

Master thesis

PUBLIC-PRIVATE PARTNERSHIPS AS A MEANS TO IMPROVE THE SUSTAINABILITY PERFORMANCE OF BUSINESS PARKS: A CASE STUDY OF THE NETHERLANDS

Thomas Hazewindus

University of Twente:
MSc. Business Administration
Entrepreneurship, Innovation & Strategy

Technische Universität Berlin:
MSc. Innovation Management, Entrepreneurship and Sustainability

April 2024

Public-private partnerships as a means to improve the sustainability performance of business parks: A case study of the Netherlands

Thomas Hazewindus

This thesis is part of the double degree program of the University of Twente and the Technische Universität Berlin.

Master thesis in Business Administration

Track: Innovation, Entrepreneurship & Sustainability

University of Twente

Faculty of Behavioural, Management and Social Sciences (BMS)

Student number: S1831488

1st Supervisor: dr. Laura Franco Garcia

2nd Supervisor: dr. Martin Stienstra

Master thesis in Innovation Management, Entrepreneurship & Sustainability

Technische Universität Berlin

Faculty of Economics and Management (Faculty VII)

Student number: 0480419

Transitiemakers B.V.

Supervisors:

Lisa van Hout

Ruben Schutte

April 2024

**UNIVERSITY
OF TWENTE.**



Acknowledgements

In front of you lies my master thesis. This report is the product of several months of research. Over the last few months, I have learned a lot about the world of business parks, public-private partnerships, and sustainability. Fortunately, I got the opportunity to learn from several practitioners, and I am very happy that I got a first-row seat in several projects and that I could attend some interesting events. Overall, writing my master thesis was a very smooth and enjoyable process. There are several persons I would like to thank.

First, I am very grateful for the valuable lessons I learned from all the employees of Transitiemakers. Particularly Lisa van Hout and Ruben Schutte, for their guidance and feedback as company supervisors. Also, Jurian van der Waal, for connecting me with Transitiemakers. The business parks sector is a complex field, with many different stakeholders, applicable regulations, and challenges. All the people of Transitiemakers have been incredibly helpful in guiding me. By giving me insights into their daily tasks and projects, I was able to grasp the ins and outs of business parks, which has been super beneficial for the quality of my research and inspired me with ideas on where I want to start my career.

Second, I would like to thank dr. Laura Franco Garcia for her guidance as UT supervisor. I really appreciated her openness and willingness to help, during meetings as well as spontaneously. Her academic perspective helped me to shape and conduct research, which will hopefully prove to be relevant to practitioners and academia. Also, I would like to thank dr. Martin Stienstra for his valuable feedback, particularly for steering me in the right direction when I was writing my research proposal.

Last, I am very grateful to the 19 respondents that took time out of their busy schedules to let me interview them. The case studies are the core of this thesis, and without the interviews with the respondents they would be impossible. All the interviews were conversations that I enjoyed and provided me with relevant information for my thesis.

Finalizing my master thesis marks the end of my time as a student. I am incredibly happy to be able to look back at countless incredible memories I have made, as well as my personal development both in- and outside of the curriculum. The opportunity to study and live in Berlin was one of the highlights of my time as a student. Outside of the curriculum, I have learned a great deal from the opportunities the student life at the UT has given me, such as an active membership and board year at my study association, Stress, and representing other student's their interests as member of participation councils. I am grateful for the support I received from my girlfriend, family, flatmates, colleagues, and friends. I look forward to the next chapter in my life: Starting my career!

Thomas Hazewindus

Abstract

Business parks are vital to the economy of the Netherlands. They are the working place for almost one third of the nation's population. Simultaneously, the activities at business parks have a large ecological footprint. Therefore, they play a large role in the mitigation of and adaption to climate change. Business parks have complex governance models, at which public and private stakeholders are involved. Public-private partnerships (PPPs) are therefore crucial to deploy successful practices. They are defined as projects in which one or more public organisations cooperate with one or more private organisations to realise a common goal, where both private and public organisations commit resources, take on risks and divide revenues. At business parks, PPPs are the obvious form of cooperation to elevate sustainability performance. This thesis investigates how public-private partnerships at business parks in the Netherlands are organised to improve the sustainability performance of business parks and based on four case studies, provides a conceptual model on PPP practices at business parks.

First, document analyses were conducted on a sample of 14 documents to establish who the stakeholders within the governing body of business parks are. Second, the possible organisational forms of PPPs at business parks were established through a review of the literature on the organisational forms of PPPs in the Scopus and Web of Science databases and through document analysis on a sample of 10 documents from practitioners. Third, the perceptions of stakeholders involved in PPPs at business parks were investigated through 18 semi-structured interviews across the four case studies.

As part of the findings, it was possible to identify that entrepreneurs and municipalities are the main stakeholders of business parks. There is a wide array of possible organisation forms for the governing body of business parks, ranging from no formal organization form to separate legal entities. Besides the forms for the governing body, we listed several forms of organization for entrepreneurs and building owners at business parks. The perceptions of stakeholders involved in PPPs were mostly positive but did not suggest there is one superior form of PPP at business parks. Short and direct communication lines, orchestration and having a common goal were found as the main success factors for PPPs at business parks. This led us to conclude that there is not one organisational form for PPPs at business parks that is superior. Practitioners should encourage the entrepreneurs and building owners at business parks to unite themselves in an organizational form, they should look to include stakeholders that that can provide value to the PPP beyond the obvious stakeholders of business parks, and they should delegate the orchestrating role to one of the entrepreneurs.

The research done in this thesis shows that there is a gap in the literature on sustainability of business parks and governance structures. The findings built upon and expanded the systemic model of business parks created by Le Tellier et al. (2019). We confirmed the need to further conduct of quantitative research on PPPs at business park is necessary to draw conclusions for the entire population of business park. This study introduced a conceptual model and hypotheses that need to be tested in future research.

Keywords: Business parks, Public-private partnerships, Sustainability, Governing body

Table of Contents

Acknowledgements.....	2
Abstract.....	3
List of figures and tables	5
1. Introduction	6
1.1 Background	6
1.2 Problem statement	6
1.3 Research question.....	6
1.4 Outline.....	7
2. Theory	8
2.1 Business parks.....	8
2.2 Public-private partnerships.....	10
2.3 Theoretical contribution	12
3. Research design	13
3.1 Sub-question 1	13
3.2 Sub-question 2	14
3.3 Sub-question 3	15
3.4 Boundaries and limitations of the research.....	16
3.5 Ethical procedure	16
4. Findings	17
4.1 Stakeholders at business parks	17
4.2 Applicable types of PPP at business parks	21
4.3 Stakeholders' perceptions of PPPs at business parks	27
5. Discussion.....	37
6. Conclusion.....	42
References.....	43
Appendices.....	49
Appendix 1: Search strings and results	49
Appendix 2: Interview protocol and connections with literature (English)	50
Appendix 3: Code book for case studies	53
Appendix 4: Consent form for interviews	55
Appendix 5: Results document analysis stakeholder analysis sub-question 1	56
Appendix 6: Quantitative results of Regio Stedendriehoek case.....	57
Appendix 7: Quantitative results of De Trompet case	58
Appendix 8: Quantitative results of De Faktorij en De Vendel case.....	59
Appendix 9: Quantitative results of Kennispark Twente Case	60

List of figures and tables

Figure 1: Systemic model of a business park	8
Figure 2: The Spectrum of Public-Private collaborations	24
Figure 3: Schematic overview of stakeholders of the Trompet and their relations	31
Figure 4: Schematic representation of stakeholders of De Faktorij en De Vendel and their relations.	33
Figure 5: Schematic representation of stakeholders of Kennispark Twente and their relations	35
Figure 6: Conceptual model including hypotheses as recommendation for further research	40
Table 1: Overview of sub-questions	13
Table 2: Concepts and synonyms for search in Scopus and Web of Science	14
Table 3: Overview of analysed documents in sub-question 1.....	17
Table 4: Quantitative results of sub-question 1	18
Table 5: Exclusion criteria for literature review sub-question 2.....	21
Table 6: Overview of search procedure as part of literature review in sub-question 2.....	22
Table 7: Papers used in literature review sub-question 2	22
Table 8: Overview of analysed documents in practical part of sub-question 2	24
Table 9: Overview of inclusion criteria for cases in sub-question 3	27
Table 10: Overview of respondents and other data sources used in case studies in sub-question 3... ..	28

1. Introduction

In this chapter, the research is introduced by providing the background, problem statement, formulating the research question and giving an outline of the structure of the rest of the thesis.

1.1 Background

Our planet's climate is changing due to greenhouse gas (GHG) emissions from mobility, industry, and other human activities. As a result, people on Earth will be faced with increasingly extreme weather, such as heavy rainfall, extreme heat, and larger and more frequent storms (Calvin et al., 2023). GHG emissions need to be decreased drastically and soon to mitigate damages from climate change and societies need to adapt to a changing climate.

Business parks are defined as *“A tract of land developed and subdivided into plots according to a comprehensive plan with provision for roads, transport, and public utilities for the use of a group of industrialists”* (UNIDO, 1997).

Business parks in the Netherlands have complex governance models. Many stakeholders from both the public and private sector are involved in the process of improving the sustainable performance of a business park. Therefore, public-private partnerships (PPPs) are often used to realise this improvement. A PPP is defined as follows (Bult-Spiering et al., 2005): *“A project in which one or more public organisations cooperate with one or more private organisations to realise a common goal, where both private and public organisations commit resources, take on risks and divide revenues.”*

1.2 Problem statement

Business parks play a vital role in the energy transition and therefore climate damage mitigation. In the Netherlands, companies in the tertiary sector that are located on business parks consume 28 Peta (*10¹⁵) Joules (PJ) of gas and 34 PJ of electricity. 11,8 PJ of gas and 4,7 PJ of electricity can be saved (Nordkamp et al., 2021). Realising this potential would greatly benefit the national government's energy transition goals. Due to GHG emissions, business parks will be faced with increasingly extreme weather. Business parks have very little foliage that provide protection from the sun and help with the drainage of rainwater. In the Netherlands, only 1% of the total area of business parks consists of nature (Atlas Natuurlijk Kapitaal, 2023) Adapting the working environments at business parks to these changing weather conditions is vital, since almost one third of the total working population of the Netherlands works at a business park (Nordeman, 2019). Climate change has a negative impact on employee's productivity and health (Amoadu et al., 2023) (Morabito et al., 2020).

1.3 Research question

The aim of this study is to contribute to the body of knowledge of governance at business parks. Very little research has been conducted on this topic (for an overview of the used search strings to come to this conclusion, and their results, see Appendix 1). There is a larger body of research on the governance of industrial parks. Although industrial parks and business parks have many similarities, industrial parks are parks with mostly heavy industrial activities. These are less common in the Netherlands, where most business parks consist of companies that are mostly active in the tertiary sector (Lambert & Boons, 2002). Lambert & Boons (2002) introduced the concept of *“mixed industrial parks”* which are defined as: *“industrial activities, mainly small and medium-sized enterprises, which are concentrated in dedicated areas, of a very diverse nature with no or little coupling of production processes”*. The industrial park research mainly concerns the coupling of production processes to each other by using the output of one process as the input to the other. Therefore, the industrial park research does not fully cover the situation of business parks and additional research on business parks is necessary. In practice, stakeholders of business parks are both public and private parties and these parties must

cooperate to make business parks more sustainable. This is the case due to laws which dictate the responsibilities of each party, as well as the ownership of buildings (private), land and roads (public). On many business parks, PPPs are already applied.

The research question of this study is:

“How can public-private partnerships be organized for business parks in the Netherlands to improve their sustainability performance?”

This question cannot be answered immediately. First, it is necessary to identify who the relevant players at business parks are and what the possibilities for cooperation are. Last, we can see what cooperation form is most suitable by measuring the perceptions of stakeholders in such cooperations. Therefore, the main research question can be divided into three sub-questions:

1. Who are the stakeholders of business parks?
2. What type of public-private partnerships can be applied at business parks?
3. How do stakeholders of business parks perceive public-private partnerships in projects that aim to make business parks more sustainable?

1.4 Outline

This thesis is structured as follows: After the introduction, the relevant theories for this research are identified and presented in chapter 2. Subsequently, the research methods that this research employs to answer the research question and sub-questions is explained in chapter 3. Chapter 4 displays the results, these are interpreted and discussed in the discussion and conclusion section in chapters 5 and 6, respectively.

2. Theory

This chapter contains a review on the literature on the sustainability of business parks, as well as the literature on PPPs which is relevant to business parks. When there is insufficient literature on business parks, literature on industrial parks is used.

2.1 Business parks

In literature, there are several ways to refer to the concept of business parks. Besides business parks, researcher use the terms “mixed-use ecopark” (Le Tellier et al., 2019), “mixed industrial park” (Lambert & Boons, 2002). For clarity, we will the term “business park” in this research.

There are several models of industrial parks available in the scientific literature. Lambert & Boons (2002) introduced a model which mainly focuses on industrial symbiosis and process integration. Because business parks in the Netherlands mainly host companies that are active in the tertiary sector, industrial symbiosis and process integration are not the right concepts to use as a basis for this study. Le Tellier et al. (2019) created a systemic model to describe business parks. This model is the most suitable to use as a basis for describing the relations between stakeholders at business parks in the Netherlands. In their model, the researchers present several players (See figure 1):

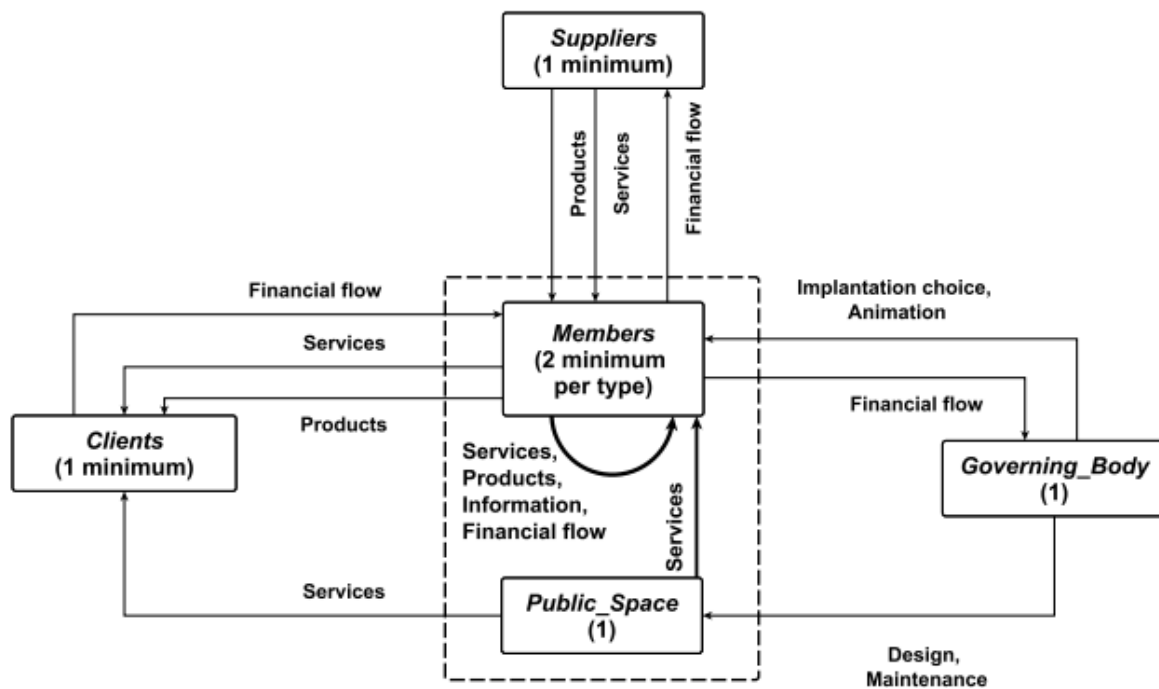


Figure 1: Systemic model of a business park. Source: Le Tellier et al. (2019)

The governing body is the decision maker for the development of the business park. Its decisions are aligned with a predefined strategy. The governing body consists of several actors with individual goals. The body consists of public and/or private investors, planners, and local governments. The governing body should initiate collaboration between the members of the business park. Since the members of business parks are typically private parties and the governing body (partly) public, this collaboration is public-private per definition.

There are two subsystems in the model. The first is the members subsystem. This subsystem has two types of players, company, and building. It is important to differentiate between the two since building owners can have different objectives than entrepreneurs.

Company describes the private firm, its employees but not the physical space it occupies on the business park. A company at a business park is typically in the tertiary sector (services) but can also be in the secondary sector (production).

Building describes the building and infrastructure at the land at business parks. In some cases, when a company owns the building and is the only company in a building, the two roles are very similar. In many cases, however, companies rent space in a building and share this building with several other companies. Alternatively, a company can be divided over multiple buildings with multiple owners.

The second subsystem is the public space. The publicly owned green areas, parking, roads, and networks are part of this subsystem. The companies take advantage of the services provided by the public space, at the cost of taxes and fees they pay to the governing body. The governing body is responsible for maintaining the public space and making changes to the design to make it sustainable.

The environment of the business park consists of two players, suppliers, and clients. Suppliers provide companies with products and services and receive a financial flow in return. The outputs created by companies flow towards clients, in the shape of products and services. Companies receive a financial flow from clients in return. The suppliers and clients can also take advantage of the services provided by the public space.

The system can display two different behaviours: operation and transformation. In operating mode, the system meets its objectives. We can see this as the “business as usual” behaviour. When objectives are not met, the system is in transformation mode. When a business park is transforming, players in the system are changing their structure by adopting a new strategy or changing regulations. The objectives of a business park can be categorized by the three pillars of the triple bottom line, namely environmental, social, and economic objectives (Elkington, 1998).

2.1.1 Sustainable business parks

Due to exogenous pressures, mostly related to climate change, the level of the objectives business parks need to meet has risen. There are several policies that dictate that business parks need to become more sustainable, such as the European Green Deal (European Commission, 2019). The concept of industrial symbiosis, in which neighbouring companies from separate industries exploit synergies offered through a collective approach to exchange and share materials, energy, water and byproducts, are realized at eco-industrial parks (Chertow, 2000). Many of the synergies that can be exploited at eco-industrial parks cannot be exploited at business parks, however. Business parks can make use of some of the synergies with regards to energy, and, to a smaller extent, materials. Furthermore, areas for improvement that are indicated by stakeholders at business parks are sustainable architecture and urban planning and shared services to employees (Le Tellier et al., 2019). In practice, energy synergies are for instance realised through collective production of renewable energy connected to a private electricity grid. Sustainable architecture and urban planning are realised through measures such as using high-performance building materials, green roofs and by preserving biodiversity. Shared services to employees are connections to public transport, making bicycles available for internal transport and using large spaces with 24-hour access (Atwa et al., 2017).

2.1.2 Governing bodies of business parks

To improve the sustainability of business parks, the role of the governing body is vital. To create and exploit synergies, cooperation between the members of the business parks is necessary. In Le Tellier’s (2019) model, the governing body needs to initiate this cooperation. Furthermore, changes in the design of the public space are often necessary to meet the objectives of the system and go from the transformation back into the operation mode.

To keep the system in the operating mode, the changes that the governing body makes to the public space need to not only meet the sustainability objectives, but also need to be in line with the wishes of the members of the business park. Therefore, it is important to involve members in the decision making in the design process. Besides the firms and building owners, local research institutions, consumer and environmental and citizen groups should also be involved (Korhonen, 2001). When (almost) all these groups work together towards the goal of making business parks more sustainable and commit resources to it, such changes match the definition of PPPs by Bult-Spiering et al. (2005).

2.2 Public-private partnerships

In many Western European countries, PPPs are a policy instrument that is often applied type of governance network. According to Bult-Spiering et al. (2005), a PPP consists of the following elements:

- One or more public actors
- One or more private actors
- Cooperation between the public and private actors
- The realisation of a common goal
- In an organised manner
- Dedicated resources from both sides
- Risks taken by both sides
- A division of profits or benefits

Besides these elements, there are several conditions that need to be met for PPP to be the preferred means of cooperation. PPPs must (Bult-Spiering et al., 2005):

- be aimed at achieving synergies or added value
- serve societal as well as commercial goals
- not conflict with the identities and goals of the public or private actors within the cooperation
- have an agreement about the division of the added value, dedicated resources, and acceptance of risks

When the elements and conditions above are combined into one definition, PPP is defined as:

“A project in which one or more public organisations cooperate with one or more private organisations to realise a common goal, where both private and public organisations commit resources, take on risks and divide revenues.”

2.2.1 Opportunities of PPPs

There is a large body of literature on the promises of PPPs, these opportunities can be summarised in three categories. In practice, these opportunities are also realised, since there is quantitative evidence that a higher degree of PPP leads to better process and content outcomes of projects (Steijn et al., 2011).

First, increased efficiency. The total cost of projects tends to be lower when PPPs are used (Savas, 2000), although transactions costs are higher due to the more intense cooperation between partners (Williamson, 1996). These should not be higher than the cost savings in other areas.

Second, more added value. PPPs often are about bringing multiple separate projects together and provide the opportunity to create a “master plan” in which the separate projects can be integrated into one coherent project. This way, value of the product or service that private parties provide will strengthen those of the public parties and vice-versa (Steijn et al., 2011).

Last, more innovation. Public and private parties have different areas of expertise. In PPPs, they can bring these different areas together to create more innovative solutions (Huxham & Vangen, 2005). This way, PPPs can help business park systems to return from the transition mode back into the operation mode.

Market parties are driven by competition and have the objective to maximise profits. Often, they do not consider the costs of externalities, leading to market failure. Because the costs of externalities are not considered, investments in sustainability are often considered to be infeasible. In such a case, government ownership is a means to mitigate the negative externalities. However, governments operate at a lower efficiency and sometimes do not have the capacity to fulfil tasks, meaning economic surplus is also not optimal; Government failure occurs. PPPs mitigate the downsides of market and government ownership and minimize the risk of market and government failure (World Bank Group, 2013).

2.2.2 Obstacles of PPPs

The largest obstacles for PPPs are contracts, resources, objectives, structure, commitment, and environment (Rybnicek et al., 2020).

Contractual obstacles are found in the negotiation phase, mostly related to the length and costs of negotiations. These can be mitigated by using a planned and staged negotiation process (Forrer et al., 2010).

Resource obstacles refer to issues regarding finance, staff, and time. Financially, the risk lies in underestimating initial costs of PPP, which happens due to the financial complexity of such partnerships (Zhang, 2005). These can be mitigated by using control mechanisms according to the standard of the OECD. Staff issues tend to occur due to both a lack of quality and availability of staff. These risks can be minimized if partners support each other in recruiting or by using external advisors (Liu & Wilkinson, 2014). The different time horizons of public (long) and private (short) partners can be troublesome for PPPs (van Ham & Koppenjan, 2001). Providing incentives to complete projects in time through reward for on-time delivery and penalties for late deliveries are a means to mitigate this risk (Davis, 2005).

Aside of different time horizons, public and private parties have different objectives, which is a risk for the success of PPPs. Private partners aim to maximise profits, whilst public partners aim to increase public services and create jobs (Ruuska & Teigland, 2009). This is a difficult risk to mitigate, therefore clearly communicating goals to each other at an early stage is vital.

Structure wise, Van Ham & Koppenjan (2001) state that partners in a project have difficulties carrying out their different roles and responsibilities, particularly when certain roles are not clearly defined. At the beginning of a project, roles should clearly be defined to mitigate this.

In PPPs, public and private partners create mutual objectives based on their own objectives, which are often different from each other. Sometimes, partners have difficulties committing to the mutual objectives (Fourie & Burger, 2000). Like the issue of time, these risks can be mitigated. (Financial) incentives can be created to fulfil the mutual objectives (Nisar, 2013).

Environmental risks are another important risk for PPPs. These risks are often difficult to mitigate. Examples of such risks are political risks (Currie & Teague, 2009) and extreme weather conditions (Little, 2011).

2.3 Theoretical contribution

As discussed earlier, there is not much literature available on applying PPPs at business parks for sustainability purposes (see Appendix 1). The research intends to build upon the model of Le Tellier et al. (2019), particularly to enrich the knowledge about the role of, and interactions with the governing body. Using case studies, this research has gathered in depth data on a sample of business parks to serve as a basis for a future quantitative study which uses statistical methods on a larger dataset. Within the research area of PPPs, it is the first research that goes into depth about how they can be applied at business parks.

3. Research design

This chapter describes the methodology that was used in the master thesis, the way samples were chosen, the type of data that was collected and the method that was used to collect and analyse this data for each of the sub-questions that are part of the research question. Table 1 displays an overview of the sub-questions and methods.

Table 1: Overview of sub-questions

Question number	Question	Collection method	Target group
Sub-question 1	Who are the stakeholders of business parks?	Document analysis	Consultancy reports, governmental documents, student theses
Sub-question 2	What types of PPPs can be applied at business parks?	Document analysis and literature review	Consultancy reports, governmental documents, academic papers
Sub-question 3	How do stakeholders of business parks perceive PPPs in projects that aim to make business parks more sustainable?	Case studies: Semi-structured interviews and document analysis	Stakeholders of business parks and policy documents

3.1 Sub-question 1

Le Tellier et al. (2019) has included several stakeholders in his model but does not clarify which stakeholders make up the governing body. The first sub-question, “Who are the stakeholders of business parks?” was answered using document analysis. Document analysis is a systematic method for evaluating documents. Its goal is to extract meaning, create understanding and develop empirical knowledge (Bowen, 2009). According to Yin (2014), documents analysis can be done from several sources. These are written reports of events, administrative documents, formal studies, articles, and personal documents. The strengths of document analysis are that documents can be reviewed repeatedly, are unobtrusive, in other words, they are not created as a result of the case study, are specific and broad (Yin, 2014).

3.1.1 Data collection and sample selection

The sample of documents from which the data to answer the first sub-question was made up out of documents from consultancy firms, public organisations and academic theses that conduct stakeholder analysis at business parks as part of projects. Several databases were used to gather the documents in the sample. For the consultancy reports and publications from public organizations, searches on Google were conducted. The initial search string was: “*Bedrijventerreinen*” AND “*Stakeholders*”. From there, papers were manually added through snowballing. The most important inclusion criterion for the documents was the presence of a stakeholder or actor analysis. For the theses that are part of the sample, thesis repositories of universities in the Netherlands were used. The only search term that was used in these repositories was “*Bedrijventerreinen*”. Like the consultancy reports and publications from public organizations, the presence of a stakeholders or actor analysis was used as an inclusion criterion. As for the publication date, for both types of documents only publications that were published after 2010 were considered, because older documents are outdated. An overview of the analysed documents can be found in table 3 in chapter 4.

3.1.2 Data analysis

The documents were analysed through using thematic analysis, using the program ATLAS.ti. ATLAS.ti is a qualitative data analysis software program and provides tools for coding, categorizing, and exploring data. The codes that are applied are a mixture of codes that follow from theory, codes referring to governmental organisations and manually added codes that do not fit in the first two groups. The theoretical codes followed from the model of Le Tellier et al. (2019).

3.2 Sub-question 2

The second sub-question, “What type of public-private partnerships can be applied at business parks?” was answered from a theoretical and a practical perspective. The theoretical perspective was executed by conducting a literature review. There is very little literature on PPPs at business parks. Search strings that combine the concepts of PPPs, business parks and sustainability in databases with academic papers give almost no results (see appendix 1). Therefore, literature on organizational forms of PPPs and organizational forms at business parks was used. The practical perspective was executed through document analysis on reports and articles from industry.

3.2.1 Data collection and sample selection

Literature from the Scopus and Web of Science was used to answer the theoretical part of sub-question 2. The following search was done:

Table 2: Concepts and synonyms for search in Scopus and Web of Science

Concept	Synonyms
Public-private partnerships	PPP, public-private partnership, public private partnership, public private partnerships
Organizational forms	Organizational form, organisational form, organisational forms
Business park	Business park, Mixed industrial parks, Mixed industrial park, mixed-industrial park, eco-industrial park

Search string:

((("Business parks" OR "Business park" OR "Mixed industrial parks" OR "Mixed industrial park" OR "mixed-industrial park") AND ("Organizational forms" OR "Organizational form" OR "Organisational form" OR "Organisational forms")) OR (("PPP" OR "public-private partnership" OR "public-private partnerships" OR "public private partnership" OR "public private partnerships") AND ("Organizational forms" OR "Organizational form" OR "Organisational form" OR "Organisational forms")))

Using inclusion and exclusion criteria, the number of papers was decreased in such a way that the relevant ones for this research remained. The criteria can be found in table 7 in chapter 4.2.1.

The sample of documents that was used to answer the practical part of sub-question 2 consisted of news articles, web pages of business parks, entrepreneurial associations, and lobby organizations. An overview of the analysed documents can be found in table 8 in chapter 4.2.2.

3.2.2 Data analysis

For every paper that is left from the search in Scopus and Web of Science after applying the inclusion and exclusion criteria, the types of organizational form were documented. Subsequently, the terms which overlap were combined. The output of the theoretical part of sub-question 2 consists of descriptions of several organizational forms of PPPs from the literature.

The sample of documents that make up the practical perspective were analysed and the organisational forms they suggest were documented. Like the theoretical part of this sub-question, when different terms are used for an organizational form with the same characteristics, these terms were merged into one type of organizational form.

Lastly, the outputs of the theoretical and practical part were compared. Where possible, we matched the organizational forms found in papers with the ones found in practice.

3.3 Sub-question 3

The third sub-question, “How do stakeholders of business parks perceive public-private partnerships in projects that aim to make business parks more sustainable?” was answered using a multi-case study approach. The unit of analysis in the case study is the public-private partnership. With this, we refer to the individuals that are either contributing to, or are impacted by, an initiative to improve the sustainability performance of business parks. Such initiatives can be on the local level at one business park but can also encompass multiple business parks in a municipality or region.

3.3.1 Data collection and sample selection

The cases were chosen using a judgmental sampling approach. Judgmental (or purposive) sampling is a non-probability sampling method. In this method, participants are chosen deliberately due to the qualities they possess (Nikolopoulou, 2022). The reason for this is that out of the more than 3800 business parks in the Netherlands, at only 20% the stakeholders have organised themselves (De Kort & Gradussen, 2023), and the transition to sustainable business parks is going slowly, since 11,8 PJ (10¹⁵) of gas and 4,7 PJ of electricity can still be saved. Furthermore, participation in this research required a significant time investment of the respondents, therefore there was a risk that essential stakeholder would not cooperate. In sum, a random sample was not suitable for this study, since it was very likely that the participants will not have made any achievements with regards to improving the sustainability performance of business parks or are not willing to participate in the research.

The sample consists of four cases. The first case is the PPP in the Stedendriehoek Region. This case was included because it concerns a PPP at the regional level. Partnerships at levels that above the local level have the potential to stimulate innovations at several business parks at the lower level, in line with the promises of PPPs as described by Huxham & Vangen (2005). The second case is the PPP at business park De Trompet. This case was added for two reasons. First, the involvement of the environmental service and a local vocational school (in line with the suggestions of Korhonen (2001)) makes this case interesting for this study. Second, the business park is located in the Metropole Region Amsterdam in the West of the Netherlands. To describe the situation of business parks in the Netherlands, it is important to include PPPs from different regions. The third case is the PPP at business park De Faktorijs en De Vendel. This case was added to the sample, because the role collaboration between members at the business park was initiated by an entrepreneur. This is in contrast with the model of Le Tellier et al. (2019), who state that this should be done by the governing body. It is interesting to research what the effect of this is on a PPP. The fourth case is the PPP at Kennispark Twente. This case was included, because of its proximity to a university. In the Netherlands, such business parks are called ‘science parks’, and for this study it is interesting to research how these differ from other business parks in the Netherlands.

For each case, the most important stakeholders identified through the document analysis were interviewed. Data was collected using semi-structured interviews, face-to-face, if possible, otherwise via a (video-)call. The interview followed the structure that is set in the interview guide, which varied slightly for each stakeholder and/or case. Respondents were asked about their experiences with PPPs at business parks. The interviews were recorded and transcribed. The questions in the interview guide

mostly followed from relevant concepts identified in the literature in chapter 2. The standard interview guide and how it relates to the literature can be found in appendix 2.

3.3.2 Data analysis

The transcripts of the interviews were coded by using ATLAS.ti. The codes that were applied followed from literature and where concepts from literature did not cover the response of a participants, codes were manually added. The frequency of each code together with interesting quotes from participants were used to draw conclusions. An exhaustive list of the applied codes can be found in appendix 3.

3.4 Boundaries and limitations of the research

This research is about the sustainability performance of business parks in the Netherlands. The data that is gathered (aside of the academic literature) is exclusively about the Netherlands. The findings of this research are unlikely to be generalizable to other geographical areas, due to differences in legal, governmental, cultural, and socio-technical systems.

The aim of this study is to gain a deeper understanding of the application of PPPs at business parks in the Netherlands. To achieve this, this research uses qualitative research methods. As mentioned in chapter 2.3, this study serves as a basis for a further quantitative study. Due to the relatively small sample size that comes with qualitative studies, as well as the judgmental sampling approach, the findings of this study cannot be generalized for the entire population of PPPs at business parks in the Netherlands. For this to be the case, further research using quantitative methods on a representative sample of PPPs at business parks needs to be conducted.

3.5 Ethical procedure

This research follows the guidelines of the ethical procedure of the BMS faculty of the University of Twente. The researcher has sent a proposal to the ethical committee of the faculty, and the ethical faculty has approved this proposal.

The documents and literature that are used to collect data to answer sub-question 1 and 2 mostly come from public sources. However, some of the documents are confidential. Since they provide valuable data, they are a part of the sample. To ensure that the data from these confidential documents cannot be led back to the people or organisations that they are about, this report does not contain an appendix with the codes that are applied to each document. This way, the content of the confidential documents can be used in such a way that the confidentiality is not breached.

To answer sub-question 3, interviews were conducted. Before conducting the interview, respondents were informed of the conditions of the interview. At the beginning of the interview, the researcher introduced the research, asked for consent to record the interview, and informed the respondent about the confidentiality of their answers. The conditions under which the respondents agreed to participate can be found in the consent form in appendix 4.

4. Findings

In this chapter, the findings from the methods introduced in chapter 3 are introduced. The chapter is structured based on the sub-questions of this research. Chapter 4.1 concerns the findings of sub-question 1, chapter 4.2 contains the findings of sub-question 2 and chapter 4.3 provides the findings of sub-question 3.

4.1 Stakeholders at business parks

4.1.1 Sample and results from document analysis

An overview of the analysed documents can be found in Table 3.

Table 3: Overview of analysed documents in sub-question 1

Author	Documents selected	Data analysed	Type	Link
Arcadis et al. (2020)	Onderzoek naar het vergroenen van bedrijventerreinen	Motives (p. 15-16)	Consultancy report	Link 1
Arts (2012)	De ontwikkeling van nieuw bedrijventerreinenbeleid	Actors case Park management Breda (Ch 5.2, figure 5.2)	Thesis	Link 2
Arts (2012)	De ontwikkeling van nieuw bedrijventerreinenbeleid	Actors case Kranenmortel Deurne (Ch. 6.2, figure 6.2)	Thesis	Link 2
Bult et al. (2018)	Gebiedsstrategie Kennispark Twente	Full document	Business park's strategy	Link 3
Dekker et al. (2021)	Planologische en juridische instrumenten voor klimaatbestendige bedrijventerreinen in Oost-Brabant	Actors business parks (Ch. 2.3)	Consultancy report	Link 4
Gemeente Veenendaal (2024)	Green Deal Verduurzaming Bedrijventerreinen Veenendaal	'Overwegingen'	Contract	N/A ¹
GreenBiz IJmond (2023)	Maatschappelijk jaarverslag GreenBiz IJmond 2022	Preface	Annual report	Link 5
Houwing (2012)	Duurzame bedrijventerreinen: Een analyse van kansen en (on)mogelijkheden	Actor analysis (Ch. 7)	Thesis	Link 6
Macke (2022)	Groenblauwe bedrijventerreinen: Hoe betrokken partijen dit samen aan kunnen pakken	Climate change: Parties	Sectoral organisation report	Link 7
MVO Nederland (2020)	Desk Study: Natuurlijk Kapitaal op bedrijventerrein	Stakeholder categories (Ch. 3) Role of governmental institutions (Ch. 4)	Sectoral organisation report	Link 8

¹ This document can be requested via the [municipality of Veenendaal](#)

Nordkamp et al. (2021)	Eindrapportage verduurzaming bedrijventerreinen	Actors (Ch. 4.3, figure 4.2)	Consultancy report	Link 9
RLI (2023)	Samen werken: Kiezen voor toekomstbestendige bedrijventerreinen	Execution of recommendations (Ch. 6)	Advisory report	Link 10
Rotensen (2013)	De aanpak van leegstand op bedrijventerreinen	Actors business park (Ch 2.6)	Thesis	Link 11
Transitiemakers (2022)	Stakeholdersanalyse Programmaniveau EBD35	Table 1	Consultancy report	Link 12

Table 4 below displays the outcomes of the document analysis. The column ‘Code Group’ corresponds to the players in the model of Le Tellier (2019). For all the documents in table 3, we documented which stakeholders are mentioned by the authors. For example, the environmental service was mentioned by GreenBiz IJmond (2022), Nordkamp et al. (2021) and RLI (2023). Therefore, the frequency for this stakeholder is 3 out of 14 document (21%). The complete results of the document analysis, including the codes which were applied for each document, can be found in appendix 5. The value of applying the codes lies in that they give information about how often a certain stakeholder is part of the governing body. Le Tellier et al. (2019) does not elaborate on this. The remainder of this chapter elaborates on the roles of the most important stakeholders.

Table 4: Quantitative results of sub-question 1

Code	Code Group	Frequency	Percentage
Municipality	Governing body	14	100%
Entrepreneur	Company	11	79%
Entrepreneurial association	Company	10	71%
Province	Governing body	9	64%
Public investors	Governing body	9	64%
Park management	Governing body	8	57%
Building owner	Building	7	50%
Consultancy firm	Other stakeholders	6	43%
Public space	Public space	6	43%
Employees	Company	5	36%
Regional governmental organisation	Governing body	4	29%
Education and research institution	Other stakeholders	4	29%
Inhabitants of surrounding neighbourhoods	Other stakeholders	4	29%
Chamber of Commerce	Governing body	3	21%
Environmental service	Governing body	3	21%
National government	Governing body	3	21%
Private investors	Governing body	3	21%
Water board	Governing body	2	14%
Electricity network operator	Other stakeholders	2	14%
Clients	Clients	2	14%
Planners	Governing body	1	7%
Economic board	Other stakeholders	1	7%
Energy cooperation	Other stakeholders	1	7%
Lobby group	Other stakeholders	1	7%

Real estate agents	Other stakeholders	1	7%
Suppliers	Suppliers	1	7%

4.1.2 The most important stakeholders

In this chapter, the roles, interests, and instruments of stakeholders that were in more than 25% of all documents in the document analysis are elaborated upon.

Municipality

Municipality was mentioned in all fourteen documents and is therefore considered as one of the most important stakeholders. They are usually the owner of the public space at business parks. Several departments are involved in the governance of business parks. For example, the economic, traffic, climate adaptation, energy transition and ecology departments. Their interest is to increase the public service level and create jobs. They can use legislation, financial instruments, advice, and organising power to fulfil their interests.

Entrepreneur

Although not mentioned as a stakeholder in all documents, entrepreneurs that own a business on a business park are often considered as the main stakeholders of the business parks. Their main interests are their market, employees, image and production, storage, and transport facilities. In sustainability projects, their main interest is the payback time of investments. Sometimes, the entrepreneur is also the owner of the building. In this case, the role of entrepreneur and building owner overlap.

Entrepreneurial association

On some business parks, entrepreneurs have organized themselves in an entrepreneurial association. This is a separate legal entity, which aims to serve the interests of the entrepreneurs at a certain business park, municipality or in some cases a region. Their main instruments are their organisational power and network. Sometimes, the building owners are also part of the entrepreneurial association, but there are also cases where they form a separate association.

Province

Provinces in turn play an important role in the accessibility of business parks, since they are responsible for a large part of the mobility. Moreover, they decide if and where business parks can be built or extended, they make structural plans which municipalities use when they make zoning plans. They are also involved in the regional energy strategy (RES), which dictates which energy sources will be used in each region.

Public investors

Public investors are investment companies with public shareholders that aim to strengthen the economy and to create jobs in the region in which they are active. They use financial resources as instruments.

Park management

At some business parks, a park manager is employed, usually by the entrepreneurial association. Their responsibility and interest is keeping the park safe and of high quality. The amount of interest park managers are paying to the sustainability of the park they work on is increasing. They use the budget and mandate that is given to them to realise their goals.

Building owner

Building owners are an important stakeholder to consider, particularly on business parks where the ownership of most of the buildings does not lie with the entrepreneurs. If an entrepreneur wants to make an investment in the sustainability of their building, they need the building owner to consent and to make the investment. Building owners are often investors who aim to maximize the return on

their investment, therefore their primary interest is the value of the building. Besides this, they aim to minimize the damages to their property. Investing in climate adaptation is a means to mitigate these damages.

Consultancy firm

Consultancy firms are often called upon to aid in realising projects that aim to increase the sustainability performance of business parks. Consultancy firms bring several resources to such projects that the stakeholders do not have in house. Entrepreneurs often cannot afford to spend time on projects that are unrelated to their company's core processes or they lack the knowledge about topics related to sustainability on business parks. Governmental organizations also call upon consultants in projects often, mostly when they lack the knowledge about certain topics to realise them. Consultancy firms are private firms with profit maximization as their main objective, although delivering keeping a positive image is also vital, which delivering high quality projects strongly contributes to.

Public space

The public space is one of the players in Le Tellier's (2019) model. The public space is not a person or organization, nevertheless it is often written about in the sample of documents. Because it is not a (legal) person, the public space has no interests or instruments. Still, it is an important stakeholder, because the condition of the public space is of great importance to the other stakeholders (see figure 1), and the stakeholders within the governing body need to cooperate in such a way that the public space serves the interests of the all the players in the model. To realise this, the municipality needs to closely cooperate with the province and park management. In some cases, cooperations with building owners can be undertaken to improve the status of the public space and privately owned buildings in one project.

Employees

Employees are part of the company player in Le Tellier's model. Their main interest is a healthy working environment, which is well connected to the transportation network. A green work climate is positively related to work meaningfulness (Gusmerotti et al., 2023) Their main instrument is that they can switch jobs when they are not satisfied with their working environment. Since human capital is vital for companies, employees are an important stakeholder for entrepreneurs.

Education and research institutions

Education and research institutions are a stakeholder that can take on several roles at business parks. First, they prepare students to join the job market. Through close collaboration with entrepreneurs, educational institutions can design their programs to meet the needs of employers. Second, the knowledge that is produced by research institutions can be applied to improve the sustainability performance of business parks. Third, business parks that are near education institutions can cooperate with each other by forming science parks. Science parks are business parks where higher education institutions, municipalities and the private sector cooperate in a triple helix, with the goal of stimulating innovation.

In sum, the interests of education and research institutions is to contribute to increasing the sustainability performance of business parks and stimulating innovation. The instruments used are knowledge created by and human capital educated at the institutions.

Inhabitants of surrounding neighbourhoods

Inhabitants of surrounding neighbourhoods their main interest is a healthy living environment, this can be hindered by the emissions from operations of businesses at a business park. Their main

instrument is their right of appeal at the municipality or other governmental institution when they do not agree with the approval of a request for a permit from an entrepreneur or other stakeholders. In some cases, inhabitants of surrounding neighbourhoods also work at the business park. In that case, their interests and instruments overlap with those of the employees.

4.2 Applicable types of PPP at business parks

4.2.1: Theoretical perspective

To answer the theoretical part of sub-question two, a systematic literature review was conducted. In the first part of this chapter, the search process is elaborated on, and the final list of papers is listed. The second part states the findings of these papers.

Process and suitable literature

The search string that was introduced in chapter three was put into two databases, Scopus, and Web of Science. Subsequently, exclusion criteria were applied. The exclusion criteria can be found in table 5.

Table 5: Exclusion criteria for literature review sub-question 2

Criterion type	Exclusion criteria	Explanation
Language	Not English/Dutch	The researcher can only read paper written in Dutch or English
Publish date	Published before 2010	The aim is to examine the state of the art, papers written before 2010 are often outdated. Seminal papers written before 2010 can be added manually
Subject area	Not Business, Management and Accounting, Decision Sciences, Earth and Planetary Sciences, Economics, Econometrics and Finance, Energy, Environmental Science, Multidisciplinary or Social sciences (Scopus) Not Agricultural Economics Policy, Business, Business Finance, Communication, Economics, Engineering Environmental, Engineering Industrial, Environmental Sciences, Environmental Studies, Green Sustainable Science Technology, Management, Operations Research Management Science, Public Administration, Regional Urban Planning, Social Sciences Interdisciplinary or Urban Studies (Web of Science)	Not all subject areas in Scopus and Web Of Science are relevant to this research.
Document type	Conference papers and editorial papers	Papers from conferences need more revision to be of sufficient quality, editorial papers are an introduction and do not sufficiently go into depth

Journal quality	Journals with CiteScore <1.5	Only papers from high quality journals are interesting for this research
-----------------	------------------------------	--

Next, duplicates that appeared in both databases were deleted from the Web of Science list, as well as articles for which the full paper was not accessible. At this point, 29 articles remained. A schematic overview of the search process can be found in table 6.

Table 6: Overview of search procedure as part of literature review in sub-question 2

Date of Search	Search terms	Scope	Number of articles
Scopus			
22-2-2024	1	Article title, Abstract, Keywords	50
Web of Science			
22-2-2024	1	Topic	36
Total			86
Exclusion Criteria			-16 (Scopus) -13 (Web of Science)
Duplicates (papers that appear in Scopus as well as WOS search)			- 19
Full article not available			- 9 (Scopus) - 0 (Web of Science)
Excluded after scanning/reading abstract			-8 (Scopus) -2 (Web of Science)
Added afterwards			0
Excluded after reading article			-7
Total			12

After first scanning and removing the irrelevant articles, and subsequently removing some articles after further reading, 12 papers were left at the end of the process. and the list of 12 papers can be found in table 7. The findings from the papers are elaborated on in the next section.

Table 7: Papers used in literature review sub-question 2

Author (Year of publication)	Title
Caldwell et al. (2017)	Social Value Creation and Relational Coordination in Public-Private Collaborations
Chowdhury (2018)	Public-Private Partnerships, Commitment and X-Inefficiency
De Paula et al. (2023)	Public-Private Partnerships in Urban Regeneration Projects: A Review
George et al. (2023)	Partnering for Grand Challenges: A Review of Organizational Design Considerations in Public-Private Collaborations
Hodge & Greve (2017)	Contemporary public-private partnership: Towards a global research agenda

Kort et al. (2016)	In search for effective public-private partnerships: An assessment of the impact of organizational form and managerial strategies in urban regeneration partnerships using fsQCA
Kort & Klijn (2011)	Public-private partnerships in urban regeneration projects: Organizational form or managerial capacity?
Quelin et al. (2019)	The private scope in public–private collaborations: An institutional and capability-based perspective
Rwelamila et al. (2015)	Addressing the missing link in PPP projects: What constitutes the public?
Shaoul et al. (2012)	Accountability and corporate governance of public private partnerships
Sharafanova et al. (2017)	Regional labour market: Forecasting the economic effect of cooperation between universities and entrepreneurs
Steijn et al. (2011)	Public private partnerships: Added value by organizational form or management?

Highlights

There is discussion amongst scholars about the importance of organizational forms of PPP. According to Hodge & Greve (2017), research should concentrate on finding optimal institutional arrangement to best govern PPP contracts in the medium and long term, since long-term PPP contracts are becoming more common. Kort & Klijn (2011) state that the cooperation form is of limited importance to the achieved outcomes of PPPs, and that too much focus on this topic carries the risk of overlooking the necessity of good management and hard work.

There are several perspectives on possible organizational forms for PPPs. According to Steijn et al. (2011), four different forms of PPP can be distinguished: no organizational form, project group, project organization and an autonomous legal entity. The project group is the most common form.

In a very recent paper, George et al. (2023) expand on this by introducing eight forms and placing each form on a spectrum from public bureaucracies to private firms (see figure 2). On the public side of the spectrum, corporatization and aggregation refer to organizational forms where private resources, usually staff, are used by public parties to improve efficiency. In case the costs of the project are expected to outweigh the (monetary) benefits, private parties will not commit to the project. Therefore, corporatization and aggregation are the only two options of PPP (Chowdhury, 2018). In such a case, private firms can still contribute to the goal of public parties, but they will not engage in a form of cooperation where the outcome is uncertain. Instead, private parties provide their (regular) service to the public party for a fee. In the hybrid public-private part of the spectrum, a public service is provided to society by public parties together with private ones. A variant of this are concession contracts, in which a private company can operate a certain construction, product, or service for a fixed period. An often (particularly in the United Kingdom) applied form of concession is the private financial initiative (PFI), in which extensive contractual documentation for the relationships and financial flows between all partners are necessary (Shaoul et al., 2012). In urban regeneration projects, flexibility and manoeuvrability throughout the project can be hindered in hybrid public-private partnerships by contract rigidities (De Paula et al., 2023). The private part of the spectrum concerns private initiatives that are supported by public parties. By themselves, such initiatives are not sufficiently profitable for private parties to execute. Supply-side support and demand side support from public parties incentivize private parties to undertake such initiatives.

Kort et al. (2016) found that there are three dimensions along which organisational forms of PPPs in urban regeneration companies differ. The three organizational principles are arm's length, tightness,

and discretionary powers. Arm's length refers to the degree to which political entities control the PPP. Discretionary powers refers to the degree to which the partnership can make its own decisions. Tightness refers to the level of cooperation, namely the four levels of cooperation identified by Steijn et al. (2011).

The Spectrum of Public–Private Collaborations.

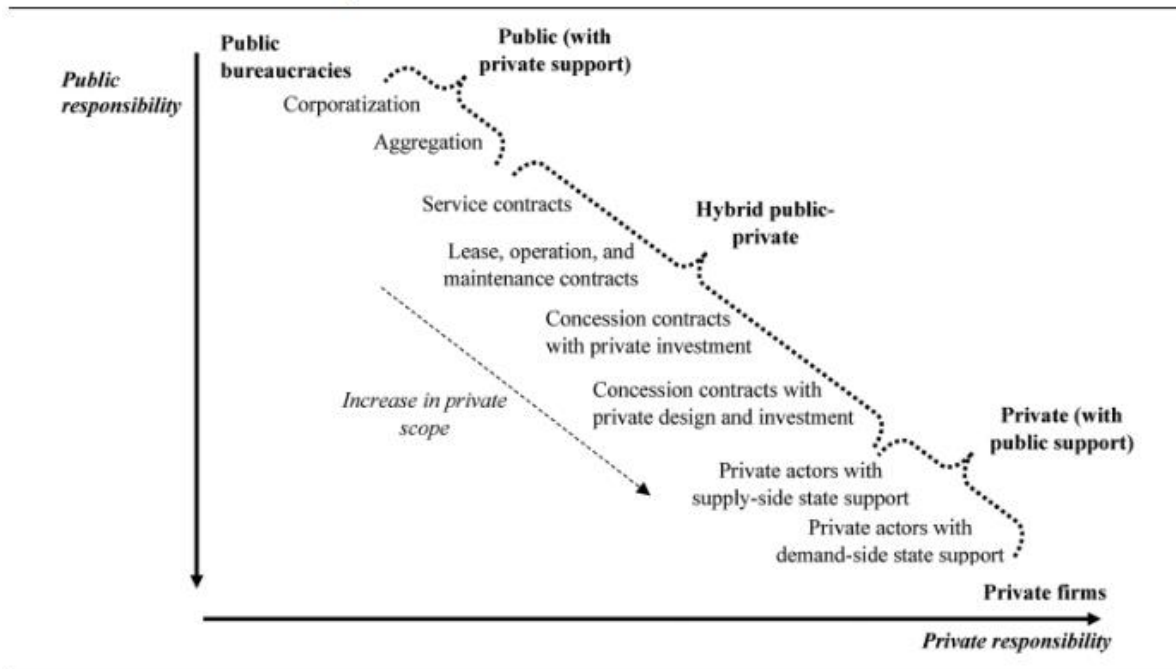


Figure 2: The Spectrum of Public-Private collaborations. Source: George et al., (2023)

Several researchers have identified success factors for PPPs. These are organizational experience (Caldwell et al., 2017) and prior experience on the private side with PPPs in regions with high-quality institutions (Quelin et al., 2019). Furthermore, Rwelamila et al. (2015) found that the three main success factors of PPPs are a strong and highly competent private sector, commitment from governmental organisations and a policy framework which favours PPPs.

Lastly, public-private partnerships with higher education institutions and entrepreneurs can create human capital added value (Sharafanova et al., 2017). When entrepreneurs and schools cooperate, the schools can set up their curricula in such a way that demand for labour from companies is fulfilled in an optimal manner.

4.2.2: Practical perspective

The sample of documents that was used to answer the practical part of sub-question 2 consisted of news articles, web pages of business parks, entrepreneurial associations, and lobby organizations. An overview of the analysed documents can be found in Table 8.

Table 8: Overview of analysed documents in practical part of sub-question 2

Author	Documents selected	Data analysed	Type	Link
Ay (2024)	Bedrijventerrein: Waarderpolder	Entire document	Showcase	Link 1
Bult et al. (2018)	Gebiedsstrategie Kennispark Twente	Full document	Business park's strategy	Link 2

Gemeente Veenendaal (2024)	Green Deal Verduurzaming Bedrijventerreinen Veenendaal	'Overwegingen'	Contract	N/A ²
GreenBiz IJmond (2023)	Maatschappelijk jaarverslag GreenBiz IJmond 2022	Preface	Annual report	Link 3
De Kort & Gradussen (2023)	Governancemodellen op bestaande bedrijventerreinen in Nederland	Chapter 3 and 4	Consultancy report	Link 4
Kuijper (2022)	De kracht van collectiviteit op Ecofactorij	Full webinar	Webinar	Link 5
Nordkamp et al. (2021)	Eindrapportage verduurzaming bedrijventerreinen	Chapter 2, 3 and 4	Consultancy report	Link 6
Rethink Zero (2023)	Bedrijventerrein Pannenweg II	Entire document	Showcase	Link 7
RLI (2023)	Samen werken: Kiezen voor toekomstbestendige bedrijventerreinen	Chapter 5	Advisory report	Link 8
Van Hout & Werkman (2024)	Regionaal samenwerken aan verduurzaming van bedrijventerreinen in Regio Foodvalley	Entire document	Showcase	Link 9

Several practitioners pay significant attention to the way in which the private stakeholders of the PPP have organised themselves. This is important for the public side of the PPP, since it is undesirable for municipalities to make agreements with every single entrepreneur (Nordkamp et al. 2022). Currently, entrepreneurs have organised themselves in some way at only 20% of the business parks in the Netherlands.

The most common form of organisation is an entrepreneurial association (Kort & Gradussen, 2023). The Dutch Council for the Environment and Infrastructure advised the national government in a recent report to make it compulsory for entrepreneurs at business parks to organise themselves in an entrepreneurial association by 2030 (RLI, 2023).

Another means of organising is through a cooperative. A cooperative is a mixture of an association and a company. It differs from an association in the sense that it is allowed to return profits to its members (Kort & Gradussen, 2023). Cooperatives are often set up to counter energy transmission congestion. Transmission congestion is a large problem for businesses at business parks, since many projects require a larger electricity connection, which is often not available in the current grid (Netbeheer Nederland, 2024). Many energy cooperatives aim to solve this problem by decentrally organising energy supplies. An example of a cooperative at a business park is the Ecofactorij in Apeldoorn (Kuijper, 2022).

Furthermore, there are several other methods for entrepreneurs to organise themselves. First, a business investment zone (BIZ). In a BIZ, all entrepreneurs and/or owners at a business park pay for the costs of the improvement of the park. A BIZ is a PPP, facilitated by the municipality. The municipality

² This document can be requested via the [municipality of Veenendaal](#)

collects an extra tax from the members of the business park, which they subsequently return to the members in the form of a subsidy. The municipality oversees the cooperation. The BIZ creates a budget for a pre-determined period, usually five years. The returned subsidies are spent according to the budget plan. Examples include business parks Schiebroek (AY, 2024), Waarderpolder (Rethink Zero, 2022) and business parks in the IJmond region (GreenBiz IJmond, 2023). Second, municipalities and entrepreneurs can agree to charge an advertising tax which is charged from entrepreneurs and returned to a fund which can be used by entrepreneurs to collectively arrange security at a business park or to invest in measures that improve the sustainability performance (De Kort & Gradussen, 2023). In practice, this is applied in Veenendaal at business park De Faktorij en De Vendel (Bedrijvenkring Ondernemend Veenendaal, n.d.) (Gemeente Veenendaal, 2024).

To facilitate and execute the agreements, companies at a business park can decide to appoint a park manager. The park manager is tasked with communication with the members and the other stakeholders of the business park. A park manager is typically financed by the entrepreneurial association but can also be (indirectly) paid by the public authorities via a subsidy (De Kort & Gradussen, 2023).

Education and/or research institutions play a role in several PPPs in the Netherlands. In the IJmond region, a vocational school developed a new study programme to educate students to advise companies on how to improve their sustainability performance. As part of their studies, students do internships at the companies located at business parks in the region (GreenBiz IJmond, 2023). In Enschede, the University of Twente cooperated with the municipality and entrepreneurs in a triple helix to create an integral strategy for the business park that is located next to the university. The business park is managed by a public-private organization set up and financed by the municipality, entrepreneurs, and university (Bult et al., 2018).

In some regions in the Netherlands, PPPs to improve the sustainability performance of business parks have been formed at the regional level. In most cases, such PPPs aim to provide stakeholders at the local level with the required knowledge to execute projects. There are PPPs in which the private sector makes use of the knowledge of the public sector and vice versa (Nordkamp et al., 2021). In the IJmond region, the knowledge of the regional environmental service is applied to help business parks improve their sustainability performance. In Overijssel, expertise from private parties is made available to entrepreneurs through financing by the province. Areas of expertise include solar panels, energy efficiency and climate adaptation. In the Foodvalley Region, the lessons learned at the local level are bundled, with the aim of spreading them to other business parks within the region (Van Hout en Werkman, 2024).

4.2.2 Comparison of theoretical and practical findings

Many theoretical findings concern PPPs as part of infrastructure projects, their findings often cannot be applied at business parks, for example all the types of concession contracts on the spectrum of PPPs of George et al. (2023) and the PFI introduced by Shaoul et al. (2012) are not applicable to business parks. This confirms that PPPs on business parks are an overlooked topic in literature, and that more research on them is necessary.

Several forms of public-private partnerships that were found in the literature were also found in practice. Sharafanova et al. (2017) describe the potential human capital added value that can be gained by creating PPPs between universities and entrepreneurs. In practice, we found two variations on this: A triple helix PPP where a university, entrepreneurs and the municipality form a partnership (Bult et al., 2018), and a PPP in which a vocational school is involved (GreenBiz IJmond, 2023).

De Paula et al. (2023) found that contract rigidities risk can stand in the way of flexibility in PPPs. This risk is particularly large for PPPs in which a BIZ is applied. The nature of the BIZ requires entrepreneurs to make multi-year budgets for the business park at which they are situated. Ideas that are formed after the budgeting process cannot be executed during the budget period of the BIZ. This, in combination with the short time horizon that entrepreneurs typically use (van Ham & Koppenjan, 2001), forms a risk to the effectiveness of the BIZ as a PPP on business parks.

Steijn et al. (2011) introduce four levels of cooperation for PPPs, ranging from no organizational form to a separate legal personality. If the Dutch government decides to adopt the advice of RLI (2023), by 2030 the private side of all PPPs will have the shape of a separate legal personality, most likely an association. The practical findings contain examples of formalized PPPs, such as the BIZ and cooperations. Other PPPs take a more informal approach, such as the regional PPP (Van Hout & Werkman, 2024) and the initiative in the province of Overijssel.

In sum, there are several methods of PPP that stakeholders at business parks can apply, and there is no superior method that should be applied in all cases. In line with the findings of Kort & Klijn (2011), the form of cooperation cannot replace the necessity for good management and hard work. Therefore, it is important to further go into depth about PPPs at business parks to examine how stakeholders of PPPs experience partnerships at business parks.

4.3 Stakeholders' perceptions of PPPs at business parks

4.3.1 Introduction to case studies

To answer sub-question 3: 'How do stakeholders of business parks perceive public-private partnerships in projects that aim to make business parks more sustainable?' four case studies have been conducted. An overview of inclusion criteria can be found in table 9 below.

Table 9: Overview of inclusion criteria for cases in sub-question 3

Inclusion criterion	Regio Stedendriehoek	De Trompet	De Faktorij en De Vendel	Kennispark
Energy transition as main goal of PPP			X	
Involvement of education/research institution		X		X
Cooperation at the regional level	X		X	
Formal cooperation through a BIZ		X		

Case 1: Regio Stedendriehoek

The Regio Stedendriehoek is a region in the East of the Netherlands. The region encompasses the eight municipalities of Apeldoorn, Brummen, Deventer, Epe, Lochem, Voorst and Zutphen. The public side of the PPP consists of representatives from the eight municipalities and the provinces Gelderland and Overijssel. The private side consists of representatives from VNO-NCW, which is an employer's organization, a representative from PVB Nederland, which is a national network of business parks and several entrepreneurial associations. This case concerns a PPP at the regional level. Regio Stedendriehoek is one of 30 RES (Regional Energy Strategy) regions in the Netherlands. Currently, there are only 6 regions in the Netherlands at which a PPP with the goal of improving the sustainability performance of business parks exists at the regional level (PVB Nederland, 2024).

Case 2: De Trompet

De Trompet is a business park in Heemskerk. Heemskerk is located in the region IJmond, in the western part of the Netherlands. The business park opened in 2001. When it opened, it was the most sustainable business park in Europe (Keuchenius, 2022). The municipality and entrepreneurs at the business park closely cooperate with GreenBiz IJmond, a regional public-private partnership which aims to stimulate sustainable development in the IJmond region. The public side of the PPP consists of civil servants of the municipality of Heemskerk, employees of GreenBiz IJmond (which also work for the environmental service of the Region IJmond) and the NOVA college. The NOVA college is a vocational school. The school has developed a study program together with partners in the PPP in which they educate students to advise companies to improve their sustainability performance (NOVA College, 2023). The private side of the PPP consists of entrepreneurs and the entrepreneurial association at the business park. The entrepreneurs have organized themselves in the form of a Business Investment Zone (BIZ). A BIZ is a zone on a business park of shopping area, in which the entrepreneurs collectively pay an extra tax to the municipality, which the municipality then returns as a subsidy to the foundation or association in which the entrepreneurs have united themselves (Rijksdienst voor Ondernemend Nederland, n.d.). The board members of GreenBiz IJmond are also mostly entrepreneurs in the region and therefore also part of the private side of this PPP.

Case 3: De Faktorij en De Vendel

De Faktorij en De Vendel is a business park in the north of Veenendaal. Veenendaal is a municipality in the East of the province Utrecht. Veenendaal is part of the RES region Regio Foodvalley. At the local level, the entrepreneurs recently started an energy cooperation. At the municipal level, the municipality, and representatives of the business parks in Veenendaal signed a green deal at the beginning of 2024. At the regional level, a regional team has started a pilot to explore the possibility to create a smart energy hub at six business parks in the region. De Faktorij en De Vendel is one of them. The public side of the PPP consists of the municipality of Veenendaal. The private side of the PPP consists of entrepreneurs at the business park, they have united themselves in an entrepreneurial association at the municipal level.

Case 4: Kennispark

Kennispark is a business park in the west of Enschede, a municipality near the German border in the East of the province Overijssel. Kennispark is close to the University of Twente, and the governance structure of the park consists of a triple helix construction in which the university, municipality and entrepreneurs at the business park cooperate. This construction started in 2018 with the launch of a new strategy for the business park, which was written by parties from all three sides. Before 2018, there was a public partnership between the university and the municipality, the role of entrepreneurs was a lot smaller. The entrepreneurs have set up a new entrepreneurial association in 2021. In this association, both entrepreneurs and building owners can join as a member.

4.3.2: Data sources

For every case, semi-structured interviews were conducted with stakeholders at the business park. Additionally, for some cases, documents or other data were analysed. An overview of the data sources per case can be found in table 10 below. In total, 18 semi-structured interviews were conducted.

Table 10: Overview of respondents and other data sources used in case studies in sub-question 3

Case	Type	Organization	Function/comment
Regio Stedendriehoek	Interview	Entrepreneurial association Lochem	Board member
	Interview	Municipality Lochem	Policy advisor climate and energy

	Interview	Province Gelderland	Account manager working locations
	Interview	PVB Nederland	Program Secretary
	Interview	Regio Stedendriehoek/Advisory company	Program manager regional economy
	Interview	VNO-NCW	Project manager
De Trompet	Interview	Entrepreneurial association De Trompet	Secretary and entrepreneur at business park
	Interview	NOVA College	Programme director and Internship coordinator
	Interview	Environmental Service IJmond	Project leader
	Interview	GreenBiz IJmond	Chairman
	Interview	Municipality Heemskerk	Advisor economic affairs
	Report	GreenBiz IJmond	Annual report 2022 (GreenBiz IJmond, 2023)
De Faktorij en De Vendel	Interview	Municipality Veenendaal	Project manager energy
	Interview	Regional entrepreneurial association	Vice-chairman
	Interview	Entrepreneurial association Veenendaal	Board member and entrepreneur at business park
	Interview	Large company at business park	Account manager
	Interview	Consultancy company	Project leader
	Contract	Municipality Veenendaal and entrepreneurial association	Green Deal Verduurzaming Bedrijventerreinen Veenendaal (Gemeente Veenendaal, 2024)
Kennispark	Interview	University of Twente and core team Kennispark	Project leader
	Interview	Municipality of Enschede	Senior project manager
	Recorded interview	Municipality of Enschede	(Former) alderwoman (1Twente, 2021)
	Policy document	Steering group area development Kennispark	Area development strategy (Kennispark, 2018)

4.3.3 Results per case

Regio Stedendriehoek

The quantitative results of the respondents for the Regio Stedendriehoek case can be found in appendix 6.

The main resources that have been dedicated to this PPP so far are staff and time. Not many financial resources have been dedicated so far, this is expected to happen soon, however. The risks of participating in this PPP are largest for the public stakeholders. A representative from the regional governmental organisation said: *“The public side of the PPP is tasked with creating the organizational capacity and maintaining this capacity.”* For all respondents, the main goal of participating in the PPP was increasing added value for their organisation. The initiative of this PPP came from the private side, according to the regional governmental organisation: *“The initiative was bottom-up from Transitmakers, the entrepreneurial association supported the idea at an early stage.”* The PPP at the regional level interacts with cooperation at lower levels, as well as higher levels. At the lower level they

interact with initiatives at business parks, who they supply with information from other initiatives at the local level. The regional PPP also interacts with the national level, via the organisation PVP Nederland. The idea of setting up a regional followed from research efforts by several organisations that are active at the national level. At the time of the interviews, there was not yet any formal organisation, but the participants of the PPP aim to form a project group soon.

Most of the respondents mentioned they encountered structure obstacles in the process. A public servant from the province of Gelderland said: *“There are several possibilities to finance projects, but these subsidies are often not compatible with each other.”* The commitment of entrepreneurial associations is another large obstacle. A representative from the entrepreneurial association in Lochem said that *“The involvement of entrepreneurial associations is very scattered, most of them never show up, because there is no time, attention or interest.”* This shows that commitment from the private side of the PPP can be an obstacle in the future, and that this is partially related to insufficient resources (time) on the private side. Because the PPP is at an early stage, no significant results have been achieved yet.

Regarding the success factors, short and direct communication lines are perceived as vital. A public servant from the municipality of Lochem said: *“The people around the table have known each other for a longer period, and this is a large advantage. It helps when you can easily reach each other to exchange ideas.”* Another success factor is orchestration, according to the employee of the regional organisation: *“To realise such cooperations you need an individual who is willing to take the lead, to dedicate time and energy to make it a success. This person should connect the required people with each other and call the right people at the right time.”*

De Trompet

The quantitative results of the interviews with the respondents can be found in appendix 7. Figure 3 displays a schematic overview of the stakeholders of the PPP and their relation.

The stakeholders at De Trompet have close links with the PPP at the regional level which is called GreenBiz IJmond. The initiative for this PPP came from the private side, namely from an entrepreneur who was looking to bundle initiatives to exploit synergies with regards to energy. For most of the participants, the goal their organization intends to achieve with the PPP is to realise an innovative solution. A representative from the municipality of Heemskerk said: *“We aim to realise innovative solutions at De Trompet such as the waste separation hub in such a way that they can be copied in the rest of the region.”* At the regional level, the environmental service plays a large role. Legally, an environmental service is tasked with licensing permits, supervision, and enforcement (OmgevingsdienstNL, n.d.). In the IJmond region, the environmental service was given additional budget by the municipalities, which, according to the environmental service, is used to take on a “stimulating supervisory” role. This means that besides correcting companies that are not operating in line with the regulations, the environmental service also advises entrepreneurs who have the ambition to improve their sustainability performance on how they can realise their ambitions.

In 2022, the participants in the PPP at De Trompet realised a waste separation hub at the business park (GreenBiz IJmond, 2023). As a result of this, outputs from processes that companies at the business park will not use are now picked up at a higher frequency at a lower cost. An entrepreneur at the park said the following: *“We found out that on a weekly basis, there were eleven different waste collection services active at our park, we agreed that we had to decrease this”.*

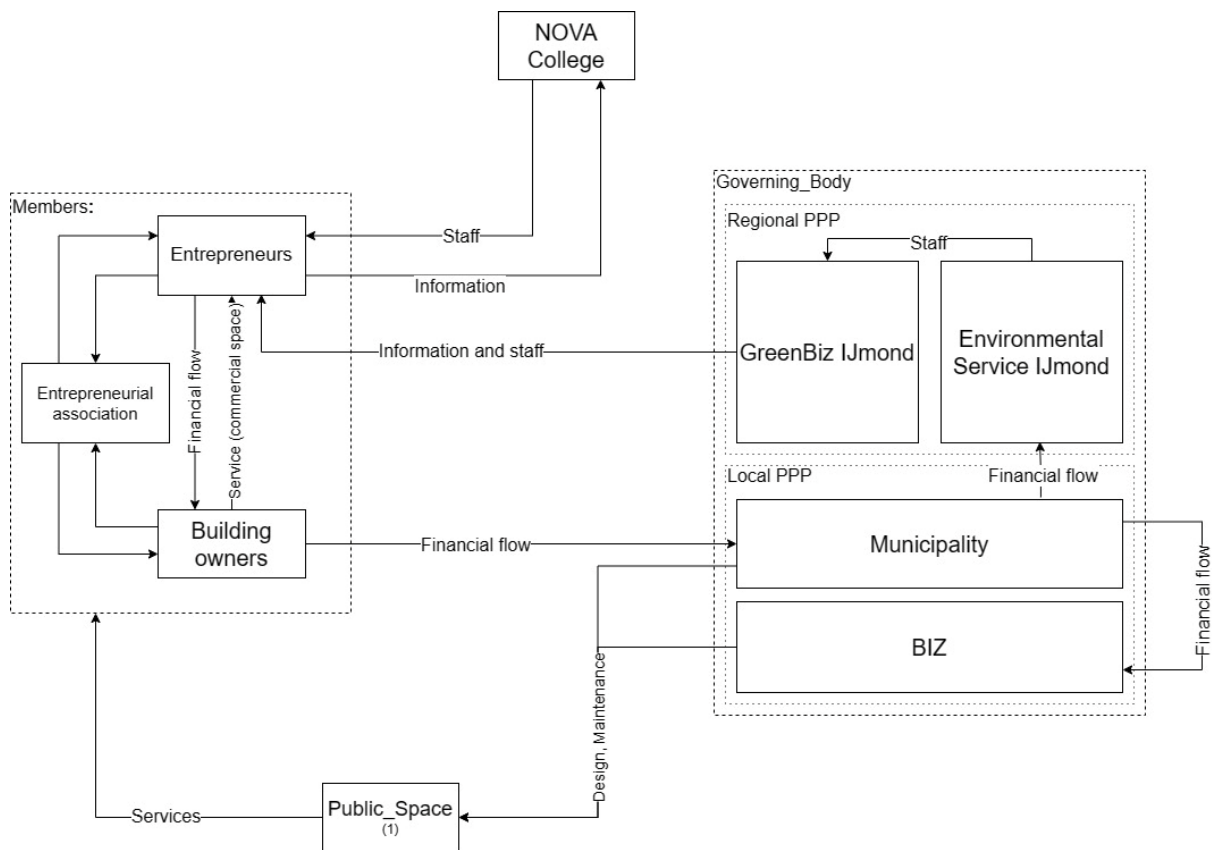


Figure 3: Schematic overview of stakeholders of the Trompet and their relations. Source: Own adaptation of model of Le Tellier (2019)

At the business park, the entrepreneurs have organised themselves as a BIZ. The municipality is very satisfied with this structure: *“At the other business parks in our region, we struggle to get in contact with entrepreneurs and solve problems. At De Trompet we do not have this problem, because of the BIZ. We want to keep this structure and expand it to the three other business parks in our municipality.”* Entrepreneurs at the business park are also satisfied with the cooperation. They look back positively on the first phase of the BIZ, that took place from 2018 until 2022. From the private perspective, the contract rigidities form an obstacle, however. An entrepreneur and board member of the entrepreneurial association said: *“If we want to save funds to spend the next year, this is not possible, even though it is our money. The municipality decides whether we will receive it. I think that is an issue.”* This is in line with the findings about the impact of contract rigidities on the flexibility of a PPP of De Paula et al., (2023). Besides this contract obstacle, commitment obstacles occurred. An employee from the environmental service indicated: *“Financial streams form a risk. When costs for implementing sustainability measures that are not compulsory by law increase, almost everyone stops implementing them.”*

A vocational school in the IJmond region has, in cooperation with GreenBiz IJmond, set up a study program in which students are educated to advice companies to improve their sustainability performance. As part of their curriculum, students do two internships. Usually, they do these internships at businesses, often at business parks in the region. However, none of the respondents knew an example of a student doing an internship at De Trompet. Nevertheless, companies are satisfied with the cooperation with the program and the students. The school (NOVA College) organises a meeting with companies in the region twice a year. The goal of this meeting is to gather ideas from companies in the region to make sure that the skills students learn are in line with the demand of the

labour market. The management of the program is facing some image challenges, in the words of the program manager: *“The largest challenge we are facing now is that the program is not well-known amongst prospective students and as a result we are not recruiting enough students. Despite this, companies, alumni, and student’s parents are very satisfied about our program.”* The initiative at the NOVA college is a variant on the PPP with higher education institutions from the publication of Sharafanova et al. (2017) and shows that human capital added value can also be added by vocational schools, not only by universities.

With regards to the success factors for PPPs at business parks, the respondents indicated that communication is the most important one. A public servant of the municipality stressed the importance of having one contact person, on the side of the municipality as well as on the side of the entrepreneurs. An entrepreneur stressed the importance of short and direct communication lines with the municipality and indicated that he highly valued their strong relationship the executive branch.

De Faktorij en De Vendel

At the Faktorij en De Vendel, there are three levels of cooperation that are of interest to this research. The quantitative results of the interviews with the respondents can be found in appendix 8. Figure 4 displays a schematic overview of the PPP’s stakeholders and how they are related.

First, at the level of the business park, the entrepreneurs have set up an energy cooperative. The cooperative is an initiative from an entrepreneur of a business that consumes a large amount of energy at the business park. According to the founder of the cooperative, the goal of the energy cooperative is to mitigate the problems caused by transmission congestion. The focus of the cooperative is to save and generate renewable energy. To realise this, the cooperative has set up project groups in which entrepreneurs and employees of businesses at the business park take place. A project manager is responsible for supervising the project groups. His role is funded by the province. The project manager wants to explore the possibility of creating energy synergies in cooperation with farmers active on lands that are next to the business park. According to a public servant from the municipality, the ownership of the buildings mostly lies with the companies. One of the respondents, who works as an account manager at a large business at De Faktorij en de Vendel, indicated that the building their company is situated in is an exception to this. She explained that her company would like to improve the sustainability performance of its building, but they are encountering commitment obstacles from the building owner: *“The building owner is renting the building to us in the old-fashioned way, so modernising buildings like this is a slow process.”*

Second, at the municipal level, the In Veenendaal, the entrepreneurs have organised themselves in an entrepreneurial association at the municipal level. The association has several committees, the largest one being the sustainable entrepreneurship committee. In this committee, entrepreneurs, and employees of companies at the business park as well as public servants of the municipality take place. Businesses in the municipality automatically become a member of the association when they pay the advertising tax, which ranges from €320,- to €1404,- to the municipality (Gemeente Veenendaal, 2023). The municipality returns the income from this tax to the entrepreneurial association. Therefore, this is an example of a PPP as introduced by De Kort & Gradussen (2023) and elaborated upon in chapter 4.2.2. Furthermore, the entrepreneurial association and the municipality signed a green deal in January 2024. In the green deal, the signing parties commit to the responsibility of reaching several sustainability performance goals, for example to the generation of 0,043 TWh of renewable energy and a 20% reduction in consumption of natural gas by 2030 (in comparison to 2019 for the latter). Furthermore, the signing parties made agreements about improving the climate adaptiveness and sustainable mobility facilities of the business parks in the municipality. To reach these goals, the entrepreneurial association will, amongst other efforts, instruct the park management at the business

parks to spend 16 hours per week on realising these goals, develop a customized approach for the companies with the largest energy consumption and is responsible for the communication with its members. The municipality will subsidize the park management with €35000,- in 2024 and 2025, will create one central information point where companies can get information about sustainability measures and financing opportunities and will look for possibilities to financially support cooperative projects (Gemeente Veenendaal, 2024). De Faktorij en De Vendel is one of the five business parks in the municipality, and the agreements in the Green Deal are therefore also relevant for the park.

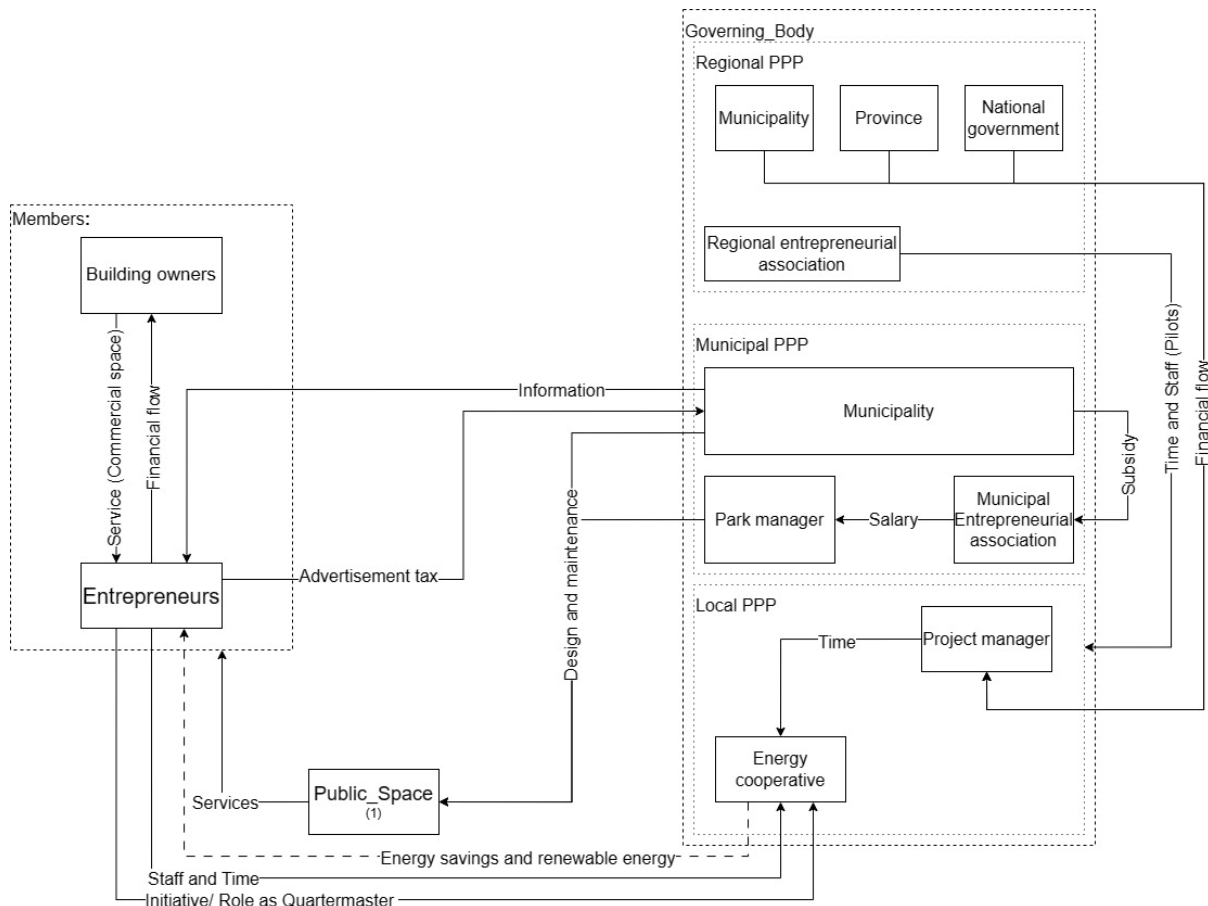


Figure 4: Schematic representation of stakeholders of De Faktorij en De Vendel and their relations. Source: Own adaptation of model of Le Tellier (2019)

Third, at the regional level, a Regional Energy team Companies (REB) was established in September 2023. Like the energy cooperative at the level of the business park, the goal of the REB is to save energy and to explore solutions to mitigate the problems caused by transmission congestion. The REB is currently conducting six pilots to explore possibilities to accelerate the energy transition. One of the six pilots takes place at De Faktorij en De Vendel. In each of the pilots, the municipalities, province of Utrecht (in case of De Faktorij en De Vendel, in) and the national government (through the ministry of economic affairs) provide the financial resources, whilst the entrepreneurs put time and staff into the pilots. The initiative of the REB came from the federation of entrepreneurial associations in the region Veenendaal (FOV). According to the vice-chairman of the REB, the success factors for the PPP in the region are the organisational level of the entrepreneurs, where possible combined with agrarians in the area, as well as appointing a 'quartermaster', an entrepreneur with an intrinsic motivation to contribute to the goals of the REB due to the energy profile of their company. The task of the quartermaster is to encourage the other entrepreneurs at the business park to join the initiative

(Van Hout & Werkman, 2024). This contrasts the model of Le Tellier et al. (2019), in which it is the role of the governing body to initiate cooperation between the members of the business park.

In the case of De Faktorij en De Vendel, the quartermaster is also the founder of the energy cooperative at the business park. The quartermaster is confronted with some resource obstacles, due to a mismatch between the available subsidies and the needs of the project group: *“We only receive money for a project manager. I am exploring a solution within the area of mono-fermentation. For this, I need the services of a specialized bureau, and there is no money available for this.”* According to the quartermaster, a success factor for PPPs at business parks is to let the private side take the initiative: *“When you give the initiative to the private sector, you will be able to realise goals much faster.”*

Kennispark Twente

The quantitative results of the interviews that were conducted with the stakeholders can be found in appendix 9. Figure 5 displays a schematic overview of the PPP's stakeholders and how they are related.

At the Kennispark Twente, the PPP is a cooperation between the University of Twente, the municipality Enschede and the entrepreneurs at the business park. The three parties cooperate in a tripe helix structure and have set up an autonomous legal person to manage the park in the form of a foundation. The initiative to set up this PPP came from the municipality and the university. In 2018, the three parties published the area strategy for Kennispark Twente. Before that, there was a double helix cooperation between the municipality and the university, but the entrepreneurs were not involved. In the words of a senior project manager at the municipality: *“In 2015 we concluded that we had to change our approach to include lessons learned from the past. We have to do this with the O of entrepreneurs (‘ondernemers’), because that is the only way we can realise changes.”* The main goal of the PPP is to foster innovation and to connect the students at the campus with the companies at the business park (Kennispark, 2018). In the words of the former alderwoman economic affairs of Enschede: *“The campus and the business park are currently two separate areas; we want to turn it into one entity.”* (1Twente, 2021)

Each of the three parties have committed (at least) €150.000,- worth of resources to the PPP on an annual basis. The municipality provides €150K in money to the partnership, whilst the university's contribution to the PPP is partially in money and partially in time and staff, by committing a project manager to the park. On top of the €150K from the municipality, they also commit staff and time to the project when it is required. The entrepreneurs have organised themselves in an entrepreneurial association and the contribution fees from the members of the association go to the PPP. The entrepreneurial association's mission is to *“unite entrepreneurs and real estate owners for the benefit of the development of the Kennispark”* (Vonk Enschede, 2024.) A public servant of the municipality is facing commitment obstacles due to a low participation level of the entrepreneurs: *“The high contribution is an obstacle for companies, particularly for companies with little affiliation with the high-tech identity of the Kennispark.”* As a result, the entrepreneurial association cannot fulfil their commitment of €150.000,- per year. Subsequently, the foundation has less than 450K budget, which is already a small budget, according to the project manager: *“We have too little cash to hire an engineering or advisory firm and we have to share our office with another party. The organisation is still in the start-up phase.”*

Because of this, the realisation of projects at Kennispark is dependant on subsidies. The main subsidy that Kennispark has benefited from is the 'Regio Deal', in the last years they received €6,6M in subsidies. Taking advantage of subsidies is therefore one of the main success factors of the PPP at the Kennispark. Another important success factor is short and direct communication lines.

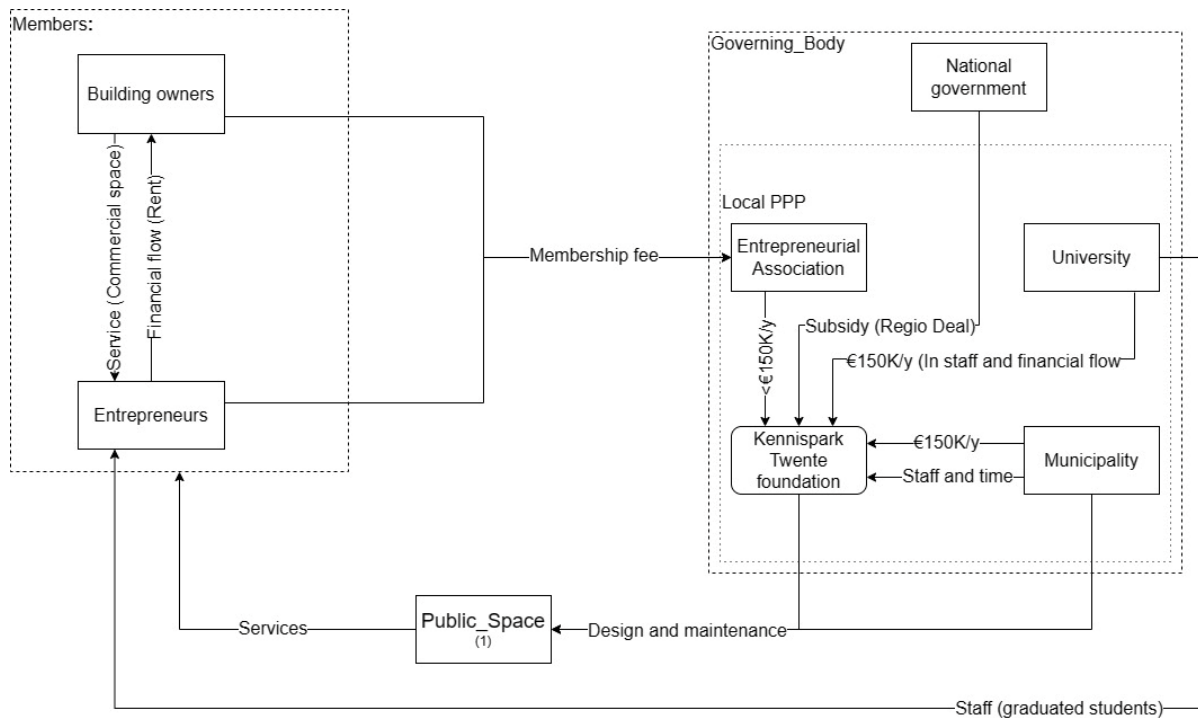


Figure 5: Schematic representation of stakeholders of Kennispark Twente and their relations. Source: Own adaptation of model of Le Tellier (2019)

4.3.4 Cross-case analysis

The transcripts of each interview have been coded using concepts that follow from literature and practice. In this chapter, the finding of the most frequently discussed concepts across the four cases are elaborated on.

The main resources that were conducted by the respondents were staff and time, closely followed by financial resources. Private stakeholders most often contribute to the PPP through staff and time resources, whilst private party contribute financial resources more often. Respondents indicated that risks mostly lie on the public side of the PPP.

The most frequently mentioned goal of participating in the PPP for the respondent's organisation is increasing added value. Several respondents spoke about achieving better solutions when the expertise and resources of their organisation is combined with those of other organisations. Across all cases, participants mentioned that achieving more innovative solutions was a primary goal of the PPP. PPPs at business parks are a relatively new phenomenon, therefore the stakeholders highly value the lessons learned.

In three out of four cases, the initiative for the PPP lay on the private side. In at least one of them (De Faktorij en De Vendel) the initiative came from an entrepreneur and therefore not from a stakeholder in the governing body as Le Tellier et al. (2019) prescribe. In the other two cases the initiative came from collectives of entrepreneurs. Depending on interpretation, these can be placed in the members subset and the governing body in Le Tellier's (2019) model. In the case in which the initiative of the PPP originated at the public side (Kennispark Twente), the stakeholders encountered commitment obstacles from the private side of the PPP.

In three out of the four cases, the stakeholders created an autonomous legal person. In one case (Regio Stedendriehoek), some of the stakeholders have the intention of creating one, but the decision to do so has not yet been taken because the cooperation still at an early stage. The stakeholders at the

regional level in one case (De Faktorij en De Vendel) are still exploring how to formalize their partnership, a board member indicated that they are still undecided about which legal form is the most suitable. In all four cases, the entrepreneurs have organised themselves in an entrepreneurial association. In some cases, the building owners are also part of the association.

In all four cases, there was interaction between the stakeholders of the PPP and cooperations at either higher or lower levels. For PPPs at the regional level, most interactions are with lower (the local or municipal) level. The interactions concern sharing experiences. For PPPs at the local level, all interactions were with cooperation at higher level. This is in line with expectations since the local level is the lowest level. The interactions are mostly about either obtaining experience and best practices from the knowledge that has been bundles at the regional or national level and about gathering financial support from subsidies that are available via regional, provincial, and national funds.

The three most encountered obstacles by stakeholders are commitment obstacles, objectives obstacles and structure obstacles. Several stakeholders mentioned that sustainability ambitions of entrepreneurs are often not realised when they are not the owner of the building they are situated in, because the building owner does not share these ambitions and is not willing to commit to investing in an improvement of the sustainability performance of the building. With regards to objectives, stakeholders on the private side of PPPs typically have a shorter time horizon and therefore expect quick results, whilst public parties have a longer time horizon. Several structure obstacles occur due to a mismatch between subsidies and the PPPs.

The main success factors for PPPs at business parks according to the respondents are short and direct communication lines, orchestration and having a common goal. Several respondents across the four cases indicated the benefits of knowing the partners in the PPP well. With regards to orchestration, respondents said that the presence of a person who takes the lead and can stimulate others to benefit to the PPP is very helpful. If this person comes from the private side of the PPP, this greatly benefits the commitment level from the private side, without being detrimental to the commitment from the public side. The need for a common goal was indicated by several stakeholders and this confirms the perspective put forward by Bult-Spiering et al. (2005).

5. Discussion

The main research question of this study is “How can public-private partnerships be organized for business parks in the Netherlands to improve their sustainability performance?” To answer this question, we took a three-step approach. First, we identified the stakeholders at business parks through document analysis. Subsequently, we identified the forms in which stakeholders of business parks can cooperate from a theoretical and practical perspective. Finally, we researched the perceptions of stakeholders in PPPs at business parks through case studies. The main stakeholders at business parks are entrepreneurs and entrepreneurial associations on the private side. On the public side, the municipality is the main stakeholder. The stakeholders have a wide variety of applicable forms of cooperation, ranging from informal cooperation forms to creating a legal entity. The form in which the entrepreneurs organize themselves is particularly important. Public stakeholders are likely to perceive commitment obstacles on the private side of the PPP if there is a lack of orchestration from the private side or if the building owner is not willing to cooperate. Success factors for PPPs at business parks are short and direct communication lines, a common goal for all stakeholders and clarity about which person or party is in control of the orchestration of the project.

Due to the heterogeneity of business parks in the Netherlands, there is not one form of cooperation that is superior. However, there are certain conditions that make PPPs at business parks more likely to succeed. First, the degree to which the private side (entrepreneurs and building owners) have organised themselves is vital, not only because the interests of all entrepreneurs can be bundled, but also because it is much easier for stakeholders at business parks with well organised entrepreneurial associations to acquire subsidies compared to business parks without any organisation on the private side. Second, projects which have been initiated by an entrepreneur or entrepreneurial association and in which the private side of the PPP has an orchestrating role are more likely to succeed. Third, involving parties that are active in the surrounding area of the business park to create synergies, for example using the knowledge and human capital of local research and education institutions or exploring energy synergies between business parks and agrarians with farms surrounding the business park.

The results of sub-question 1 suggest that the municipalities are the most important stakeholders of business parks. However, based on the findings from the reports from industry and the experiences of the respondents in the case studies, entrepreneurs are the most important stakeholder. They have the largest interest in improving the sustainability performance of their business park, and their commitment to a PPP is less obvious than that of public parties. Therefore, an active role for entrepreneurs is vital for the success of a PPP. Furthermore, the results suggest that the role of the electricity network operator is not that large. Nevertheless, the significance of their role should not be underestimated. Across all four cases that make up sub-question 3, respondents indicated that they are either already facing or expecting to face obstacles due to energy transmission congestion. Close collaboration with the electricity network operator is important to mitigate the damages that will be caused by the congestion. Last, the results suggest that environmental services play a minor role. This is confirmed in the case studies since the environmental service is only a part of the governing body in the case of business park De Trompet. Nevertheless, this case also shows that the expertise of environmental services can be very beneficial for the sustainability performance of business parks, which is an interesting finding for practitioners who are setting up a PPP at a business park.

In line with the identified gap in literature of business parks in the introduction of this thesis, most of the findings from the literature review of sub-question 2 are not applicable to business parks. Instead, most of the literature on PPPs concerns infrastructure projects, which present completely different challenges to stakeholders and therefore also use different organisational forms. Therefore, to answer

sub-question two, we mainly relied on the industry reports that make up the theoretical perspective. This confirms that PPPs at business parks (or in urban regeneration projects in general) are an overlooked topic to which more attention needs to be paid by scholars.

In three out of the four cases that make up sub-question 3, the initiative for the project lies on the private side with an entrepreneur or entrepreneurial association. When we translate the roles of the entrepreneur and entrepreneurial association to the model of Le Tellier (2019), it is obvious that entrepreneur is part of the player 'company'. For the entrepreneurial association, it can be argued that they are part of the player 'company' as well as the governing body. The results provide a new insight into the relationship between the governing body and the members within Le Tellier's (2019) model, they do not fit with the theory that the governing body should initiate collaboration between the members of the business park. This provides a clearer understanding of who should initiate collaboration between the members of the business park. It is preferable that this is initiated by the members themselves. When a member of the governing body, such as the municipality, initiates the collaboration, it is likely that commitment obstacles from the members will occur, as observed in the case of Kennispark Twente. Initiation by the members is only possible when the entrepreneurs have reached a minimum level of organisation. At only 20% of the business parks the entrepreneurs have organised themselves in a legal entity (Kort & Gradussen, 2023). At the other 80%, it is very unlikely that an entrepreneur will take the initiative for a cooperation and the cooperation needs to be initiated by the governing body.

The findings from the case studies also provide a deeper understanding of the composition of the governing body. Le Tellier et al. (2019) describes a few actors that can be in the governing body but does not go into depth about how they interact with each other. Most likely, this is the case because Le Tellier et al. (2019) has chosen a case in Canada and France as a basis for their systemic model. This allows for a comparison between the cultures and policies in both settings but limits the researchers' abilities to create depth in their model. In this research, all four cases take place in the Netherlands, which allows us to give a more in-depth analysis. In all four case studies, there was interaction between stakeholder at the local, regional and in some cases the national level. Sometimes the interaction consists of a flow of financial resources in the form of a subsidy, whilst in other cases knowledge sharing is organised at the regional or national level. In other words, the regional and national level facilitate the efforts of the stakeholders at the local level. For the three cases in which we studied a PPP at the local level, we have expanded the basic model of Le Tellier et al. (2019), particularly by adding details on which stakeholder make up the governing body of the business park, how they interact with each other and the stakeholders outside of the governing body, and which resources they dedicate to the PPP (see figures 4, 5, and 6). In all four cases, the governing body has a different composition, therefore we do not provide a general systemic model of the governing body of business parks in the Netherlands. Nevertheless, there are certain players that are (almost always) part of the governing body. These are the municipality, an organisation that represents the entrepreneurs and a governmental institution that operates at a higher level (e.g. the province or national government). The organisation that represents the entrepreneurs can take on several forms. These forms are elaborated on in chapter 4.2. The higher level governmental organisations play a particularly large role in governing bodies in which there is interactions between cooperations at the level at the business park and cooperations at the municipal, regional, provincial or national level.

Besides the implications on the scientific literature, there are several practical implications for stakeholders at business parks. The findings of this study suggest that the success of projects that aim to improve the sustainability performance of business parks is mediated by the degree of organisation of entrepreneurs and building owners at the business park. If the degree of organisation is high, it is

more likely that the project team member can benefit from short and direct communication lines, and subsidy acquisition efforts are more likely to succeed. Therefore, the first step stakeholders of business parks should take is to let the entrepreneurs and buildings owners organize themselves using one of the methods described in chapter 4.2.2. Furthermore, an active role of an intrinsically motivated entrepreneur is very beneficial for the success chances of a project. Entrepreneurs at a business park are more likely to contribute to a project when a fellow entrepreneur is asking them to join, compared to a public servant or consultant. Therefore, actors within the governing body of the business park need to be open to giving away their orchestrating role if there is an entrepreneur whose business is located at the business park who is willing to take this role. Besides, at the early stage of a project, it is important for practitioners to explore which stakeholders are active at the business park and its surroundings and to search for synergies with organisations in the area. In the case of Kennispark Twente and De Trompet, these synergies were found at education and research institutions in the area, but they can also be explored in other areas, such as agrarians in the case of De Faktorij en De Vendel. Besides, the findings from the case study of De Trompet suggest that active involvement of the environmental service is a means to improve the success of PPPs. Employees of environmental services are experts in several environmental areas. When they are given the resources to spend their time on stimulating supervisory role instead of their enforcing role, they can add value to the PPP. These resources should come from the municipalities (as is the case with De Trompet) or the province.

As mentioned before, at only 20% of business parks in the Netherlands the entrepreneurs have organised themselves in some way. Improving the sustainability performance of business parks is a topic that is still in an early stage. The four cases that were studied in this thesis are among the best functioning public-private partnerships on business parks in the Netherlands. Therefore, the generalizability of the findings is somewhat limited. The methodological choice for these cases was made to bundle the lessons learned from the projects in the Netherlands that are in the most advanced state. The PPPs that were studied in this thesis are not a representative sample of the whole population of governing bodies at business parks.

In this study, the success of the PPP was measured by asking the respondents about their subjective perception of the PPP. This method of measurement is not optimal, since it does not consider what improvements in sustainability performance of the business park are realised through the PPP. There are two reasons for this. First, the field of PPPs at business parks is still developing. The four PPPs that make up the case studies are among the first ones in the country and most of them are not yet at the level of realising improvements to the physical space of the business park. Second, the limited time that is available to conduct a master thesis is too little for measuring a baseline and improvements in sustainability performance at a business park.

Further studies on PPPs at business parks should take the generalizability and measurability issues of this study into account and further research is needed to establish whether the findings from the four PPPs that were studied in detail can be applied at the 3800 business parks in the Netherlands. The findings of this study can serve as input for a quantitative analysis on a larger sample using statistical methods in which several hypotheses are tested. Figure 6 displays how the conceptual model of such a study would be. The boxes with dashed lines depict the dependant variables, and the boxes with the normal lines depict independent variables. Unlike the subjective method that is used to measure the success of PPPs in this research, future research should use an objective way by measuring the difference between ex-ante and ex-post sustainability performance of a business park. Van Raalten et al. (2020) have created a method to measure the sustainability performance of a business park. They have created 17 themes within the three pillars 'green and healthy', 'physical and spatial' and 'socioeconomical'. To measure a park's performance on these themes, the authors of the report used

97 indicators. The scores of these indicators follow from geographic databases, maps, and researcher's observations. To measure ex-ante and ex-post sustainability performance of business parks, future research can use the methodology created by Van Raalten et al. (2020) as a baseline. In the remainder of this chapter, the hypotheses in the conceptual model are introduced and explained.

Three out of the four analysed cases take place at the level of the business park. At each of the three business parks, the entrepreneurs have organized themselves in a different way, but at each of them the degree of organisation is high. Simultaneously, they are one of the first business parks in the Netherlands at which a PPP has been created. In the case of De Faktorij en De Vendel, the respondents indicated that appointing an entrepreneur as 'quartermaster' increases the engagement of entrepreneurs in the project. Furthermore, the findings suggest that having an entrepreneur in an orchestrating role mitigates commitment issues from the private side of the PPP.

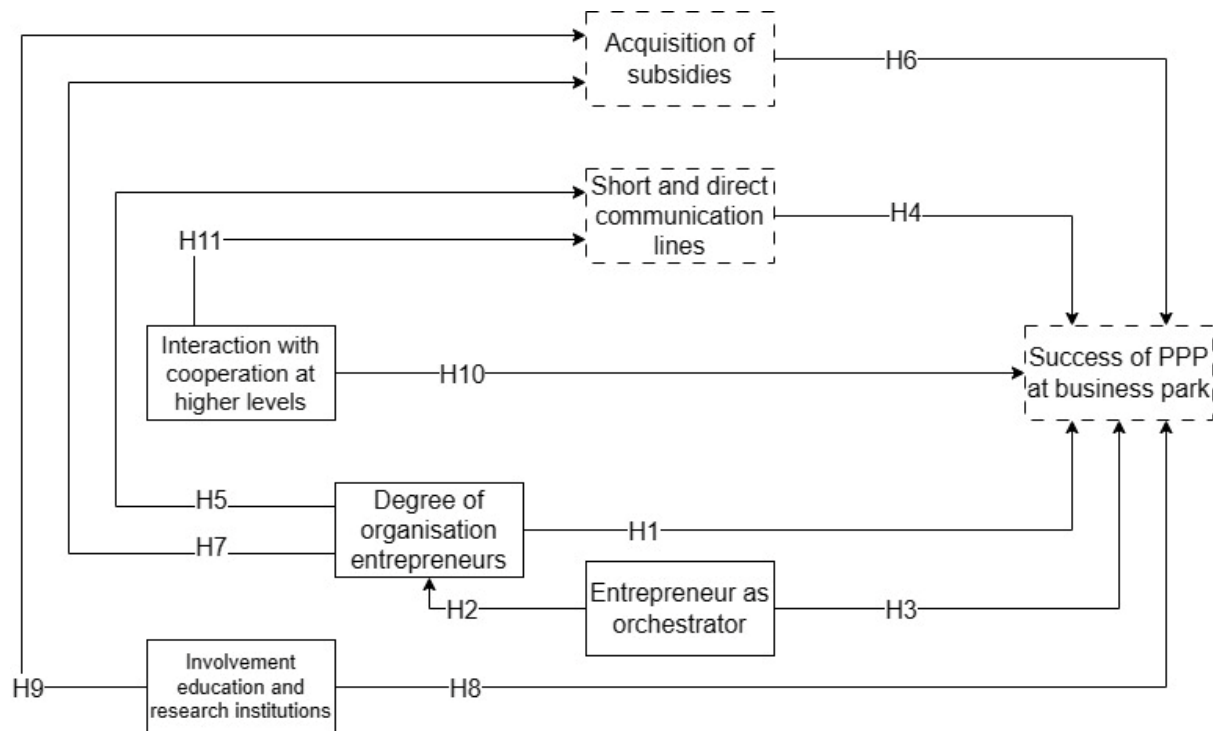


Figure 6: Conceptual model including hypotheses as recommendation for further research. Source: Own design

Hypothesis 1: A high degree of organisation of the entrepreneurs at a business park has a positive influence on the success of a PPP at a business park.

Hypothesis 2: The presence of an entrepreneur as orchestrator increases the degree of organisation of the entrepreneurs.

Hypothesis 3: The presence of an entrepreneur as orchestrator improves the success chances of a PPP at a business park.

The findings from the case studies suggest that one of the most important success factors for PPPs at business parks in the Netherlands are short and direct communication lines. When the entrepreneurs have united themselves, the public parties in the PPP can communicate more effectively by maintaining contact with the representative of the entrepreneurial organization, which realised the success factor of short and direct communication lines.

Hypothesis 4: The presence of short and direct communication lines between the participants of the PPP amongst each other and with stakeholders outside of the PPP positively influence the success of a PPP at the business park.

Hypothesis 5: A high degree of organisation of the entrepreneurs benefits to the realisation of short and direct communication lines.

In the PPPs that have been studied, the financial resources are mostly committed by the public parties in the PPP. These financial resources are vital for the success of the PPP. If the entrepreneurs have organised themselves, they can make each other aware of financing opportunities and help each other with the procedures of requesting subsidies or request subsidies for projects that are initiated by the entrepreneurial organization.

Hypothesis 6: The more subsidies can be acquired by the stakeholders in the PPP, the more likely it is that the PPP will succeed.

Hypothesis 7: The degree of organisation of the entrepreneurs is positively correlated with the acquisition level of subsidies.

The findings from the case of business park De Trompet suggest that the involvement of an education institution can provide human capital for stakeholders of the PPP. In the case of Kennispark Twente, the University of Twente contributes staff and financial resources to the PPP, making it one of the three important partners. Education and research institutions have access to different, often larger subsidy pools and research grants than entrepreneurs. The lessons learned from research can provide valuable insights for stakeholders of PPPs at business parks. Involving them in the PPP broadens the range of possible subsidies that can be applied to the PPP.

Hypothesis 8: The involvement of education and research institution is positively correlated with the success of PPPs at business parks.

Hypothesis 9: The involvement of education and research institutions has a positive impact on the acquisition level of subsidies.

The findings from the case of Regio Stedendriehoek suggest that cooperations at the regional level have the potential to supplement local PPPs with staff, time, and financial resources, and they can bundle the lessons learned from other local PPPs in the region and share these experiences with the rest of the region, to the benefit of local PPPs. In each of the other three cases, interactions with higher level cooperations existed. In higher level cooperations, stakeholders of business parks that are typically not directly involved, such as the province play a significant role. Interacting with such cooperations creates connections between stakeholders of business parks that would normally not interact directly.

Hypothesis 10: In cases where stakeholders of PPPs have interactions with cooperations at higher levels, a PPP at a business park is more likely to succeed.

Hypothesis 11: Interaction with cooperations at higher levels positively influence the realisation of short and direct communication lines.

6. Conclusion

The aim of this research was to contribute to the small body of knowledge on public-private partnerships at business parks in the Netherlands. The main research question “How can public-private partnerships be organized for business parks in the Netherlands to improve their sustainability performance?” was answered using a three-step approach. First, through document analysis we found that the main stakeholders of business parks are entrepreneurs and the municipality. Second, through literature review and document analysis we found that there is a large array of options for stakeholders at business parks to organize themselves. Third, we conducted four case studies on PPPs at business parks to research the perceptions of stakeholders, from which we can conclude that none of the four methods that we studied is superior. Nevertheless, the findings show that successful PPPs at business parks share several characteristics: A high degree of organisation on the private side of the PPP, utilization of synergies offered by cooperations with stakeholders around the business park and an orchestrating role for an entrepreneur.

Based on these conclusions, practitioners within the governing body of a business park need to encourage the entrepreneurs and building owners at business parks to unite themselves in an organizational form, they should look to include stakeholders that can provide value to the PPP beyond the obvious stakeholders of business parks, and they should delegate the orchestrating role to one of the entrepreneurs if this is possible.

This research provides qualitative insights on how PPPs can be used to mitigate the climate damages caused by the emissions of operations at business parks and adapt the working place of one third of the Netherlands’ working population to climate change. The literature review shows that there is a gap in the literature on sustainability of business parks that needs to be filled. The findings build upon the systemic model of business parks created by Le Tellier et al. (2019) and give further insights into the functioning of the governing body at business parks.

Due to the heterogeneity of business parks in the Netherlands and the small sample size of this research, the findings of the four cases cannot be generalized to the entire population of business parks. The qualitative findings of this study can be used as the hypotheses which further quantitative research tests on a larger sample of PPPs at business parks in the Netherlands.

Such further research should take the form of a longitudinal study in which the sustainability performance of a representative sample of the population of 3800 business parks in the Netherlands is measured twice: Once in a base year and once 10 years after the base year. This way, the success of PPPs at business parks can be measured. Using statistical methods and the conceptual model provided in this research, future researchers will be able to assess which PPP practices have a positive influence on the success of the PPP. Such a research project should take changes in society and technological process into account. Due to the longitudinal nature of the project, it is possible that the environments in which business parks operate have changed, and this could have an influence on the conceptual model. Some hypotheses might become more or less relevant, and future researchers should assess whether it is necessary to make changes to the model, for example by adding new concepts and hypotheses to the model.

References

- 1Twente. (2021). *Kennispark in Enschede gaat totaal veranderen* [Video]. YouTube. <https://www.youtube.com/watch?v=P92Byjw3D6w>
- Amoadu, M., Ansah, E. W., Sarfo, J. O., & Hormenu, T. (2023). Impact of climate change and heat stress on workers' health and productivity: A scoping review. *The Journal of Climate Change and Health*, 12, 100249. <https://doi.org/10.1016/j.jocl.2023.100249>
- Arcadis. (2020). *Onderzoek naar het vergroenen van bedrijventerreinen*. <https://edepot.wur.nl/557834>
- Arts, J. (2012). *De ontwikkeling van nieuw bedrijventerreinenbeleid*. Radboud Universiteit Nijmegen. <https://theses.uibn.ru.nl/server/api/core/bitstreams/b449641b-0b25-4e96-988e-3bcbcf193e1/content>
- Atlas Natuurlijk Kapitaal. (2023, May 1). *Groene bedrijventerreinen: van droom naar werkelijkheid*. <https://www.atlasnatuurlijkkapitaal.nl/nieuws/groene-bedrijventerreinen-van-droom-naar-werkelijkheid>
- Atwa, S., Ibrahim, M. G., & Saleh, A. (2017). GREEN BUSINESS PARKS TOWARDS SUSTAINABLE CITIES. *Ecology and the Environment*. <https://doi.org/10.2495/eco170021>
- Ay, Y. (2024). *Bedrijventerrein: Waarderpolder*. PVB Nederland. <https://pvbnederland.nl/cases/bedrijventerrein-waarderpolder/>
- Bedrijvenkring Ondernemend Veenendaal. (n.d.). *Reclamebelasting*. Boveenendaal. <https://boveenendaal.nl/reclamebelasting/>
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27–40. <https://doi.org/10.3316/qri0902027>
- Bult-Spiering, M., Blanken, A., & Dewulf, G. (2005). *Handboek Publiek-private samenwerking*. Lemma.
- Bult-Spiering, M., Van Den Ende, L., Van Hijum, E., Schipper, D., & Weiman, P. (2018). *Gebiedsstrategie Kennispark Twente*. https://assets.ctfassets.net/dvgwzh2cllz6/6UWsCa8SmQ0uia0syUMAQU/52d34df221174439b75f5b8d7b2a036b/Gebiedsstrategie_Kennispark_Twente_consultatieversie.pdf
- Caldwell, N., Roehrich, J., & George, G. (2017). Social value creation and relational coordination in Public-Private collaborations. *Journal of Management Studies*, 54(6), 906–928. <https://doi.org/10.1111/joms.12268>
- Calvin, K., Dasgupta, D., Krinner, G., Mukherji, A., Thorne, P., Trisos, C. H., Romero, J., Aldunce, P., Barrett, K., Blanco, G., Cheung, W. W. L., Connors, S., Denton, F., Diongue-Niang, A., Dodman, D., Garschagen, M., Geden, O., Hayward, B., Jones, C. D., . . . Ha, M. (2023). *IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee, and J. Romero (eds.)]*. IPCC, Geneva, Switzerland. <https://doi.org/10.59327/ipcc/ar6-9789291691647>
- Chertow, M. (2000). INDUSTRIAL SYMBIOSIS: Literature and Taxonomy. *Annual Review of Energy and the Environment*, 25(1), 313–337. <https://doi.org/10.1146/annurev.energy.25.1.313>

- Chowdhury, I. R., & Chowdhury, P. R. (2018). Public–Private partnerships, commitment, and X-Inefficiency. *ARTHANITI: Journal of Economic Theory and Practice*, 17(2), 157–167. <https://doi.org/10.1177/0976747918795226>
- Currie, D., & Teague, P. (2009). Conflict Management in Public Private Partnerships: The Case of the London Underground. *The Academy of Management*. <https://pure.qub.ac.uk/en/publications/conflict-management-in-public-private-partnerships-the-case-of-th-2>
- Davis, K. (2005). PPPs and infrastructure investment. *The Australian Economic Review*, 439-444.
- De Kort, E.-J., & Gradussen, M. (2023). *Governancemodellen op bestaande bedrijventerreinen in Nederland*. Stec Groep. https://www.rli.nl/sites/default/files/stec_groep_governance_modellen_def.pdf
- De Paula, P. V., Marques, R. C., & Gonçalves, J. (2023). Public–Private Partnerships in Urban Regeneration Projects: A review. *Journal of Urban Planning and Development*, 149(1). <https://doi.org/10.1061/jupddm.upeng-4144>
- Dekker, G., & Van Hoorn, W. (2021). *Planologische en juridische instrumenten voor klimaatbestendige bedrijventerreinen in Oost-Brabant*. https://www.rnob.nl/storage/cms/files/2021_nieuwsartikelen/rapportage_juridische_instrumenten_klimaatbestendige_bedrijventerreinen_oost_brabant_002_.pdf
- Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. *Environmental Quality Management*, 8(1), 37–51. <https://doi.org/10.1002/tqem.3310080106>
- European Commission. (2019). *The European Green Deal*. https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF
- Forrer, J., Kee, J. E., Newcomer, K. E., & Boyer, E. J. (2010). Public–Private partnerships and the public accountability question. *Public Administration Review*, 70(3), 475–484. <https://doi.org/10.1111/j.1540-6210.2010.02161.x>
- Fourie, F. C. V. N., & Burger, P. (2000). An Economic Analysis and assessment of public - Private Partnerships (PPPs). *South African Journal of Economics*, 68(4), 305–316. <https://doi.org/10.1111/j.1813-6982.2000.tb01274.x>
- Gemeente Veenendaal. (2023). Gemeenteblad 2023, 555542 | Overheid.nl > Officiële bekendmakingen. Officiële Bekendmakingen. <https://zoek.officielebekendmakingen.nl/gmb-2023-555542.html>
- Gemeente Veenendaal. (2024). *Green Deal Verduurzaming Bedrijventerreinen Veenendaal*.
- George, G., Fewer, T. J., Lazzarini, S. G., McGahan, A. M., & Puranam, P. (2023). Partnering for Grand Challenges: A review of organizational design considerations in Public–Private Collaborations. *Journal of Management*, 50(1), 10–40. <https://doi.org/10.1177/01492063221148992>
- GreenBiz IJmond. (2023). *Maatschappelijk jaarverslag GreenBiz IJmond 2022*. https://greenbizijmond.nl/publish/pages/9574/greenbiz_ijmond_maatschappelijk_jaarverslag.pdf

- Gusmerotti, N. M., Todaro, N. M., Tosi, D., & Testa, F. (2023). Green work climate, work meaningfulness and supervisor environmental priority: A social exchange perspective on employees' eco-initiatives. *Journal of Cleaner Production*, 415, 137889. <https://doi.org/10.1016/j.jclepro.2023.137889>
- Hodge, G., & Greve, C. (2017). Contemporary public–private partnership: Towards a global research agenda. *Financial Accountability and Management*, 34(1), 3–16. <https://doi.org/10.1111/faam.12132>
- Houwing, M. (2012). *Duurzame bedrijventerreinen: Een analyse van kansen en (on)mogelijkheden* [MA Thesis, Rijksuniversiteit Groningen]. https://frw.studenttheses.ub.rug.nl/1587/1/Marten_Houwing_-_Duurzame_Bedr_1.pdf
- Huxham, C., & Vangen, S. (2005). *Managing to collaborate; the theory and practice of collaborative advantage*. London: Routledge.
- Jacob, S. A., & Furgerson, S. P. (2015). Writing interview protocols and conducting interviews: tips for students new to the field of qualitative research. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2012.1718>
- Keuchenius, K. (2022, October 16). *Niet lullen Jan, gewoon meedoen*. <https://www.binnenlandsbestuur.nl/ruimte-en-milieu/niet-lullen-jan-gewoon-meedoen>
- Korhonen, J. (2001). Four ecosystem principles for an industrial ecosystem. *Journal of Cleaner Production*, 9(3), 253–259. [https://doi.org/10.1016/s0959-6526\(00\)00058-5](https://doi.org/10.1016/s0959-6526(00)00058-5)
- Kort, I. M., Verweij, S., & Klijn, E. (2016). In search for effective public-private partnerships: An assessment of the impact of organizational form and managerial strategies in urban regeneration partnerships using fsQCA. *Environment and Planning C-government and Policy*, 34(5), 777–794. <https://doi.org/10.1177/0263774x15614674>
- Kort, M., & Klijn, E. (2011). Public–Private partnerships in urban regeneration projects: organizational form or managerial capacity? *Public Administration Review*, 71(4), 618–626. <https://doi.org/10.1111/j.1540-6210.2011.02393.x>
- Kuijper, W. (2022). *De kracht van collectiviteit op Ecofactorij*. (2022). [Video]. YouTube. https://www.youtube.com/watch?v=J34pyAQ4pqs&ab_channel=SlimenSchoonReizen
- Lambert, A. F., & Boons, F. (2002). Eco-industrial parks: stimulating sustainable development in mixed industrial parks. *Technovation*, 22(8), 471–484. [https://doi.org/10.1016/s0166-4972\(01\)00040-2](https://doi.org/10.1016/s0166-4972(01)00040-2)
- Le Tellier, M. L., Berrah, L., Stutz, B., Audy, J., & Barnabé, S. (2019). Towards sustainable business parks: A literature review and a systemic model. *Journal of Cleaner Production*, 216, 129–138. <https://doi.org/10.1016/j.jclepro.2019.01.145>
- Little, R. (2011). The emerging role of Public-Private partnerships in megaproject delivery. *Public Works Management & Policy*, 16(3), 240–249. <https://doi.org/10.1177/1087724x11409244>
- Liu, T., & Wilkinson, S. (2014). Using public-private partnerships for the building and management of school assets and services. *Engineering, Construction and Architectural Management*, 21(2), 206–223. <https://doi.org/10.1108/ecam-10-2012-0102>
- Macke, F. (2022). *Groenblauwe bedrijventerreinen: Hoe betrokken partijen dit samen aan kunnen pakken*. Samen Klimaatbestendig.

<https://klimaatadaptatienederland.nl/publish/pages/191997/groenblauwe-bedrijventerreinen-hoe-betrokken-partijen-bij-elkaar-komen-mei-2022.pdf>

Morabito, M., Messeri, A., Crisci, A., Bao, J., Ma, R., Orlandini, S., Huang, C., & Kjellström, T. (2020). Heat-related productivity loss: benefits derived by working in the shade or work-time shifting. *International Journal of Productivity and Performance Management*, 70(3), 507–525. <https://doi.org/10.1108/ijppm-10-2019-0500>

MVO Nederland. (2020). *Desk Study: Natuurlijk Kapitaal op bedrijventerrein*. <https://natuurlijkkapitaal.nl/assets/desk-study-natuurlijk-kapitaal-op-bedrijventerreinen.pdf>

Netbeheer Nederland. (2024). *Capaciteitskaart elektriciteitsnet*. <https://capaciteitskaart.netbeheernederland.nl/>

Nikolopoulou, K. (2023, June 22). *What is Non-Probability sampling? | Types & Examples*. Scribbr. <https://www.scribbr.com/methodology/non-probability-sampling/>

Nisar, T. M. (2013). Implementation constraints in social enterprise and community Public Private Partnerships. *International Journal of Project Management*, 31(4), 638–651. <https://doi.org/10.1016/j.ijproman.2012.08.004>

Nordeman, R. (2019, June 13). *Werk op bedrijventerreinen*. I&O Research. <https://www.ioresearch.nl/actueel/werk-op-bedrijventerreinen/#:~:text=In%20Nederland%20is%20in%202018,Nederland%20is%20hier%20te%20vinden>

Nordkamp, L., Bakker, J., Schutte, R., Strijker, B., & Bosma, J. (2021). *Versnellingsprogramma Verduurzaming Bedrijventerreinen*. TNO. <https://publications.tno.nl/publication/34638320/jgTy4Z/nordkamp-2021-versnellingsprogramma.pdf>

NOVA College. (2023). *Adviseur Duurzaamheid (junior consultant)*. <https://www.novacollege.nl/opleidingen/alle-opleidingen/adviseur-duurzaamheid-junior-consultant/>

Omgevingsdienst NL. (n.d.). *Omgevingsdiensten*. <https://www.omgevingsdienst.nl/omgevingsdiensten/>

PVB Nederland. (2024). *Regionale Teams*. <https://pvbnederland.nl/in-de-regio/>

Quélin, B., Cabral, S., Lazzarini, S. G., & Kivleniece, I. (2019). The Private Scope in Public–Private Collaborations: An Institutional and Capability-Based Perspective. *Organization Science*, 30(4), 831–846. <https://doi.org/10.1287/orsc.2018.1251>

Raad voor de leefomgeving en infrastructuur. (2023). *Samen werken: Kiezen voor toekomstbestendige bedrijventerreinen*. https://www.rli.nl/sites/default/files/rli-advies_samen_werken_-_kiezen_voor_toekomstbestendige_bedrijventerreinen_2.pdf

Rethink Zero. (2022). *Bedrijventerrein Pannenweg II*. PVB Nederland. <https://pvbnederland.nl/cases/bedrijventerrein-pannenweg-ii/>

Rijksdienst voor Ondernemend Nederland. (n.d.). *BIZ (Bedrijven Investeringszone)*. Ondernemersplein KVK. <https://ondernemersplein.kvk.nl/bedrijven-investeringszone-biz-oprichten/>

- Rotensen, T. (2013). *De aanpak van leegstand op bedrijventerreinen* [MA Thesis, Rijksuniversiteit Groningen]. https://frw.studenttheses.ub.rug.nl/1287/2/Thesis_Tom_Rotensen_def.pdf
- Ruuska, I., & Teigland, R. (2009). Ensuring project success through collective competence and creative conflict in public–private partnerships – A case study of Bygga Villa, a Swedish triple helix e-government initiative. *International Journal of Project Management*, 27(4), 323–334. <https://doi.org/10.1016/j.ijproman.2008.02.007>
- Rwelamila, P. M. D., Fewings, P., & Henjewe, C. (2015). Addressing the missing link in PPP projects: What constitutes the public? *Journal of Management in Engineering*, 31(5). [https://doi.org/10.1061/\(asce\)jme.1943-5479.0000330](https://doi.org/10.1061/(asce)jme.1943-5479.0000330)
- Rybnicek, R., Plakolm, J., & Baumgartner, L. M. (2020b). Risks in Public–Private Partnerships: A systematic literature review of risk factors, their impact and risk mitigation strategies. *Public Performance & Management Review*, 43(5), 1174–1208. <https://doi.org/10.1080/15309576.2020.1741406>
- Savas, E. (2000). *Privatization and Public-Private Partnerships*. Seven Bridges Press.
- Shaoul, J., Stafford, A., & Stapleton, P. (2012). Accountability and corporate governance of public private partnerships. *Critical Perspectives on Accounting*, 23(3), 213–229. <https://doi.org/10.1016/j.cpa.2011.12.006>
- Sharafanova, E. E., Fedosenko, Y. A., & Skhvediani, A. (2017). Regional Labor Market: Forecasting the Economic Effect of Cooperation between Universities and Entrepreneurs. *Journal of Advanced Research in Law and Economics*, 8(6), 1908–1915. <https://journals.aserspublishing.eu/jarle/article/view/1846>
- Steijn, B., Klijn, E., & Edelenbos, J. (2011). PUBLIC PRIVATE PARTNERSHIPS: ADDED VALUE BY ORGANIZATIONAL FORM OR MANAGEMENT? *Public Administration*, 89(4), 1235–1252. <https://doi.org/10.1111/j.1467-9299.2010.01877.x>
- Transitiemakers. (2022). *Stakeholdersanalyse Programmaniveau EBD35*. <https://www.provincie.drenthe.nl/onderwerpen/natuur-milieu/energietransitie/mkb-industrie/bedrijventerrein/hulpmiddelen/>
- UNIDO. (1997). *Industrial Estates: Principles and Practice*. (UNIDO(02)/144). https://digitallibrary.un.org/record/414834/files/UNIDO%2520%2802%29_144.pdf?ln=en
- Van Ham, H., & Koppenjan, J. (2001). BUILDING PUBLIC-PRIVATE PARTNERSHIPS: Assessing and managing risks in port development. *Public Management Review*, 3(4), 593–616. <https://doi.org/10.1080/14616670110070622>
- Van Hout, L., & Werkman, W. (2023). *Regionaal samenwerken aan verduurzaming van bedrijventerreinen in Regio Foodvalley*. PVB Nederland. <https://pvbnederland.nl/regionaal-samenwerken-foodvalley/>
- Van Raalten, R., Van Heest, J., Copping, M., & Maat, W. (2020). Toekomstvaste Bedrijventerreinen Overijssel (Projectnummer 1478). Bureau Buiten. <https://admin.geoportaaloverijssel.nl/attachment/c264d383-57e2-477a-9021-55358eebe588/Bureau%20BUITEN%20-%20Rapport%20toekomstvaste%20bedrijventerreinen%20Overijssel%20-%20DE..pdf>

VONK. (2024). *Over Vonk – VONK – Vastgoed en Ondernemers Kennispark*.
<https://www.vonkenschede.nl/over-vonk/>

Williamson, O. E. (1996). *The mechanisms of governance*.
<https://ideas.repec.org/b/oxp/obooks/9780195132601.html>

World Bank Group. (2013). *World Bank Group Support to Public-Private Partnerships: Lessons from Experience in Client Countries, FY02–12*.
https://ieg.worldbankgroup.org/sites/default/files/Data/Evaluation/files/ppp_eval_updated2.pdf

Yin, R. K. (2009). *Case study research: Design and Methods*. SAGE.

Zhang, X. (2005). Critical success factors for Public–Private Partnerships in Infrastructure development. *Journal of the Construction Division and Management*, 131(1), 3–14.
[https://doi.org/10.1061/\(asce\)0733-9364\(2005\)131:1\(3](https://doi.org/10.1061/(asce)0733-9364(2005)131:1(3)

Appendices

Appendix 1: Search strings and results

Concept	Synonyms
Business parks	Business park, Mixed industrial parks, Mixed industrial park, mixed-industrial park, eco-industrial park
Public-private partnerships	PPP, public-private partnership, public private partnership, public private partnerships
Sustainability	SDG, sustainable development goals, sustainable, circular economy

Search string for all three concepts:

("Business parks" OR "Business park" OR "Mixed industrial parks" OR "Mixed industrial park" OR "mixed-industrial park") AND ("PPP" OR "public-private partnership" OR "public-private partnerships" OR "public private partnership" OR "public private partnerships") AND ("sustainability" OR "SDG" OR "sustainable development goals" OR "sustainable" OR "circular economy")

Results:

	Scopus	Web of Science	Total
Total number of results	0	0	0
Relevant to the research	0	0	0

Search string for the concepts Business parks and Public-private partnerships:

("Business parks" OR "Business park" OR "Mixed industrial parks" OR "Mixed industrial park" OR "mixed-industrial park") AND ("PPP" OR "public-private partnership" OR "public-private partnerships" OR "public private partnership" OR "public private partnerships")

	Scopus	Web of Science	Total
Total number of results	1	0	0
Relevant to the research	0	0	0

Search string for the concepts Business parks and Sustainability:

("Business parks" OR "Business park" OR "Mixed industrial parks" OR "Mixed industrial park" OR "mixed-industrial park") AND ("sustainability" OR "SDG" OR "sustainable development goals" OR "sustainable" OR "circular economy")

	Scopus	Web of Science	Total
Total number of results	46	41	87
Excluded: Not English or Dutch	2	0	2
Excluded: Does not concern business parks	24	21	45
Removal of duplicates		12	12
Relevant to the research	20	8	28

Appendix 2: Interview protocol and connections with literature (English)

The interview protocol is created based on the tips from this article:

Jacob, S. A., & Furgerson, S. P. (2012). Writing Interview Protocols and Conducting Interviews: Tips for Students New to the Field of Qualitative Research. *The Qualitative Report*, 17(2), 1-10.

Before recording:

Contact participant through e-mail or telephone to make appointment for interview.

During interview appointment:

- Ask participant to sign informed consent form
- Ask for permission to record interview
- *start recording*

1. Introduction

Ask for permission to start recording (2nd time on record)

TH: Thank you very much for making time for this interview. Before we start, I would like to briefly introduce myself and the research that I am doing.

My name is Thomas Hazewindus, I study Business Administration at the University of Twente. For my master thesis, I am conducting research about public-private partnerships to improve the sustainability performance of business parks. I am conducting this research in cooperation with Transitmakers. Transitmakers is a consultancy company from Deventer which specializes in the process of making business parks more sustainable. Last months, I have focused on my research design and literature research. The main question of my research is "How can public-private partnerships best be organized for business parks in the Netherlands to improve their sustainability performance?". I want to answer this question through case studies. I will do four case studies on public-private partnerships at the region Stedendriehoek, De Trompet in Heemskerk, De Faktorij en De Vendel in Veenendaal and Kennispark in Enschede. For every case, I interview several stakeholders from both the public and private side.

1. Warm-up questions

Can you please introduce yourself?

What is your function?

2. Introduction project

Can you tell something about [case]?

What was your role in this public-private partnership?

3. Structure of PPP

What was the goal your organisation wanted to achieve with this PPP?

- *The aim of this question is to test whether there is a common goal for the different parties that take part in the PPP, as stated in the definition of PPP by Bult-Spiering et al. (2005)*

Why did you choose for a PPP as form of cooperation?

Which party took the initiative to set up the cooperation?

- *According to Le Tellier et al. (2019), the governing body is tasked with initiating cooperations between members and the governing body of a business park. In practice, I see that companies can also start this. The purpose of this question is to challenge the perspective of Le Tellier.*

How was the PPP structured?

- Prompt: No form of organization, project group, shared project office or autonomous legal person (*Forms of PPP according to Steijn et al. (2011)*)
4. Commitment of resources and division of risks and revenues

These questions are also based on the definition of PPP by Bult-Spiering et al. (2005)

Which resources did your organizations commit to the PPP?

- Prompt: Did your organization commit money, staff, or time? *Type of resources that can be an obstacle in PPP according to Rybnicek et al. (2020)*

How were the risks divided?

- Can you express this in a percentage (for example 60% private and 40% public)

How were the revenues divided?

- Can you express this in a percentage (for example 60% private and 40% public)

5. Perception of PPP

How do you look back at the PPP?

Did your organisation benefit from the PPP? If so, how?

- Prompt: Higher efficiency, more added value, more innovative solution
Based on the main promises of PPP by Steijn et al. (2011)

Were there any obstacles or frustrations in the process of the PPP?

- If yes, what were these obstacles/frustrations?
- What impact did these have on your organization?
- What impact did they have on the PPP?
- Were you able to overcome these? If so, how?

6. Interactions with (PPPs at) other levels

During the project, did you ever make use of knowledge or resources that were available at the regional or national level? If so, what did you make use of and how did it help you in the project?

- Prompt: Think about the national PPP of PVB Nederland

Specific questions per case

- De Trompet: The NOVA college offers an MBO study 'Sustainability advisor', set up in cooperation with the environmental service and business parks in the region. How is your relationship with this program?
 - o Have students of this program done an internship at your business park? What is your experience with this?

- Stedendriehoek: What is the added value of a PPP at the regional level for business parks at the local level?
 - o What is the role of the Regio Deal in your PPP?

Closing

We are approaching the end of the interview. Would you like to elaborate on any of your answers? Do you have any questions for me? If you are interested in the outcomes of my research, I can send these to you when I have finished my research. Are you interested in this? If yes, what is your e-mail address?

Thank you very much for your time. Your input is very valuable for my research.

Appendix 3: Code book for case studies

Code	Code Group	Theory/manually added	Source
De Faktorij en De Vendel	Case	Manually added	
De Trompet (GreenBiz Ijmond)		Manually added	
Kennispark		Manually added	
Regio Stedendriehoek		Manually added	
			Rybnicek et al. (2020)
Financial resources	Dedicated resources to PPP	Theory	Bult-Spiering et al. (2005)
Information		Manually added	
Staff		Theory	
Time		Theory	
Equal division of revenues	Division of revenues	Manually added	
Revenues mostly on private side		Theory	Bult-Spiering et al. (2005)
Revenues mostly on public side		Theory	
Equal division of risks	Division of risks	Manually added	
Risks mostly on private side		Theory	Bult-Spiering et al. (2005)
Risks mostly on public side		Theory	
Private: Entrepreneur	Function of informant	Manually added	
Private: Entrepreneurial association		Manually added	
Private: Lobby association		Manually added	
Private: Other		Manually added	
Public: Municipality		Manually added	
Public: Other governmental		Manually added	
Public: Province		Manually added	
Public: Water board		Manually added	
More added value	Goal of PPP for informant's organisation	Theory	Steijn et al. (2011)
More efficiency		Theory	
More innovative solution		Theory	
Other benefit		Manually added	
Stronger position in negotiations		Manually added	
Initiative of PPP on private side	Initiative of PPP	Theory	Le Tellier et al. (2019)
Initiative of PPP on public side		Theory	
Interaction with PPPs or other cooperation at higher levels	Interaction with PPP/cooperation at other levels	Manually added	
Interaction with PPPs or other cooperation at lower levels		Manually added	
Autonomous legal person	Level of cooperation	Theory	Steijn et al. (2011)
No formal organisation		Theory	
Project group		Theory	

Project office		Theory	
Commitment obstacles	Obstacles/frustrations	Theory	Rybnicek et al. (2020)
Communication obstacles		Theory	
Conflicts obstacles		Theory	
Contract obstacles		Theory	
Controlling obstacles		Theory	
Culture obstacles		Theory	
Environment obstacles		Theory	
Expectations obstacles		Theory	
Experience obstacles		Theory	
Geographical distance obstacles		Theory	
Image obstacles		Theory	
Intellectual property rights obstacles		Theory	
Knowledge transfer obstacles		Theory	
Objectives obstacles		Theory	
Outcome/quality obstacles		Theory	
Partner selection obstacles		Theory	
Process obstacles		Theory	
Resources obstacles		Theory	
Risk awareness obstacles		Theory	
Role of leadership obstacles		Theory	
Structure obstacles		Theory	
Team expertise obstacles		Theory	
Technology transfer obstacles		Theory	
Trust/monitoring obstacles		Theory	
Willingness for changes obstacles		Theory	
More added value (Result)	Result of PPP for informant's organisation	Theory	Steijn et al. (2011)
More efficiency (Result)		Theory	
More innovative solution (Result)		Theory	
Other benefit (Result)		Manually added	
A common goal	Success factors for PPP	Manually added	
A separate entity with relevant expertise		Manually added	
Clear division of tasks and responsibilities		Manually added	
Commitment		Manually added	
Communication		Manually added	
Companies that are also building owners		Manually added	
Cooperation at the regional level		Manually added	
Letting the private side take the initiative		Manually added	
Orchestration		Manually added	
Organisational level of the entrepreneurs		Manually added	
Park management		Manually added	
Short and direct communication lines		Manually added	
Subsidies		Manually added	
Willingness to invest		Manually added	

Appendix 4: Consent form for interviews

Toestemmingsformulier deelname interview onderzoek

Project: Master thesis voor de studie Business Administration aan de Universiteit Twente in samenwerking met Transitmakers B.V.

Onderwerp: Publiek-private samenwerkingen als een middel om de verduurzaming van bedrijventerreinen te realiseren

Onderzoeker: Thomas Hazewindus

Begeleiders: dr. Laura Franco Garcia (UT), Lisa van Hout en Ruben Schutte (Transitmakers B.V.)

Hartelijk dank voor uw deelname aan dit onderzoeksproject. Gedurende het interview zal de onderzoeker voor het onderzoek relevante persoonlijke data verzamelen. Dit formulier is om vast te stellen dat u bekend bent met het doel van uw deelname aan het onderzoek en dat u akkoord gaat met de voorwaarden van uw deelname

Voorwaarden deelname

- Uw deelname is vrijwillig. U kunt zonder opgave van reden op elk moment uw deelname aan het onderzoek intrekken.
- U ontvangt geen compensatie voor uw deelname aan het onderzoek.
- Het interview wordt opgenomen en getranscribeerd.
- De opname zal verwijderd worden wanneer het onderzoek is afgerond.
- Het transcript van het interview wordt geanalyseerd door de onderzoekers en kan indien nodig voor het onderzoek door de begeleiders ingezien worden. Het transcript wordt niet gedeeld met derden.
- Door u opgegeven persoonlijke gegevens worden verwijderd wanneer het onderzoek is afgerond. Uw naam zal in de thesis niet genoemd worden.

Gaat u ermee akkoord dat de naam van uw organisatie in de thesis en eventuele publicaties die daarop volgen genoemd wordt?

Ja

Nee

Indien u 'ja' kiest, wordt in het onderzoek niet uw naam genoemd, maar wel uw organisatie en indien nodig uw functie. Bijvoorbeeld: "Een bestuurder van ondernemersvereniging 'de ondernemersvereniging' van bedrijventerrein 'Het bedrijventerrein' noemde XYZ als successfactor voor de publiek-private samenwerking"

Indien u 'nee' kiest, wordt in het onderzoek de naam van uw organisatie weggelaten. Bijvoorbeeld: "Een bestuurder van de ondernemersvereniging van een bedrijventerrein in het Westen van Nederland noemde XYZ als successfactor voor de publiek-private samenwerking"

Ik ga akkoord met mijn deelname aan het onderzoek onder de voorwaarden hierboven.

Naam: _____

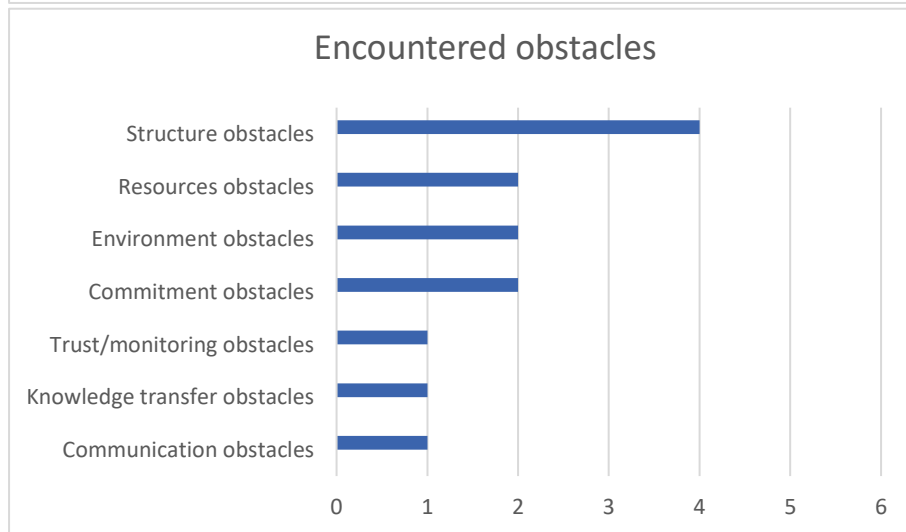
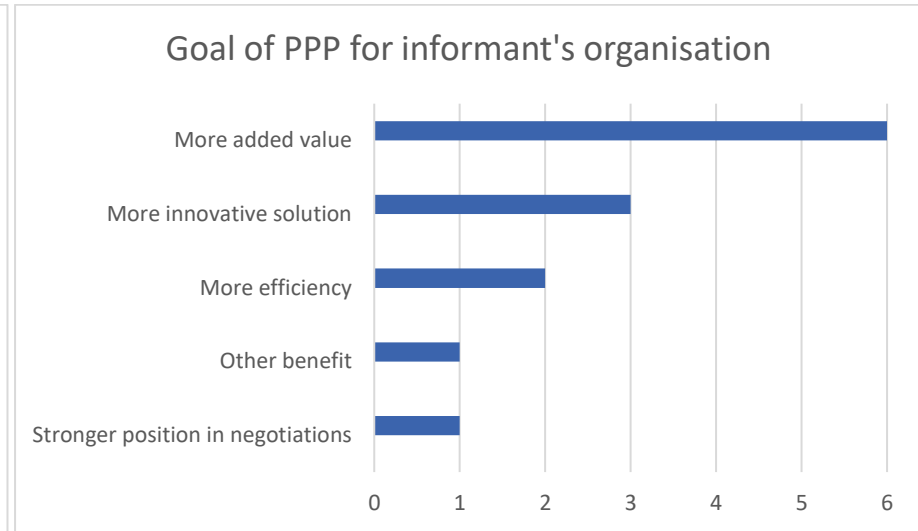
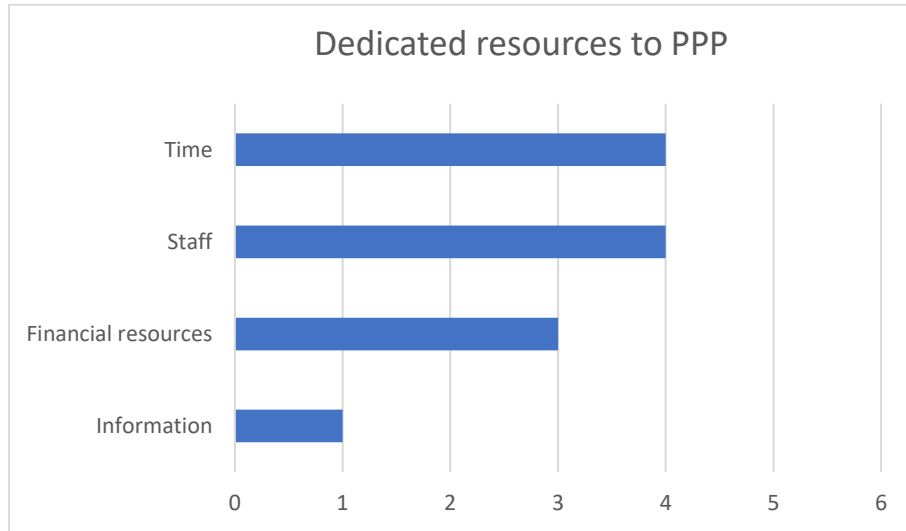
Datum en plaats: _____ **Handtekening:** _____

Appendix 5: Results document analysis stakeholder analysis sub-question 1

Code Group	Code	Frequency	Arcadis et al. (2021)	Arts (2012-1)	Arts (2012-2)	Dekker et al. (2018)	Gemeente Veenendaal (2021)	GreenBiz IJmond (2024)	Houwing (2023)	Macke (2022)	MVO Nederland (2021)	Nordkamp et al. (2021)	Rotensen (2013)	Transitiemakers (2022)	RLI (2023)	Percentage	
Governing body	Municipality	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100%
Company	Entrepreneur	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	79%
Company	Entrepreneurial association	10		1	1		1	1	1		1		1	1	1	1	71%
Governing body	Province	9				1	1			1	1		1	1	1	1	64%
Governing body	Public investors	9		1	1	1				1	1	1	1	1	1	1	64%
Governing body	Park management	8			1		1			1	1	1	1	1	1	1	57%
Building	Building owner	7	1	1	1		1				1	1			1		50%
Other stakeholders	Consultancy firm	6		1	1					1	1			1		1	43%
Public space	Public space	6	1			1	1	1			1			1			43%
Company	Employees	5	1			1	1	1			1						36%
Governing body	Regional governmental organisation	4	1							1			1	1			29%
Other stakeholders	Education and research institution	4				1			1				1			1	29%
Other stakeholders	Inhabitants of surrounding neighbourhoods	4	1								1	1		1			29%
Governing body	Chamber of Commerce	3		1	1					1							21%
Governing body	Environmental service	3								1			1	1			21%
Governing body	National government	3								1			1	1			21%
Governing body	Private investors	3	1								1	1					21%
Governing body	Water board	2					1					1					14%
Other stakeholders	Electricity network operator	2											1	1			14%
Clients	Clients	2	1									1					14%
Governing body	Planners	1								1							7%
Other stakeholders	Economic board	1				1											7%
Other stakeholders	Energy cooperation	1													1		7%
Other stakeholders	Lobby group	1											1				7%
Other stakeholders	Real estate agents	1													1		7%
Suppliers	Suppliers	1	1														7%

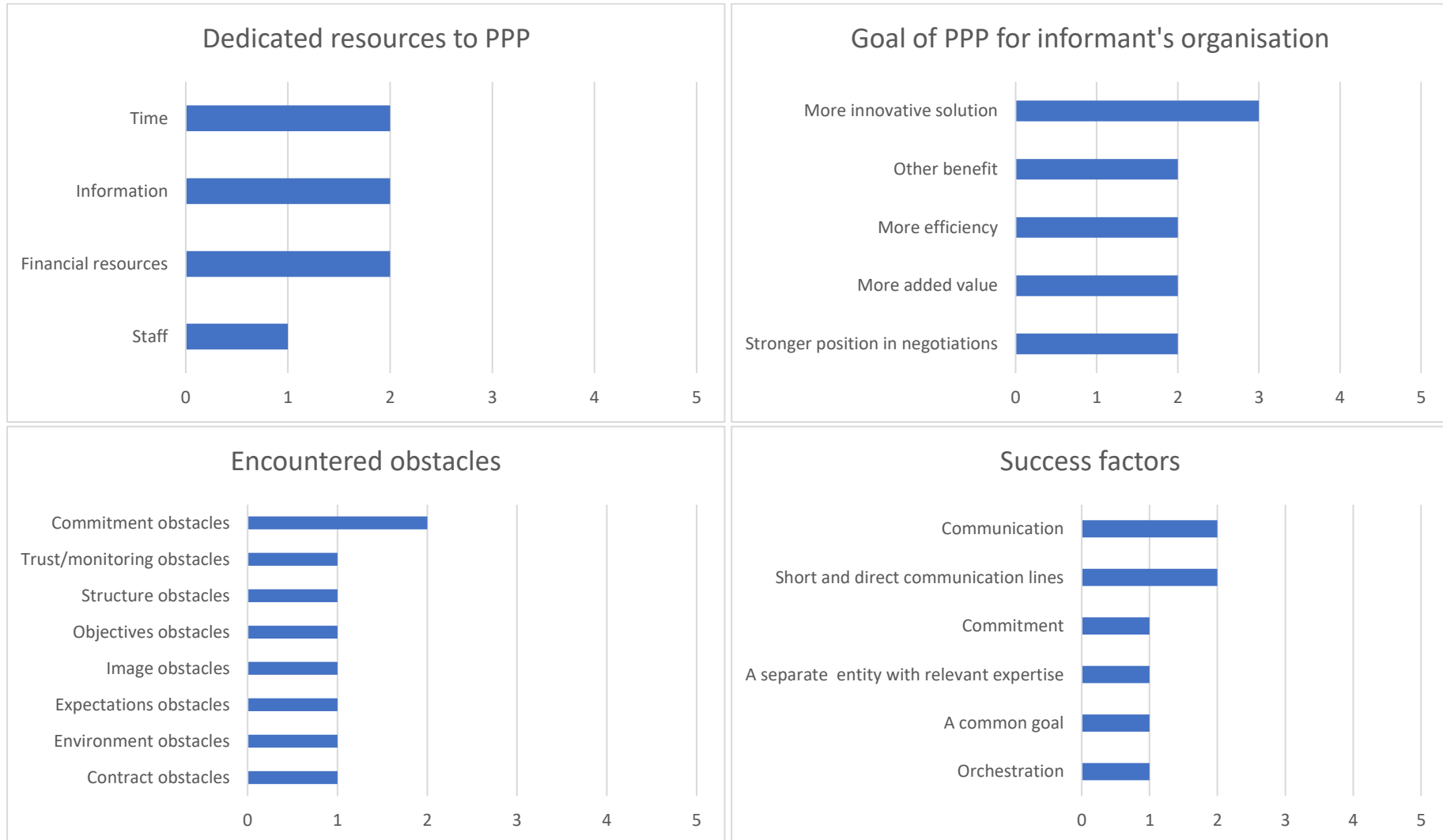
Appendix 6: Quantitative results of Regio Stedendriehoek case

N=6 interviews



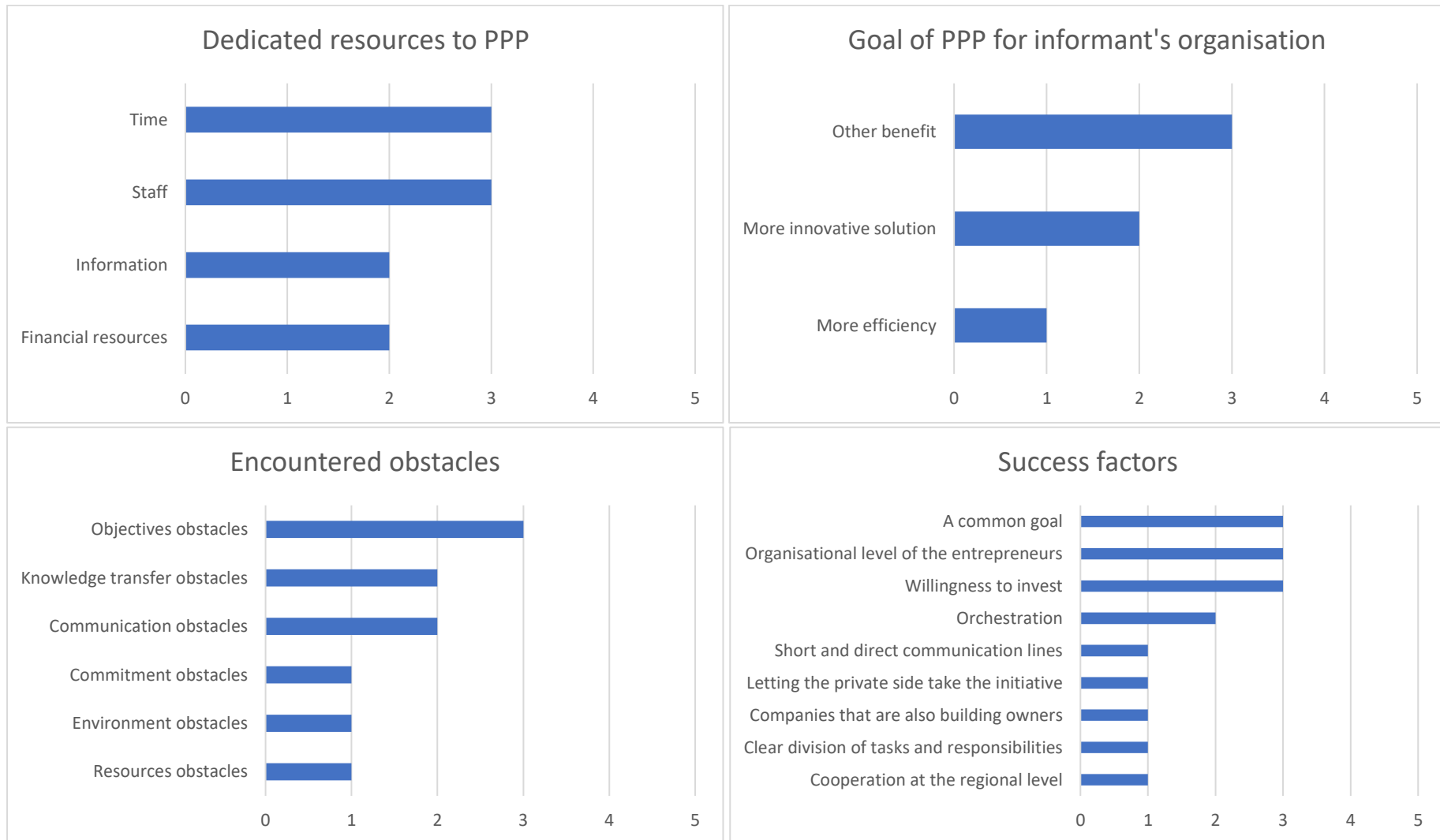
Appendix 7: Quantitative results of De Trompet case

N=5 interviews and 1 document. The findings from the document are only part of the qualitative analysis in chapter 4.3.3.



Appendix 8: Quantitative results of De Faktorij en De Vendel case

N=5 interviews and 1 document. The findings from the document are only part of the qualitative analysis in chapter 4.3.3.



Appendix 9: Quantitative results of Kennispark Twente Case

N=2 interviews, 1 document and 1 pre-recorded interview. The findings from the document and pre-recorded interview are only part of the qualitative findings in chapter 4.3.3

