of Knoben and Oerlemans (2006) made this research much more interesting. The theory is well-developed, very relevant to this research and offered many opportunities for reflections on the gathered results. The results from most of the theories were simply confirmed with the data (see chapter 6.1: conclusion and 6.3.1: trustworthiness of the results), but the results related to the concepts proximity offered new insights as well. The case study, the Industry Park Kleefse Waard, offered an amazing opportunity in regard to this theory as well: the geographical proximity of most collaborative networks and the IPKW's their desire to create a community (or: organisational proximity) truly offered the chance to add something to the proximity theory. The proximity theory lifted the theoretical framework of this research to a higher level – leaving only the wish that there had been other theories so fitting and interesting in regard to the main research question.

6.3.4 Reflection on the used methodologies

The selected collaborative networks were carefully selected for their geographical location, their current development phase and for their goals relating to the concept corporate sustainability: either by focussing on ecological- or societal issues. Besides the collaborative networks, two other organisations located at the IPKW were interviewed – which choose not to collaborate with the other organisations located at the IPKW. The perspective of the non-collaborating organisations was deemed as important, but too few interviews were held with these organisations. From all the collaborative networks at least two people were interviewed, to increase the reliability of the results. The main weakness in regard to the data collection is that only one person from these two organisations was interviewed, decreasing the reliability of the results from these interviews.

Reflection on the research methods

The main research method used was semi-structured interviews. In total twenty-four interviews were held, which resulted in an amazing quantity of data to analyse. The number of collaborative networks and the technique to interview at least two people from each collaborate network resulted in this high number of interviews. Both of these things increased the reliability of this research – which is a good thing. My personal opinion is that it was a good decision to interview many different collaborative networks, and to interview multiple people from each network. Nevertheless, it might have been interesting to witness meetings of the collaborative networks or to visit events organised by the IPKW or the collaborative networks. The only event visited was an event organised by the PowerLab, in which the HAN contributed (and thus SEECE and CMC), but no relevant data was collected there. The main issues were the already large quantity of data collected and the timeframe of the data-collection period: most of the data was collected in June and the beginning of July, while most events organised were in other months. The collected data was enough to answer the main research question and to offer interesting insights, but adding extra data from events or meetings would have been interesting.

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Personal communication (before the orientation phase)

Plenary meeting with IPKW (represented by Maartje Blij), HAN (represented by Erik Folgering) and QING (represented by Twan Voets) and Sjors Witjes from the Radboud University on the 24th of January, 2018.

Plenary meeting with IPKW (represented by Maartje Blij) and HAN (represented by Erik Folgering) on the 27th of February, 2018

Plenary meeting with Qing (represented by Arno Albers) on the 1st of March 2018

Appendix 1. Operational interview guide phase 1

Requirements for the embedded case-selection*:
- Experiencing a 'need for integration' (wanting to solve issues that the individual organisations cannot solve by themselves);
- A 'willingness to collaborate' with the other organisations located at the industry park and other institutions located outside of the industry park;
- Corporate sustainability goals: economic-, environmental- and social goals.

*based on the literature review and theoretical framework of the research proposal. When interested, contact the author.

Interview questions: general
- Gather: name company, name interviewee, position interviewee, contact information, etc. – *Can you tell me about yourself and the work that you do.*
- Branch and core business organisation: *Can you tell me about your organisation – what is your core business?*

Interview questions: related to case selection requirements
- Current situation:
  o *Do you currently collaborate with other organisations at the IPKW?*
  o *For which goals do you collaborate?*
  o *With who do you collaborate?*
  o *Can you give me their contact information?*
- Willingness to collaborate: *Would you, and your organisation, be willing to collaborate with the other organisations at the IPKW?*
- Need for integration: *Do you, and your organisation, experience a need to collaboration with the other organisations at the IPKW?*
- Corporate sustainability goals:
  o *For which goals would you be willing and experience the need for collaboration?*
  o *Specifically ask for economic, social and environmental goals.*

Final questions:
- Willingness to cooperate phase 2 of the research;
- Ask permission to use name and information in master thesis report / to which extent.

Appendix 2. Theoretical interview guide phase 2

Research question	Theoretical perspective	Sources*	Theoretical question
1. *Why is collaboration between organisations necessary? What motivates organisations to form collaborative networks?*	A. Solving large societal issues; B. Implement changes more effectively; C. Creating innovative products D. Greater and mutual learning opportunity E. Mutual value creation (earn more money) F. Improved stakeholder relationship G. Consumer relationship and branding H. Gaining access to new resources (e.g. money, knowledge, people). I. Dealing with the turbulence of the market J. Better relationship with suppliers	• Gray, 1985 • Sharma & Kearins, 2011 • Yang, et al, 2015 • Ingirige & Sexton, 2006 • Bryson, Crosby & Stone, 2006	*1.1 Which incentives motivated the organisation to collaborate within the collaborative network before creating the network?* *1.2 Which incentives motivate the organisation to collaborate within the network now?*
2. *How are collaborative networks created? What does the development process of a new collaborative network entail? Which specific actions are taken in the development process of new collaborative networks?*	Phases of development: problem setting, direction setting, structuring.	McCann (1983)	*2.1 What did the development process of the collaborative network entail?* *2.2 In which development phase is the collaborative network now?* *2.3 Which steps did the organisations take in order to achieve collaboration?*
3. *What (pre-existing) conditions must be met within and between organisations before they can create collaborative networks?*	A. Committed, boundary-spanning leaders with: • A "Collaborative mind-set" • The ability to frame the issue at hand so that diverse partners can understand its importance • The belief that the problem needs to be addressed • Relevant educational qualifications	• Ingirige & Sexton, 2006 • Bryson, Crosby & Stone, 2006 • Spekman, et al, 1996	*3.1 Which (pre-existing) qualities or conditions made it possible for the organisation to form the collaborative network?* *3.2 Were the* [requirements presented in the second row] *available within the collaborating organisations before the formation of the network? How did this impact the formation process (e.g. the lack of good leadership; an*

	B. Agreement on the problem definition C. Interdependence of stakeholder organizations regarding the problem D. Formal and informal agreement on the collaboration E. Clear initial agreement (documented) F. Knowledge of former relationships and collaborations (positive and negative) G. Clear task division		*agreement of the problem definition, et cetera).*
4. *Which barriers do new collaborative networks face during and after the start-up phase? Which actions can new collaborative networks take to overcome these barriers?*	A. Turbulence of environment B. No pre-existing relationships and networks before formation C. No clear leadership D. Not enough resources available E. Lack of trust F. Conflict among actors G. Lack of shared values H. Lack of knowledge I. Lack of time J. Unrealistic targets K. Unclear targets L. Lack of communication	• Ingirige & Sexton, 2006 • Bryson, Crosby & Stone, 2006 • Hardy, Lawrence, & Grant, 2005	*4.1 Which barriers has the collaborative network faced over time?* *4.2 Which actions were taken in order to overcome these barriers?* *4.3 What is the current status of these barriers, are they still there or not anymore?*
5. *What is successful collaboration? What conditions increase the chances of successful collaboration?*	A. Creating proximity: organisational proximity (cognitive, institutional, cultural and social proximity) technological proximity and geographical proximity.	• Knoben & Oerlemans, 2006 • Boschma, 2005	*5.1 How similar or different are the organisations within the network (in values, hierarchy, rules, cultures, and the social relationships between the actors)? What impact does this have on the network?* *5.2 How closely related are the technological products developed by the organisations? How different or similar are the tools, skills and knowledge requirements? How does this impact the network?* *5.3 How geographically close are the organisations and actors within the network*

5B. (see above).	Hypothesis: an alignment of all former discussed conditions and requirements.	-	*located? How does this impact the collaboration?*
			5.4 Would the organisation consider the network as successful? Why?
			5.5 Is network worth the continuation? Is it worth the investment of time, money, knowledge, et cetera?
			5.6 Which conditions increase successful collaboration within the network?
			5.7 Which actions has the organisation and/or the network taken in order to increase the chances of successful collaboration?

Table A1. Theoretical interview guide.

*For a full overview of which sources refer to which theoretical principles, contact the author.

Appendix 3. Operational interview guide phase 2

This operational interview guide is based on the theoretical interview guide (see appendix 2).

Introductory questions about the collaborative network?
- Wat doet het samenwerkingsverband? Wat is hun doel, hun product?
- Hoe lang bestaat het samenwerkingsverband nu?
- Wat is de rol/de functie van de interviewee binnen het samenwerkingsverband?
- Hoe groot is het samenwerkingsverband?
- Wie zijn de partners binnen het samenwerkingsverband?

Theme 1: Incentives for collaboration
1.1 Wat zijn de belangrijkste redenen waarom de organisatie zich aansloot bij het samenwerkingsverband?

1.2 Wat zijn de belangrijkste redenen waarom de organisatie nu nog steeds bij het samenwerkingsverband is aangesloten?

Theme 2: Development of the collaborative network
2.1 Hoe zag het ontwikkelingsproces van het samenwerkingsverband eruit? Hoe is het samenwerkingsverband ontstaan & welke vervolgstappen zijn er gezet tot nu?

2.2 In welke ontwikkelingsfase bevindt het samenwerkingsverband zich nu?

2.3 Welke stappen zijn er gezet door het samenwerkingsverband om tot de huidige samenwerking te komen?

Theme 3: Pre-existing requirements before collaboration
3.1 Welke kwaliteiten waren er voor het oprichten van het samenwerkingsverband bij de organisaties aanwezig, die de samenwerking mogelijk maakte?

3.2 Bijvoorbeeld: goed leiderschap, informele en formele overeenkomst over het doel van de samenwerking, onderlinge afhankelijkheid onder de deelnemers van het samenwerkingsverband een duidelijke taakverdeling?

Theme 4: Barriers faced while developing the collaborative network
4.1 Welke barrières/ tegenslagen zijn er sinds het oprichten van het samenwerkingsverband de revue gepasseerd?

4.2 Hoe is hiermee omgegaan? Welke concrete acties zijn genomen om ze op te lossen?

4.3 Zijn er momenteel nog tegenslagen of barrières binnen het samenwerkingsverband?

Theme 5: Conditions for successful collaboration

5A. Proximity:
1.1 Hoe vergelijkbaar zijn de organisaties binnen het samenwerkingsverband, wanneer men kijkt naar: normen en waarden, ongeschreven en geschreven regels, hiërarchie, cultuurverschillen binnen de organisatie? Hoe goed kent met elkaar binnen het samenwerkingsverband? Welke impact heeft dit op de samenwerking?

1.2 Hoe vergelijkbaar zijn de producten/de diensten van de organisaties binnen het samenwerkingsverband? Hoe vergelijkbaar is de benodigde kennis, ervaring, het materiaal, machines, et cetera? Welke impact heeft dit op de samenwerking?

1.3 Hoe dichtbij of ver weg zijn de verschillende actoren binnen het samenwerkingsverband van elkaar verwijderd, geografisch gezien? Welke impact heeft dit op de samenwerking?

5B. Successful collaboration:

    1.4 Is het samenwerkingsverband succesvol? Waarom?

    1.5 Is het samenwerkingsverband het waard om bij aangesloten te blijven? Is het de investering met geld, tijd en kennis waard?

    1.6 Welke condities zijn belangrijk voor het succes van het samenwerkingsverband? Welke voorwaarden zijn nodig om een goede samenwerking te creëren?

    1.7 Welke concrete acties worden er binnen het samenwerkingsverband ondernomen om de samenwerking binnen het samenwerkingsverband succesvol te maken?

Concluding questions

- Mag ik uw naam en toenaam gebruiken voor quotes in mijn masterthesis?
- [Wanneer er nog een tweede interview nodig is:] Welke collega of partner binnen het samenwerkingsverband zou ik nog meer kunnen spreken?
- Zijn er vanuit de kant van de interviewee nog vragen over het interview of mijn onderzoek?
- Zijn er vanuit de interviewee nog aanvullende opmerkingen over het thema? Zijn er inhoudelijk belangrijke punten vergeten?

Appendix 4. Coding process phase 1: orientation phase

The goal of the orientation phase of this research was to explore whether there was any collaboration at the IPKW or not at this moment in time. The interviewees were asked about their experience (see appendix 1: operational interview guide phase 1):

- If they experience a 'need for integration' (wanting to solve issues that the individual organisations cannot solve by themselves);
- Whether they experience a 'willingness to collaborate' with the other organisations located at the industry park and other institutions located outside of the industry park;
- The corporate sustainability goals of their company's: economic-, environmental- and social goals.

These three concepts were used as guidelines during the clustering of the open codes (table A2).

Open codes	Interviewee	Clustered codes
Huidige samenwerking met het IPKW: werken in de driehoek bevorderen	Erik Folgering, 10 April 2018	Example current collaboration IPKW (SEECE)
Toelichting betrokken partijen: de gemeente en bedrijven op- en rondom het IPKW zoals Qing.	Erik Folgering, 10 April 2018	Example current collaboration IPKW (SEECE)
Noodzaak samenwerking: de vaardigheden en competenties van studenten ontwikkelen.	Erik Folgering, 10 April 2018	Necessity of collaboration
Doelen SEECE: arbeidscapaciteit genereren voor techniek bedrijven in de regio.	Erik Folgering, 10 April 2018	Necessity of collaboration
Structureel partners met het IPKW in publiek-private samenwerking	Tinus Hammink, 26 April 2018	Example current collaboration IPKW (SEECE)
'Sustainable, electrical energy centrum of expertise': huidig samenwerkingsverband	Tinus Hammink, 26 April 2018	Example current collaboration IPKW (SEECE)
Clean Mobility Center Partners: 10 partijen.	Tinus Hammink, 26 April 2018	Example current collaboration IPKW (CMC)
Oprechte samenwerking Wederzijdse onafhankelijkheid Meerwaarde creëren	Tinus Hammink, 26 April 2018	Requirements of succesful collaboration
Samenwerking moet op organisatie – en persoonsniveau plaatsvinden	Tinus Hammink, 26 April 2018	Requirements of succesful collaboration
Rol IPKW: Kevin Rijke als trekker; het oprichten van een fabriekslocatie en kenniscampus; anderen inspireren.	Tinus Hammink, 26 April 2018	Position IPKW, their influence on collaboration

Toekomstdoelen samenwerkingen rondom het IPKW: faciliteiten behouden; met bedrijven samenwerken aan innovatie en onderzoek.	Tinus Hammink, 26 April 2018	Example current collaboration IPKW (SEECE and CMC)
Redenen voor samenwerken: veel van elkaar kunnen leren; dezelfde valkuilen hebben; niet allemaal het wiel uitvinden".	Kevin Rijke, 18 April 2018	Necessity of collaboration
Duurzaamheid doelstellingen IPKW: energie, gebouwen, afval, mobiliteit en mensen	Kevin Rijke, 18 April 2018	Sustainability goals IPKW
Huidige samenwerking op het IPKW: het kan altijd beter; vijf jaar geleden ontstond samenwerking toen wij een incubator startte.	Kevin Rijke, 18 April 2018	Current collaboration at and surrounding the IPKW
Huidige samenwerking op het IPKW – Voorbeeld: samenwerking CMC	Kevin Rijke, 18 April 2018	Example current collaboration IPKW (CMC)

Table A2. Coding process phase 1: orientation phase

Appendix 5. Coding process phase 2: data collection

Open codes* + interviewee numbers	Clustered codes
Incentives for collaboration	
"Niet alles zelf kunnen doen, doordat grote investeringen nodig zijn" (4) "Alleen kun je niets" (5, 6) "Alleen verander je niets" (10) "De energietransitie gaat zo hard, dit kunnen we niet alleen" (15, 16)	• *Unable to do everything as an individual organisation because of the necessary investments (4, 5, 6)* • *Unable to make an impact in this fast-changing world as an individual organisation (10, 15, 16)*
"Samenwerken met een groot bedrijf geeft kleine bedrijven geloofwaardigheid" (4)	• *Credibility created by collaborating with larger organisations (4)*
"De industrie verder helpen" (4)	• *Improving the industry (4)*
"Door samen te werken kom je tot betere oplossingen" (4) "Kennis bundelen" (19) "Je kan kennis en ervaring bundelen" (20, 21)	• *Sharing knowledge and experience (19, 20, 21)* • *Thinking of better solutions by combining your knowledge and experience (4)*
"Het is beter om goed te zijn in één onderdeel van de keten en de rest door samenwerking te doen" (5) "Om partijen uit de hele keten met elkaar te verbinden" (16) "Levert concurrentievoordeel op" (5)	• *Competitive advantage (5)* • *Collaborating with partners from the same supply-chain (5, 16)*
"Door langdurige samenwerking het bedrijf verder ontwikkelen" (6)	• *Business development through long-term collaborations (6)*
"Branding van de organisaties" (8)	• *Branding (8)*
"Machines en apparatuur uitwisselen" (8, 20, 21)	• *Sharing machinery and tools (8, 20, 21)*
"Je hoeft het wiel niet opnieuw uit te vinden" (9, 20)	• *No need to re-invent the wheel (9, 20)*
"Een sterkere stem hebben naar beleidsmakers, door gedeelde problematiek" (9)	• *Stronger position towards policy makers (9)*
"Innovatietrajecten samen doen" (9, 19)	• *Innovating together (9, 19)*
"Ideologische redenen: een positieve bijdrage leveren aan onze omgeving" (11)	• *Ideological reasons (11)*
"Je weet nog niet hoe de wereld van morgen eruit gaat zien" (14)	• *Uncertainty about the future (14)*
"Goed geschoold personeel krijgen" (15, 16, 17, 18, 19)	• *The human capital agenda (15, 16, 17, 18 and 19)*
"Gedeelde ambities" (24)	• *Shared ambition (24)*
Development phase (+ actions taken)	
"Er zit een volgorde in de stappen die je moet zetten om samen te kunnen werken" (13) "Het oprichten van een netwerk kost meer tijd dan je denkt, het heeft uitlooptijd nodig" (15)	• *"There is an order in the steps to take when intiating collaboration" (3)* • *"Creating a collaborative network takes more time than you realise" (15)*
"Samenwerken is een constant proces. Je moet je hoofd erbij houden" (13)	• *Collaborating is an ongoing process" (13)*

"Stap 1: wie hoort erbij? Stap 2: trekker aanwijzen. Stap 3: Identiteit bepalen en dit in het communicatieplan verwerken" (8) "Fase 1: je winkeltje op orde, alles inrichten op je 'why': know yourself. Fase 2: marktonderzoek doen: know the other. Fase 3: gas erop, gewoon doen" (10) "Actie 1: marktonderzoek doen (is er wel vraag naar dit product?). Actie 2: droomsessies organiseren voor de waarom" (11) Actie: "Ontbijtbijeenkomsten gehouden over, wat denk je van dit idee? Wil je meedoen?" (15) "Helder maken: 1. Waarom doe je mee? 2. Wat zijn de doelstellingen? 3. Gewoon doen" (15) "Allereerst: goed luisteren naar elkaars beweegredenen om samen te werken. Dan: een gezamenlijk doel formuleren en dit SMART maken: een tijdspad, de middelen die het mag kosten duidelijk afspreken" (16) "1. Heldere missie formuleren. 2. Communicatieplan maken. 3. Krachtig team bij elkaar brengen. 4. Doen, slagvaardig aan de slag" (18)	**Steps in creating a collaborative network:** • *Finding the 'why' – the reason to collaborate with each other (10, 11, 24)* • *Based on marketresearch: is there a need for this collaborative network? (10, 11)* • *Honestly sharing personal- and organisational reasons to join the collaborative network: why do you want to collaborate? What results do you envision for yourself and your organisation? (13, 15, 16);* • *Deciding: who should be a part of this network? Who should not? Who is missing? (8, 13, 15)* • *Select a leader (8)* • *Create a strong and initiative-rich team (18)* • *Formulate SMART goals (16)* • *Decide on a communicationplan (8, 18)* • *Do. Start with your projects et cetera (10, 18).*
"Eerst hebben we de droom vormgegeven, de 'why'. Eén verhaal hebben is heel belangrijk" (10) "Een goede intake is heel belangrijk: waarom willen mensen samenwerken? Kunnen ze dit wel?" (13) "Het is heel belangrijk om elkaar goed te leren kennen en helder te krijgen: waarom zit je erbij? Dit kost veel tijd" (15) "de beginvraag is: wat willen we bereiken?" (24)	**Actions:** • *Breakfast meetings (15)* • *Market research (10, 11)*

Pre-exisiting requirements (+ actions taken)	
"Er is iemand nodig die de fakkel draagt en zegt: hier gaan we heen" (4, 8)	• *The need for someone to be the driving force (4, 8)*
"Wederzijds respect op persoons- en organisatieniveau" (5)	• *Mutual respect for both the persons and organisations involved (5)*
"Goede relaties bouw je geleidelijk op" (5, 11) Actie: "Een samenwerkdag in het leven geroepen. Zodat mensen elkaar zien en het urgentiegevoel om samen te werken groeit" (14)	• *Strong relationships will develop over time (5, 11),* meaning it is not an pre-existing requirements
"Je moet intert als organisatie iets uit de organisatie kunnen halen" (8)	• *The collaborative network should bring something to the individual organisations (8)*
"Een duidelijk beeld van de markt hebben" (8)	• *Knowing the market (8)*
"Vertrouwen is heel belangrijk bij een cluster in wording – je wilt dat je je angsten kunt uitspreken" (9)	• *Trust – so you can talk about your worries and fears (9)*
"Commitment vanuit het top-management" (15, 22)	• *Commitment from the top-management (15, 22) to stimulate*

"Je moet makkelijk beslissingen kunnen nemen zonder 4 hierarchische lagen te doorlopen" (20) "Je moet dingen kunnen proberen, het initatief mogen nemen" (20)	*decision-making and initiative-taking, without the need to ask permission (20)*
"Capaciteit: goede mensen hebben, trekkers hebben in de organisatie" (15)	• *Capacity: the right people for the job (15)*
"FIT: het samenwerkingsverband moet passen bij het DNA van de organisatie" (15)	• *FIT: the collaborative network should fit the DNA of the individual organisations (15)*
"de behoefte om samen te werken is belangrijk" (17, 18) "Als je al druk bent en je hebt je plannen al gemaakt, dan heb je geen behoefte meer om samen te werken" (23)	• *The participants shouls experience the need and the desire to collaborate (17, 18, 23)*
"In de eerste plaats was er een vriendschappelijke relatie en een gedeelde passie" (20)	• *A shared passion and a good relationships pre-collaboration are helpful (20),* however not requirements specifically.
Barriers (+ actions taken)	
"Focus subsidieregelingen op techniekontwikkeling alleen; en niet ook de marktintroductie en het creëren van vraag" (4, 5)	• *Lack of financial resources caused by shortage subsidies for market introduction products (4, 5)*
"Te weinig trekkers en commitment van anderen" (12) "Onvoldoende betrokkenheid van de andere partijen" (12) "Verschillende niveaus van commitment i.v.m. concurrentie is lastig. Door het denken in bedreigingen en concurrentie in het begin" (8) "Wisselende commitment van partners" (16) "Andere prioriteiten hebben" (24)	• *Not enough /different levels of commitment from partners (12, 16) caused by competition between partners (8) or other priorities (24)*
"Onduidelijkheid over: wie hoort erbij?" (12)	• *Unclarity of which organisations should participate in the network (12)*
"Onvoldoende mensen van een individuele organisatie in een samenwerking. Het steunt teveel op 1-2 mensen, die mogelijk kunnen wegvallen" (15, 16)	• *Collaborative network resting on the shoulders of only 1-2 people from an organisation, creating risks when these people want to leave (15, 16)*
"Tijd en energie. Je moet echt keuzes maken en de focus houden" (10, 11)	• *Lack of time and energy (10, 11)* • Action: *focus on what is most important (10, 11)*
"Onvoldoende subsidie ontvangen" (12) "Financiën is wel een barriere" (21)	• *Lack of financial resources (12, 21)*
"Wet- en regelgeving (de opiumwet)" (12, 13) "De beleidsomgeving rondom het verstrekken van subsidies (staatssteun vermijden)" (15)	• *Limiting laws- and regulations (12, 13, 15)*
"De verschillende tempo's waarin mensen bewegen" (12)	• *Different desired timeframes among the participants (12)*
"Het gesprek aan een trekker of een proceseigenaar" (12)	• *Lack of leadership (12)*

"Conflict korte termijn – geld verdienen – versus lange termijn – goed geschoold personeel hebben" (16)	• *Conflict between short term and long term goals related to the level of commitment towards the network (16)*
"Bureaucratie van de HAN" (17, 18) "De logge organisatie maakt samenwerken lastig" (23)	• *Bureaucracy (17, 18, 23)*
"Onzekerheid van waar de markt naartoe gaat" (18)	• *Uncertainty of the market (18)*
"botsingen op persoonlijk vlak" (20, 21) Actie: "periodiek overleg organiseren en reglement creëren met afspraken erin" (20)	• *Problems between partners on a personal level (20, 21)* • Action: *discuss it during meetings and right down behavioural rules (20)*

Proximity (+ actions taken)	
"We kennen elkaar heel goed – zien elkaar wekenlijks, soms dagelijks. Dit maakt de samenwerking intensiever" (4, 12) "Het is belangrijk om elkaar goed te leren kennen" (14) "Elkaar goed kennen is heel belangrijk. Dan begrijp je beter waarop iemand reageert zoals hij/zij reageert. Je moet ook weten wat de verschillende bedrijven doen, zodat je elkaar beter kunt helpen. De communicatie wordt beter als je elkaar beter kent" (15) Acties: "samen eten, regelmatig overleggen, als voorzitters en bestuur elkaar vaak spreken" (15) "We kennen elkaar goed. Dat is belangrijk om sneller tot een gezamenlijk beeld van behoeftes en trends te komen" (17)	• *Knowing each other is important (14, 15, 17).* • *It makes collaboration more intensive (4, 12).* • *Understanding the way a person responds makes communication better (15); knowing the individual organisations makes it easier to help each other (15).* • *Knowing each other speeds up the process of clarifying the shared visions, requirements and trends (17)* • Action: *Eating together, have board meetings frequently (15)*
"Dicht bij elkaar zitten is fijn. We hebben zelfs overwogen om in hetzelfde pand te gaan zitten, maar daarvoor is het nu te vroeg" (4)	• *It is nice to be located closeby. We even considered moving to the same building, but it is too early for that at this point (4)*
"De organisatieculturen – de grondhouding van mensen - moeten bij elkaar passen" (4)	• *The organisation cultures – people their attitudes – need to fit (4)*
"Complementaire partners" (6, 8, 10, 11, 14, 18, 20) "Door complementaire kennis kun je elkaar goed aanvullen" (11) "We leren zoveel nieuws van elkaar hierdoor" (10) "We willen aanvullende partijen vinden om alle invalshoeken in een discussie te kunnen belichten" (15) "Veel verschillende soorten mensen en disciplines maken ons succesvol" (21)	• *Complementarity between partners (6, 8, 10, 11, 14, 18, 20) means adding value via different knowledge sets (10, 11) creating the opportunity to highlights different viewpoints in discussions (15). It is a reason for our success (21)*
"Heel verschillende bedrijven die met elkaar samen werken, met andere doelen en belangen. Dit is lastige samenwerking" (14) Actie: "Dit expliciet maken door het te bespreken met elkaar" (14)	• *Collaboration between many different organisations, with different goals and interests, can be difficult (14)* • Action: *Discuss differences openly (14)*

"TimeShift is in sommige dingen concurrent, maar de markt is zo groot dat dit niet geeft" (8)	• *Being competitors is not necessarily an issue, especially when demand is large enough (8)*
"Het gevaar van dichtbij elkaar zitten is dat je te veel onzin met elkaar gaat bespreken" (10)	• *The danger is being located close by is that you discuss a lot of irrelevant details together (10)*
"Wij whatsapp'en en Skypen heel veel met elkaar" (10)	• *We use WhatsApp and Skype a lot (10)*
"Er zijn verschillende type mensen in de organisatie. Afhankelijk van wie je spreekt heb je heel verschillende attituden. Dat merk je in de samenwerking" (4)	• *There are different kinds of people in the organisation. People with different attitudes. This is noticeable in the collaboration (4)*
"Het jaarritme van de andere partners, zoals het zesmaanden ritme van de HAN is lastig" (16, 19)	• *It is difficult that the partners have a different rhythm, for example the semester rhythm of the HAN (16, 19)*
"Het scheelt dat je naast elkaar zit. Hierdoor kun je gewoon even bij elkaar binnenlopen, zonder dat je dagen hoeft te wachten op een antwoord" (21)	• *It helps to be located next to each other. You can just walk in with a question, without having to wait days for an answer (21)*

Factors leading to successful collaboration (+ actions taken)

"Iedereen moet de overtuiging hebben dat je door intensieve samenwerking verder komt dan alleen (…) Dit leidt tot de bereidheid om kennis en informatie te delen" (4) "Het is lastig om de interne organisatie te overtuigen van het belang van het samenwerkingsverband, zeker in het begin – geen trackrecord" (16) "Je moet de toegevoegde waarde inzien van samenwerken" (23)	• *Everybody must be convinced that intensive collaboration adds value to the individual organisations (4, 23), since this creates the willingness to share knowledge and information (4).* • *Because of the lack of a track record, it is difficult to convince the internal organisation of the importance of the collaborative network (16)*
"Gezamenlijk einddoel" (4) "Gezamenlijk belang identificeren" (6, 7, 8) "Een helder doel hebben" (8) "Gemeenschappelijke thematiek en uitdagingen hebben" (9) "Het allerbelangrijkste is een punt op de horizon" (10) "Gezamenlijke ambities. Elkaar vinden op een thema waar je echt voor wilt gaan" (11) "Guiding Idea hebben" (13) "Gedeelde ambities helder hebben" (14) "Gezamenlijk beeld creëren" (15) "Gezamenlijke agenda" (17) "Doelgericht werken" (19) "Een eenzelfde visie hebben" (21)	• *Shared goals (4, 8, 11, 17, 19)* • *Shared vison (13, 14, 15, 21)* • *Shared interests (6, 7, 8)* • *Shared challenges (9)*
"Elke individuele partij moet meerwaarde kunnen creëren ten opzichte van de andere partijen" (4, 18) "Weten wat je aan elkaar hebt" (6)	• *Every individual organisation must add value (4, 5, 6, 16, 18). These added values must fit together (5).*

"Je moet kijken: welke toegevoegde waarde kan iedereen inbrengen? Dit moet bij elkaar passen". (5) "Wederzijdse waardencreatie" (16)	
"Actie: vertrouwen van het management en de aandeelhouders opgebouwd" (4)	• Action: *gain trust from the management and shareholders (4)*
"WIN-WIN samenwerking creëren (5, 6) "Wederkerig belang laten ontstaan" (12, 18) "Succesvolle samenwerking gaat over de WIN-WIN. Hoe kunnen we elkaar echt helpen?" (23) "Je moet echt kijken: wat is de WIN-WIN voor beide partners? Bij schaalgrootte verschil is het vinden van de WIN-WIN moeilijker" (24)	• *Create WIN-WIN collaborations (5, 6, 12, 18, 23)* • *It is more difficult for smaller organisations to create WIN-WIN collaborations with larger organisations (24)*
"Onderlinge afhankelijkheid" (5) "Onderlinge afhankelijkheid maakt het makkelijker om cultuurverschillen te overbruggen" (17)	• *Mutual dependence (5, 17) makes it easier to bridge culture differences between organisations (17)*
"Heel duidelijk zijn in wat je wel en niet wilt in een samenwerking" (5)	• *Be very clear about what you want and do not want in a collaboration (5)*
"Vertrouwen is essentieel in een samenwerking. Je moet open zijn, waarmaken wat je beloofd en een goede relatie opbouwen" (5, 21) Vertrouwen is alles. Je bouwt erop door. Acties: je afspraken nakomen, hulp bieden waar nodig is." (6, 9, 12) "Vertrouwen begint bij: belangen helder hebben, de persoonlijke en organisatie bedoelingen met het netwerk helder hebben en een bijdrage leveren die in balans staat met de gewenste resultaten" (18) Actie: "Gewoon doen. Vlieguren maken" (10) Actie: "Mensen bij elkaar brengen. Elkaars uitgangspunten delen" (12)	• *Trust is essential in a collaboration (5, 6, 9, 12, 21).* • Action: *Make true on your promises, offer help when necessary (6, 9, 12)* • Action: *Clarify personal- and organisational interests of the collaboration (12) and balance this with the level of investments of the individual partners (18)* • Action: *Built trust by working together (10)*
"Goed leiderschap is essentieel. Deze persoon gaat uit van de kracht van de ander en draagt de 'why' echt uit" (10) "Een goede leider of procesbegeleider die kijkt: wie heb ik aan tafel en waarom?" (15) "Een enthousiaste trekker is heel belangrijk" (17)	• *Good leadership is essential (10, 17). This person should count on the strength of others and carry out the 'why' of the collaboration (10). They should always check: who wants to join the collaboration and why? (15)*
"Het opbouwen van een groot netwerk is belangrijk" (14)	• *Building a large network is important (14)*
"De waarheid is kritiek in samenwerkingen" (6) "Dat je eerlijk kunt zijn over alles. Je problemen kunt delen zonder angst" (21)	• *Honesty is key in collaborations (6). You should be able to share your worries without fear (21)*
"Er moet goede commitment zijn. Het duurt wel even om dit te creëren" (7)	• *Good commitment is necessary. Creating this takes time (7)*
"Je moet oog hebben voor elkaars belangen" (14)	• *Know each other's interests (14)*
"Samenwerken moet ook leuk zijn. Het moet een leuke club mensen zijn" (6, 15) "Passende persoonlijkheden maakt samenwerken leuker" (17)	• *Collaborating should be fun (6, 15). A personal match makes collaboration more fun (17).*

"Gelijkwaardigheid tussen partners" (15, 18, 20, 23) en "wederzijds respect (15)	• *Equality among partners (15, 18, 20, 23) and mutual respect (15)*
"Een vast ritme van elkaar zien, om de vrijblijvendheid eruit te halen" (15)	• *Be sure to meet each other periodically (15)*
"Een neutrale setting of partij maakt problemen bespreekbaar" (17, 18)	• *A neutral setting or party makes problems negotiable (17, 18)*
"Elkaar te tijd en ruimte gunnen. Oog hebben voor elkaars beperkingen" (19)	• *Give each other time and space. Recognize each other's limitations. (19)*
"De juiste mensen aan tafel hebben is heel belangrijk" (20)	• *Find the right people (20)*
"De scheiding van taken en verantwoordelijkheden moet je heel duidelijk afstemmen" (5) "Heldere afspraken maken" (6) "We hebben een glasheldere rolverdeling" (10)	• *The division of responsibilities must be very clear (5, 6, 10)*

Other codes	
"Samenwerken is de sleutel tot succes" (4)	• *Collaboration is the key to success (4)*
"Grote bedrijven hebben een dominantere houding in een samenwerking, maar hebben wel alle expertise. Kleine bedrijven hebben minder ervaring, maar dan is er wel meer gelijkwaardigheid. Beide hebben voordelen" (5) "Ten opzichte van grote organisaties is onze standvastigheid heel belangrijk geweest. We hebben markt- en productkennis zelf in huis (6).	• *Large organisations adopt a more dominant approach to collaboration. Smaller organisations have less expertise, but make for a more equal collaboration. Both have plus points (5)* • *Our expertise and knowledge regarding the product and market, combined with our determination/steadiness, was very important while creating collaboration with Akzo Nobel (6)*
"Duidelijke contracten zijn belangrijk, maar eerst moet je alles goed en helder afstemmen" (5) "Vanuit de stichting hebben we met elke individuele partner een samenwerkingsovereenkomst" (15) "Van tevoren moet je zo min mogelijk focussen op het maken van contracten, dit kan wantrouwen creëren" (18) "Het is belangrijk om goede afspraken te maken en deze in een contract te zetten" (21) "In een contract staat: de scope van het contract, kosten en opbrengsten, liability claims, garanties, dat soort dingen" (23) "Hoe groter de partner, hoe formeler het contract" (23, 24) "Bij commerciële partners of publiek-private samenwerken voor het ontwikkelen van een product, is een overeenkomst heel belangrijk" (24) "De balans tussen het contract en de relatie is wel lastig. Wat is beter in een conflictsituatie? Waarmee moet je beginnen? Door de focus op	• *Contracts are important, but agreements should be met first in person (5), since focussing on contracts to much can create distrust and influence the relationship (18, 23)* • *It is very important to make agreements and write these down in contracts (15, 21, 24)* • *Signed agreements can clarify what each party means. Sometimes you think you agree, but by writing it down you can clarify the interpretations of each party (23)*

het contract kan je de relatie onder druk zetten" (23) "Contracten kunnen verduidelijken wat je bedoelt. Je kunt denken dat je hetzelfde bedoelt, maar door het op papier te zetten kom je er soms achter dat je eigenlijk iets anders denkt" (23)	
"Er is geen blauwdruk voor succes. Het kan zijn dat samenwerken niet lukt" (9)	• *There is no guideline for creating collaborations. Success is not guaranteed (9)*
"Kleine bedrijven geven niet graag inzage in hun problematiek, terwijl dit heel belangrijk is voor samenwerken" (9)	• *Small organisations do not like giving insight in the problems they face, while this is very important for collaborations (9)*
"De uitstraling van het IPKW en Kevin Rijke die helemaal voor duurzaamheid gaan, is heel belangrijk. Het levert ruimte voor ondernemerschap, iemand vertelt het verhaal in de regio and volgen subsidiemogelijkheden. Het IPKW is een heel waardevolle plek" (12) "De locatie IPKW is erg inspirerend. Door alle startups. Alle faciliteiten die je nodig hebt, zoals vergaderzalen, zijn er. Ze zorgen voor marketing en communicatie". (14) "Eerst zaten we ergens anders, maar we zijn hierin gegaan om dat het IPKW oprecht iets van dit terrein wilt maken" (8) "Door het IPKW wordt veel geschakeld. Kevin verbindt mensen aan elkaar. Ze organiseren borrels en dergelijke" (20)	• *The IPKW, with Kevin Rijke as CEO, is a very inspiring and important place. (12, 14, 8, 20). It creates a space for entrepreneurship (12), they connect people (20), with their marketing and communication strategies (12, 14) and with all the facilities at the industry park (14).*
"Het belang van een fysieke ontmoetingsplek moet niet onderschat worden" (14, 15) "Voor de herkenbaarheid en het samen-gevoel" (15) Actie: "daarom: huisvesting geregeld op het IPKW. Alleen via de mail werken gaat gewoon niet". (14)	• *The importance of a meeting place should not be underestimated (14, 15).* • Action: *created housing at the IPKW. Collaborating via e-mail is not an option (14)*

Table A3. Coding process phase 2: data collection

*The open codes are presented in Dutch for the purpose of not losing critical information in translation.