

Location factors for circular businesses

A research examining location factors for circular businesses on business park de Steiger in Almere, the Netherlands

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Abstract

The transition towards the Circular Economy is becoming an increasingly important topic in society. Governments have taken the transition towards the Circular Economy as one of the main goals for the coming decades and have set out policy to realize this goal. There is an important role for businesses in this transition, for example by applying circular business models. Stimulating the application of circular business models and meeting the preconditions for circular businesses to locate in an area are relevant topics for this. This research examines the location factors that are important for circular businesses, and compares this with the traditional literature on location factors. The results show that circular businesses find the proximity of other circular businesses the most important location factor.

Keywords: Location Factors - Circular Business Models - Circular Economy - Eco-Industrial Park - Circular Entrepreneurs - Cooperation between businesses and government

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1. Introduction

In recent years, the concept of the Circular Economy has been one of the most popular terms in the field of sustainable development. This is illustrated by the fact that in 2016, over 100 peer-reviewed articles about the Circular Economy were published. For comparison: in 2014 there were 30 published articles on the topic (Geissdoerfer et al., 2017). The rising interest in concepts like circularity join an ongoing change in the way development is examined. Where in the past economic gain and GDP growth were the ultimate goals of development policy, in recent years there is a shift towards a broader view on what determines development and well-being levels, including issues like social and environmental sustainability (Pike et al., 2017). Adding to the increased attention for the Circular Economy, is the influential report by the Ellen MacArthur Foundation, published in 2012, which concluded that significant potential benefits (economic, as well as social and environmental) for the EU can be obtained when transitioning to a circular instead of linear model for the economy. Moreover, it identifies important building blocks for the transition towards a Circular Economy, such as circular product design and new circular business models (Ellen MacArthur Foundation, 2012). Additionally, according to a report by the European Commission from 2018, the transition towards a Circular Economy is estimated to cause a net increase of 700,000 jobs in the EU by 2030 (European Commission, 2018).

Stimulated by reports like these; policymakers, academics, and the business community increasingly recognised the need to move towards a new economic model whereby materials and energy from discarded products or by-products are reintroduced into the economic system (Rizos et al., 2016). Merli et al. (2018, p. 718-719) sums up the increased interest in the topic as follows:

“Circular Economy is a topic in rapid development, which has been recognized both by public decision makers and academia as the way forward to balanced development. This paradigm shift is considered as a reference point to harmonize economic growth, environmental issues and resource scarcity.”

In terms of environmental benefits, transitioning towards a Circular Economy would help to reduce emissions and the loss of resources, and to ease the burden on global ecosystems. The European Environment Agency estimated that making the transition towards a Circular Economy in the built environment, food and mobility branches potentially leads to almost 50% reduced emissions by 2030, and over 80% by the year 2050, compared to emission levels in 2012. (Rizos et al., 2016; European Environment Agency, 2016). Besides environmental benefits, many studies and reports estimate that large cost savings can be attained, in addition to the large amount of new jobs that can be created. Moreover, new market opportunities can arise due to increased value being attached to environmental values by consumers (Antikainen et al., 2015).

It seems evident that the transition towards a Circular Economy entails extensive potential benefits for society and the economy. Making the transition should thus be stimulated for businesses and consumers, and a key role lies with the government (Kirchherr et al., 2017). National and local governments increasingly recognize the need for and the potential benefits of making the transition towards a Circular Economy. Governments have high interest in the transition towards a Circular Economy as this transition could solve many challenges at once: it benefits the environmental performances of a country by reducing carbon emissions, a topic

which is more and more emphasised as important, for example due to international agreements like the Paris Agreement. Moreover, the transition could solve emerging resource problems (Kirchherr et al., 2017).

One important way forward in this transition, is for businesses to apply circular business models (Chen et al., 2020). So, national and local governments try to stimulate society towards becoming more circular, and try to facilitate the application of circular business models for businesses. The locational preferences of businesses that apply circular business models and their location decision are relevant for this. The study of the location decision of businesses has been researched especially in the 80s and 90s of the 20th century. Now, this debate of location factors has a new input, as a new generation of businesses which apply circular business models might have different locational preferences.

The municipality of Almere in the Netherlands in particular profiles itself as a very progressive municipality that wants to take a pioneering and leading role in the transition towards a circular economy. According to an inquiry in 2020, the vast majority of Dutch municipalities has policy on the circular economy, however 75% of the municipalities does not have a policy focused on circular economy on business sites (De Kort et al., 2020). Nevertheless, focusing on the circular economy on business sites is an important way in which local governments can try to stimulate the transition towards a circular economy (Hesmati, 2017). One of the options for stimulating circular activity is to set up business parks that meet the preconditions of companies that apply a circular business model. For example an Eco-Industrial Park (EIP). In order to stimulate and also attract circular business activity, and create the right business environment for circular businesses, it is relevant to know what location factors are important for these circular businesses. Therefore, this research will focus on these location factors for circular businesses and find out whether the location factors for circular businesses differ from traditional location factors. For this research business park de Steiger in the municipality of Almere in the Netherlands will serve as a case study.

This research will thus examine the transition towards a circular economy on business sites more thoroughly, by answering the following research question:

Do circular businesses have different locational preferences compared to traditional businesses?

To answer the research question, the following sub questions are formulated:

What defines a circular business or circular entrepreneur?

Which location factors are most important according to the traditional literature?

Which location factors are most important for circular businesses?

This thesis will be structured as follows. In section 2 a theoretical framework is set out, wherein the relevant concepts and findings from the literature are elaborated. These are brought together into a conceptual framework. Thereafter, the case study is explained, and the section concludes with the resulting expectations. In section 3 the methodology of this research is explained. Section 4 reports the results of the research, and finally section 5 consists of a discussion of the results, conclusions are drawn, and avenues for further research are set out.

2. Theoretical framework

In this section, the theoretical framework that lies on the basis of this research will be elaborated. The first concept that will be examined further is the circular economy itself, and its definition.

2.1 Definition of Circular Economy

An issue with the concept 'Circular Economy' is that there is no consensus about a clear single definition of the concept in the literature. Kirchherr et al. (2017) analysed 114 different definitions of the concept of the Circular Economy, and concluded that the concept is mostly defined as a combination of reduce, reuse, and recycle activities. In an article by Murray et al. (2017, p.369) the concept is described as:

“An economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed, as both process and output, to maximize ecosystem functioning and human well-being.”

This is a very broad definition, which gives little direction and leaves room for different interpretations. Besides this definition, building further on the key elements of the concept of the Circular Economy mentioned by Kirchherr et al. (2017), in this paper the following definition by Geissdoerfer et al (2017, p. 6) will be used:

“a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling.”

This definition is also relatively broad and extensive, but with its clear indication of the elements that are included in the definition, it is more applicable than the one by Murray et al. (2017), and since the practice of the transition towards a circular economy is still in its infancy, which also goes for the application of circular business models by businesses, this definition fits this research appropriately.

On the basis of the processes in the definition by Geissdoerfer et al. (2017) regarding material and energy loops, lies the Cradle to Cradle model of McDonnough and Braungart (2002), which presents a model mirroring nature's cycle in which 'waste equals food'. Cradle to Cradle implies that products should not be produced in a linear, take-make-use-dispose system, but in a circular, or as Stahel, who first mentioned the cradle to cradle idea in the 1970s, called it "closed-loop system" where the product does not end as waste, but is reused, or is used as a resource for another product (Stahel, 1981). To achieve a circular economy where these closed-loop systems are applied in practice, businesses have to implement circular business models.

2.2 Circular business models

In order for the economy to make the transition towards the Circular Economy, an indispensable step is for businesses to apply circular business models. According to the European Commission, the main reasons for European SMEs to take action with respect to applying circular business models are reducing material costs, the emergence of new markets,

and the potential to create competitive advantage (European Commission, 2013). Articles by Rizos et al. (2016) and Lewandowski (2016) endorse these findings.

There seems to be large economic potential for circular business models to be adopted in theory. However, there can be numerous barriers for adopting and implementing circular business models in practice (Vermunt et al., 2019). For example, Rizos et al. (2016) find the following barriers: the need for information and knowledge, difficulties in estimating future revenues against current expenses, dependence on market demand and availability of technologies in the market. Specifically for SMEs, implementing circular business models can entail difficulties, since circular business models often demand more intensive monitoring of the life cycle of products, which requires significant resources which SMEs often lack. This lack of resources can also translate into problems in attracting external financing such as government subsidies or grants, since SMEs often lack personnel and time to meticulously assess the necessary requirements (Rizos et al., 2016; Hoevenagel et al., 2007). Another issue which makes successful implementation of circular business models difficult is related to the external supply chain, as there is often large dependence on other parties for the supply of input materials for circular production models, such as used products and materials (Vermunt et al., 2019).

Innovative start-ups, compared to incumbent companies, are less bound to existing technologies and rigid production processes and the accompanying mindset, and are able to adopt and apply innovative circular business models (Vogtlander et al., 2017). This can partly be attributed to their comparatively high flexibility. Antikainen et al. (2017) see an important role for start-ups in the transition towards a circular economy, as they provide explicit examples of new circular business opportunities to the market and thereby have the potential to offer solutions to social and environmental problems and challenges.

Despite the potential of innovative start-ups to successfully implement circular business models, there are thus certain issues regarding the implementation of circular business models in practice. To place these implementation issues into more practical perspective, it is interesting to add a locational aspect to the analysis. Namely, the next section will address an important concept with respect to the implementation of circular economy on business sites in practice, which is an Eco-Industrial Park (EIP). According to Tudor, Adam & Bates (2007) EIPs offer significant economic benefits, as well as social and environmental benefits. Not only can and do EIPs benefit individual firms, but collections of firms as well. And, although EIPs cannot be created from scratch, it is possible to affect and create the settings for EIPs to develop and evolve (Frosch & Gallopoulos, 1989). The following section will examine this concept more thoroughly.

2.3 Eco-Industrial Parks

Eco-Industrial Park is an important concept in the literature on circular economy and its implementation. The aim of government policies to integrate environmental and economic objectives is one of the main factors responsible for the evolution of the concept EIP (Pellenbarg, 2002). The idea behind an EIP is that it aims to copy the efficient biological processes that exist in nature, aiming at systems of production and consumption that are more sustainable, and generate reduced waste quantities, both in terms of emissions and in terms of materials. Moreover, an EIP tries to make resources and reusable products out of by-

products, and therefore it is crucial that businesses and organisations integrate and locate closely together to utilise each other's by-products and waste (Tudor et al., 2007). According to Frosch & Gallopoulos (1989) EIPs have three main principles. Firstly, the minimization of required energy resources. Secondly, the use of industrial waste as input for other processes, and thirdly, the creation of a resilient and varied system. Building on these main principles, Cohen-Rosenthal & Musnikow (2017, p. 16) defined an EIP as follows:

“a community of businesses that co-operate with each other and with the local community to efficiently share resources (information, materials, water, energy, infrastructure and natural habitat), leading to economic gains, gains in environmental quality and equitable enhancement of human resources for the business and local community.”

The most well-known example of an EIP is Kalundborg Park located in Denmark, originating from the 1960s. On this site, even though it was not engineered or designed to become an EIP, the main principles mentioned by Frosch & Gallopoulos (1989) were conducted here. The development of this EIP and the underlying collaboration between the firms was not instigated by the government, but the initiative came from the private companies. It started with a plaster-board manufacturer using gas from the present oil refinery. Various other companies from different types of firms are also based here and included in the collaboration of sharing resources. For example, a large power plant, a Norwegian-owned oil refinery, and a large pharmaceutical production firm, but also a local fish farm are involved. They work together by for example the usage of other companies' surplus heat in the form of steam which is used for the pharmaceutical production process. Moreover, an industrial waste product from the power plant serves as an input for the production of the plaster-boards. All together this leads to strongly reduced resource usage and decreased waste quantities, due to which large amounts of emissions are prevented from being emitted, all combined translated in estimated cost savings of around 15 million dollars per year. Especially these cost savings prove to be very important for the evolution of EIPs. Although EIPs are primarily developed for and aimed at achieving environmental and social benefits, financial benefits prove to be crucial for the existence of EIPs (Roberts, 2004). In the literature on EIPs, many articles are written about Kalundborg Park, and many case studies compare other EIPs to the Kalundborg Park example. However, Korhonen (2001, p. 60) states:

“Whilst one can learn lessons from the development of other industrial ecosystems, as each is different due to variation in social, economic, cultural and ecological circumstances, it is often difficult to make comparisons.”

Although making comparisons between EIPs may be difficult and disputable, some research was conducted, aimed at distinguishing key driving factors that positively influence the success of an EIP.

2.4 Drivers of EIPs

One vital element for success in the development of an eco-industrial park is to have the right institutional setting in the area or region (Mirata, 2004; Veleva et al., 2015). An aspect of this institutional setting is cooperation between local government and local businesses and their relationship. Tudor et al. (2007) conducted a large literature review on the drivers and limitations for successfully developing eco-industrial parks, which also includes this element.

Another important element which enhances the success of an eco-industrial park is cooperation between businesses. Close cooperation on various aspects is important to build a necessary level of trust between the businesses (Pellenbarg, 2002). Heeres et al. (2004) adds the aspect of information and knowledge sharing, and stresses the importance of these. This sharing of information and knowledge can have many forms, often involving information on specific business operations and production processes. In developing an eco-industrial park, the focus should first be on the sharing of utilities, before often more complicated processes like energy, material and waste sharing and exchange are being pursued and realized (Heeres et al., 2004).

The establishing of an EIP can generate increased interest from businesses, compared to a regular industrial park. However, the specific features of the EIP will not become more important for interested businesses than factors related to the spatial and economic aspects of the particular site (Deutz & Gibbs, 2004). In this process of establishing an EIP, various planning methods have been identified and applied in the Netherlands. In a study on these planning methods, Eilering and Vermeulen (2004) find that key elements of proper EIP planning are often not well incorporated. The key elements they find lacking in planning methods are company and location-specific factors. These factors are essential for making implementation of utility sharing and symbiosis, two core concepts of EIPs, possible, as implementing these is a meticulous process, wherein large differences can exist between the businesses in their suitability for applying these sharing and exchanging processes. Additionally, according to Eilering and Vermeulen (2004), building on research by Schlarb (2001) large-scale industrial companies, as they often have large and stable waste flows, are best suited for sharing and exchanging processes. The larger industrial firms can have the potential to serve as an anchor company which offers potential for energy and waste re-usage opportunities for other companies.

2.5 Location decision

According to traditional location theory (Von Thünen, Weber) firms locate at the location where the maximum amount of profits can be attained, considering transportation costs. The location decision is based on economic factors in this traditional framework. However, in practice, it is often very difficult for firms to accurately estimate the potential revenues and costs a specific location can offer, due to uncertainty and imperfect information (Van Dijk & Pellenbarg, 2000; Hayter, 1997). So, instead of the traditional location theory, which argues that firms base their location decisions on exactly calculated economic factors, the behavioural approach to location theory argues that firms will be located within the spatial margins of profitability (Smith, 1966; Pred, 1967). De Bok (2004) argues that applying a behavioural approach to location theory is useful, as this approach can account for non-economic factors and firm internal processes that play a role in the location decision process. Examples of uncertain factors that can influence the estimated investments for or benefits from a (re)location decision are the behaviour of competing firms, changes in resource prices, or technological innovations in the market. However, also non-economic motives like living conditions in close proximity to the firm location, or the simple fact that the owner is born in the area can play a role in the decision-making process.

When a firm evaluates its performance and profitability at its present location, and finds it is reaching the spatial margins of profitability, relocation may become an option in order to

increase potential revenues and profitability. Push-factors of the location drive the decision to relocate if the firm's profitability is limited by its location. However, also if the firm's profitability is not under pressure, firms may consider relocation, driven by appealing pull-factors of another location. In addition to push and pull-factors, literature on firm migration and relocation decisions also distinguish another category, namely keep-factors. Keep-factors represent reasons that argue in favour of staying at a certain location (Van Dijk & Pellenburg, 2000).

These location factors and their importance for businesses have gradually changed over time. From the 1950s onwards, agglomeration benefits gained more importance in the location decision for businesses. Agglomeration benefits entail the benefit of having facilities and services, but also suppliers and consumers in close proximity of each other (Pellenburg, 2002). These agglomeration benefits also play an important role in the development of eco-industrial parks, as applying utility sharing and exchanging resources can be regarded as agglomeration benefits (Eilering & Vermeulen, 2004). In line with the underlying environmental goals of eco-industrial parks, from the 1990s onwards environmental and social aspects such as government policies and attitudes to environmental concerns gained greater prominence in location decisions for businesses (Pellenburg, 2002).

2.6 Most important location factors

According to research from Van Dijk & Pellenburg (2000; 2002) the most important location factors in the location decision for businesses are space for expansion and accessibility. Another factor of significant importance is the labour market, translated into the wish to keep current employees. This factor is especially important for firm who are moving and face a relocation decision. This factor results in an often relatively small spatial scale in which the business will look for a new location, in order to ensure that employees do not have to travel too much or even move to a new house (Van Dijk & Pellenburg, 2000). When it comes to location decisions, there are clear differences between the decisions of starters and existing firms that decide to move. Often, for starters the first location of a newly started business is situated in close proximity to the owner's residence. Moreover, (re)location costs and (rental) prices tend to be more important for smaller businesses and businesses in the start-up phase, compared to larger and older firms. Furthermore, there are some important differences in the factors applied in the search process between firms looking for renting a site on the one hand, and firms wanting to own a site. Namely, firms opting for ownership of their site, attach more importance to spatial factors than renting firms (Pellenburg & Van Steen, 2003).

In line with the behavioural approach to location theory, Brouwer et al. (2004) in an empirical study find that firm size in terms of number of employees, and firm age have a negative effect on relocation propensities. Plausible explanations could be that large firms have to deal with higher sunk costs for relocating, and the embeddedness of relatively older firms in the spatial environment they are located in makes them less willing to relocate. Firms that experience so-called external factors, for example changes in size in terms of employees, have a higher propensity to relocate.

In a research on the factors important for eco-industrial park development Teh et al. (2014) find that the right institutional setting, consisting of a clear policy, comprehensive environmental law and regulations, and proper implementation will stimulate businesses and

industries to share utilities and exchange resources and by-products. Moreover, providing subsidies for investment in equipment is a very important factor for the successful eco-industrial park development. These subsidies are especially important for SMEs, as they often lack financial resources for large investments in equipment. Besides the institutional setting and subsidies, market factors like public awareness and green procurement procedures help create demand for environmentally friendly products. Local government policy on green procurement can thus also have a positive effect on the development of an eco-industrial park (Teh et al., 2014). The presence of so-called ‘anchor tenants’, which are the main, often industrial firms with a large volume of material flows, and its involvement in the exchange of resources, utilities and materials is crucial for the success of an EIP.

Besides by providing subsidies and contributing to the institutional setting, governments, on different levels, can have a steering role in the location decision of businesses in another way. Especially municipalities have an influential effect on the development of specific types of business parks. Nowadays, business parks are often planned to accommodate certain business segments or specific types of businesses, like logistical centers and science parks. This guiding directive of local governmental policy can play an important role in the location decision of certain businesses (Pellenbarg, 2002). Pellenbarg (2002) also finds that this development of the more explicit guiding role of local government has been increasing especially with respect to eco-industrial parks.

2.7 Conceptual Model

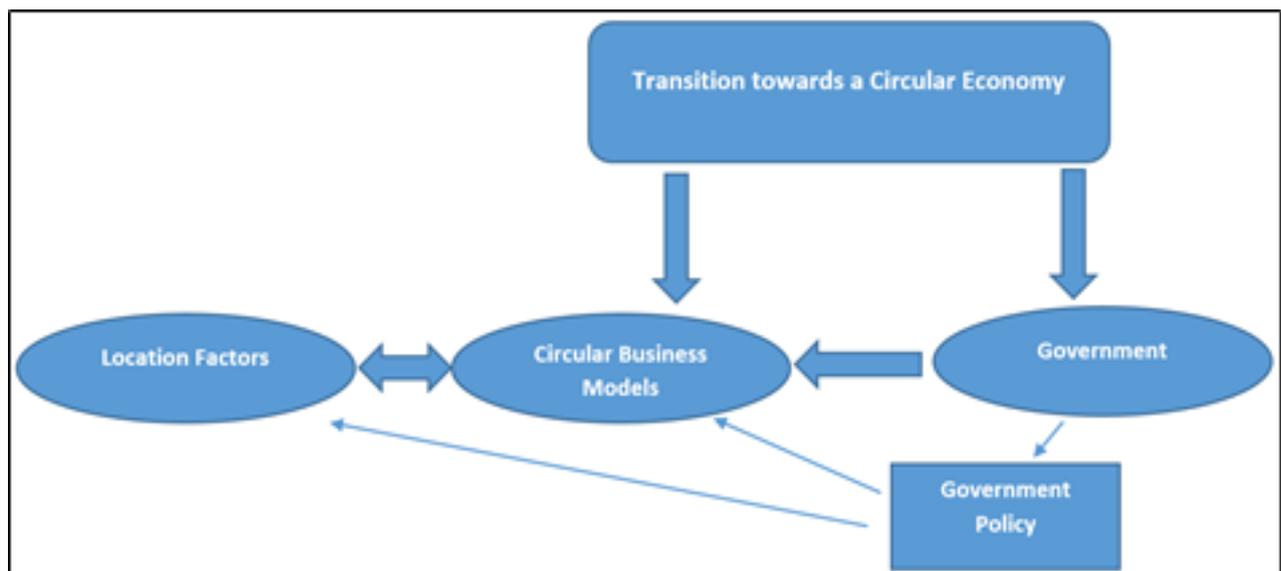


Figure 1: *Conceptual Model*

2.8 Case study explanation



Figure 2: Aerial picture of business park de Steiger. (Source: <https://www.bedrijventerreinenalmer.nl/alle-bedrijventerreinen/de-steiger/>)

The case study which this paper focuses on is business park De Steiger, located in Almere, in the Netherlands, as illustrated by Figures 4 and 5. Almere is a relatively new city, originating from the 1970s. Business park De Steiger is located in Almere-Haven, one of the three city districts in Almere and it is the oldest business park in the city. The main business sector located in the area constitutes of small-scale craft companies. The municipality of Almere profiles itself as a progressive municipality where innovation is of paramount importance. Translating this into practice means that many pilots and testing possibilities for all kinds of innovations are being facilitated and stimulated by the municipality, especially in the field of sustainability and circular economy. The motto of the municipality is therefore also: “It is possible in Almere”. The following quote from the municipality’s most important policy document on the circular economy illustrates this:

"Our dream is that the Netherlands and other parts of the world will use Almere as a Living Lab, a testing area in terms of legislation and regulations, entrepreneurship and residents' initiatives, in which what has been learned can be converted into input for others."

The municipality thus wants to become a frontrunner in the transition towards a circular economy, and this aim is translated into a comprehensive circular economy policy. Specifically the site of business park de Steiger has been designated as an area of attention when it comes to circularity. The arrival of the Floriade in Almere in 2022 also plays an important role in this, as this enormous event will take place on a site yet to be constructed right next to the Steiger. The municipality wants to use this event partly to put the circular movement present in the area in the picture. Related to the arrival of the Floriade, the municipality aims at making the public space in the area more attractive. This is also meant to improve the working climate for the people who work on de Steiger.

An important role in the circular movement on business park De Steiger is the Upcycle Center. This is a waste and recycling station where residents can bring many kinds of household waste and used products. This station has been renovated, and now accommodates room for three businesses, which can make use of these accommodations for free thanks to the municipality. These businesses can make use of the materials and goods that are brought by residents, and upcycle these materials and goods into new products. These companies are thus applying a circular business model. The Upcycle Centre can be seen as an anchor tenant on this business site, as it plays a central role in the exchange of material flows between businesses, which is an important part of circularity, and the development of an eco-industrial park. The development of the Upcycle Centre has been organized by the municipality of Almere as a means to promote and stimulate the transition towards a Circular Economy in the area.



Figure 3: *Picture of the Upcycle Center.* (Source: <https://www.dearchitect.nl>)

Besides the Upcycle Center, which accommodates three circular businesses, there is another noteworthy building on the business park. It is a multi-company building, where numerous circular entrepreneurs and businesses are located. Moreover, there are plans for a new multi-purpose circular building to create more exposure for the circular movement on the site. These plans come from the circular entrepreneurs on the business park, in cooperation with the municipality.



Figure 4: *Location of Almere in the Netherlands, indicated by the red circle.* (Source: <https://www.pngegg.com/nl/search?q=nederland+kaart>)



Figure 5: *Business park de Steiger on the map of Almere, indicated by the red rectangle.* (Source: Author)

2.9 Expectations

This section elaborates on the expectations for the interviews. These expectations are formed based on the theories and findings from the existing literature, as well as on the basis of the characteristics of the specific case study, being business park de Steiger in Almere.

The first main expectation, which links directly to the main research question, is the following. For circular businesses, the expectation is that different location factors are important, compared to the traditional literature on location factors. This expectation is mainly built on the fact that circular business models require exchange of resources and knowledge among businesses more intensively than traditional business models (Kirchherr et al., 2017). Moreover, the flow of materials, both as inputs for production, as well as the flow of returning products for reuse and remanufacturing, is often unpredictable, and requires proper cooperation with consumers as well as other stakeholders in the supply chain (Kirchherr et al., 2017; Teh et al., 2014). The list of (potential) location factors and possible characteristics of a business park which could play a role in a firm's operations or location decision shown in Table 1 will be tested on this expectation. These factors have been based on the theoretical framework and accompanying conceptual model.

Table 1: *List of factors and characteristics used in the conjoint analysis.*

List of factors / characteristics for conjoint analysis
attractive public space
proximity to a market for products or services
specific characteristics of this business park
financial aspects
use of material and commodity flow of the Upcycle Center
proximity to other circular businesses
good institutional setting (e.g. active municipality which cooperates and stimulates circularity)
distance to city center / main roads
good accessibility (including public transport)
possibility to expand / grow
proximity to suppliers

Secondly, the expectation is that business park de Steiger does satisfy some of the aspects of an EIP, such as cooperation between firms, the institutional setting, and the exchange of knowledge. However, the more technical aspects, such as exchange of energy flows, is not expected to be present on business park de Steiger. This is expected on the basis of the specific characteristics of the case study. Namely, business park de Steiger mainly consists of small-scale craft companies with small production processes. There are no large industrial firms which produce large amounts of residual heat or similar energy flows that can be used by other firms. Thirdly, the expectation is that the guiding directive of local government policy intervention has a steering effect on the location decision of circular businesses. This expectation is mainly built on the research by Pellenbarg (2002) which finds an important role for local governments, especially regarding eco-business parks.

3. Methodology

3.1 Research Methods

The research question of this paper will be answered with the use of in-depth interviews, conducted within a case study research design. Moreover, desk research consisting of a literature study, as well as the analysis of the relevant policy documents is included in the research. The questions of these interviews have been based on the conceptual model, as well as on information from municipal policy makers in the field of circular economy.

The chosen target group for the interviews are circular entrepreneurs, whose businesses apply circular business models, and are located on business park De Steiger in Almere, The Netherlands. Circularity and the transition towards a circular economy play an important role on this business park, and the municipality of Almere tries to stimulate this transition towards circularity. The interviews are aimed at assessing whether businesses who apply a circular business model attach value to different location factors in their location decision, compared to location factors for traditional businesses as known from the literature.

The first research method used in this research is a case study research. A case study is defined by Gerring (2004, p.352) as “an intensive study of a single unit with an aim to generalize across a larger set of units”. This research aims at gaining knowledge about circular businesses and the location factors that are important for them. This is applied to one specific case study, being business park de Steiger. A point of criticism which is often heard in the literature, is that the case study research does not contribute to the creation of theories, and that results are often difficult to generalize (Blumberg et al., 2014). Nevertheless, case study research outcomes can provide insight in theories and theoretical concepts, which can be generalized in the correct context (Yin, 2011).

The choice for in-depth interviews in this case study research is suitable, as the case study is relatively small-scale. Moreover, with the use of in-depth interviews, the motivation and reasoning behind the matter at hand, in this case importance that the interviewees attach to the various location factors in the research can be more thoroughly analysed (Mack, 2005).

The final research method in this research is a so-called conjoint analysis. This type of analysis stems from marketing literature, and aims at letting respondents or interviewees make a ranking of a certain list of aspects of a product, concept, or service (Green and Srinivasan, 1978).

3.2 Respondent selection process

The selection process for finding and selecting respondents for the interviews went as follows: The municipality of Almere had a list with all the businesses present on business park de Steiger. Within this list, the municipality had specific ideas of which businesses would be very suitable for the interviews, and according to them, fit the picture of being a circular business. What the selected circular businesses had in common, is that they all apply some form of a circular business model, and apply at least one of the 3R strategies in their business model, which stand for Reduce, Reuse and Recycle. It must be noted that the demarcation of which business is considered circular and which is not, is arbitrary.

The following entrepreneurs were interviewed in this research:

Table 2: *List of interviewees*

Name	Company Name	Description of company
Jim van der Wardt	The Crazy Smile	Craft production of circular presentation items
Ludo Thijssen	Foundation For A Better World	Research and Development for environmentally friendly energy solutions
Joost Bosker	OERZ / 3Cycle	Events, workshops and education about recycling
Mia Stik	Mija Productieatelier	Circular fashion design and production
Peter Mons	Voedselbank Almere	Food bank
Jeroen ter Heide	Rataplan	Thrift shop
Mannie Krak	Mannie Krak	Art of used products and materials
Sander Maurits	Atelier Dutch	Architecture
Sebastiaan van Dulken	Ruig en Geroest	Craft production of circular furniture
Isolde de Ridder	Isolde de Ridder Sieraden	Gold smith
Karien Bos	Karien Bos	Art of used products and materials

3.3 Ethical choices

Considering the behaviour and contact related measures in force in the Netherlands as a result of the COVID-19 pandemic, and in order to assure feeling of safety for the interviewees, the approached companies and entrepreneurs were given several options to carry out the interview. The first option was to conduct the interview online via a video call, which was organised in the program Google Meet, which operates through a secured online environment available from the University of Groningen. The second option was an interview by phone, and the third option was an on-site real-life interview, taking into account all COVID-19 measures in force, such as keeping 1.5m distance at all times. In the end, three interviews have been conducted on-site.

After having invited the interviewees for this study, and having conducted nine out of the total ten interviews in this study, the point of data satisfaction was being reached. The interviewees did have different personal stories and opinions, but new relevant information related to the relevant theories for this study was strongly reducing as more interviews were performed. The point of achieving data satisfaction was approaching. Moreover on the 14th of December, as a result of the COVID-19 pandemic, a new lockdown was announced by the Dutch government,

including strict measures, which had drastic implications for the business operations of companies in the country. Therefore, the decision was made to stop searching for new interviewees, and only one more interview was conducted during the lockdown, as this interview had already been planned before the announcement of the government. In the end, a total of eleven interviews have been conducted, of which one was conducted via email, three were conducted on-site, and the remaining seven were conducted on the phone or via an online video call.

3.4 Transcription and Coding

With the consent of the participants, the audio of the conducted interviews was recorded. This enables the interaction between the interviewee and the researcher to be more thoroughly understood and analysed (Longhurst, 2003). After the interviews were conducted, the interviews were transcribed as soon as possible. The interviewees were given the option to remain anonymously, and were given the option to check the transcripts of the interviews after the transcription process, but none of them did so for both cases. Thereafter, the transcripts have been coded with the use of the coding program Atlas.ti. The use of Atlas.ti was opted for as the coding process with the use of this program is in general less time consuming than coding by hand, and moreover, the program offers features which enables the categorization of the data to be done in a structured manner. Coding enables the researcher to examine, organize and evaluate the interview data, aiming at categorizing the data and identifying patterns to help understand the meaning of the data (Schmidt, 2004).

4. Results

In this section, the results of the conducted interviews in this research are presented and examined in detail. The structure of this section is based on the main expectations elaborated in section 2.9. The themes that are examined in this section are the themes that were discussed most in the interviews, or themes that were remarkable in the eyes of the researcher. The results will be related to the theoretical background presented in the theoretical framework. First, a section that takes up the main themes and results related to the business operations of the circular businesses, and some general findings and characteristics of the circular businesses that were interviewed, is presented. Thereafter, the results related to the location decision of circular businesses and the associated location factors are examined, followed by the results of the conjoint analysis of the most important location factors and location characteristics for circular businesses as resulted from the ranking by the entrepreneurs are elaborated. After that, the findings related to the third expectation that government policy has a steering effect on the location decision of circular businesses will be elaborated. And finally, some noteworthy remarkable findings will be presented.

4.1 Interview themes

The following main themes which arose from the interviews will be discussed in this section:

- Definition circular business / circular entrepreneur
- Circular business operations
- Traditional location factors
- Circular location factors
- Case-specific factors
- Cooperation between businesses
- Can business park de Steiger be categorized as an EIP?
- Policy of the municipality
- Remarkable findings

4.2 Definition circular business / circular entrepreneur

One aspect which is relevant for answering the research question, is the definition of a circular business or circular entrepreneur. The interviewees were asked to describe what a circular business, or circular entrepreneur is for them and how it can be defined. Most interviewees endorsed that it is a concept which is difficult to define. Interviewee Jim van der Wardt stated the following:

“You have two sides of circular: circular that you can make something that can be recycled, of which, for example, you can take a product apart and that all materials are recyclable, such as those gold-silver recycled blankets that you simply cannot recycle, there is simply not a recycling process for that. And I am on the other side, I try to make things from those residual materials. (...) So I am at the end of the circular trying to give those residual materials that otherwise no longer have any value, to give them value again.”

He argues that on the one hand, a circular business can apply a business model aiming at recyclability of the product, so that the amount of new input materials necessary for

production can be minimized. And on the other hand, a circular business can aim for using the residual materials of other products, or entire products which would end up being discarded, to design and make a new product. With his business, he aims at extending the lifetime of products by using them in a different way, adding value to the product.

Mannie Krak states the following on defining a circular entrepreneur:

“That they are environmentally aware, trying to produce as little waste as possible.”

Within these two quotes the so-called 3R principle which is often related to Circular Economy theories can be recognized. 3R stands for: Reduce, Reuse, Recycle. The first quote revolves around recycling, and the second quote focuses on reducing. Both concepts are considered as having an important role in the transition towards a circular economy.

Interviewee Ludo Thijssen adds the following view on a circular entrepreneur:

“And if you want to make more profit, then you are an entrepreneur, and then I don't know if you belong to the circular.”

He hereby looks to make a distinction between a circular entrepreneur, and a ‘regular’ entrepreneur, whereby he questions whether the aim of achieving maximum financial profits fits within the definition of a circular entrepreneur. Further in the interview he states that in his opinion, the goal of a circular business should be to add value to the world by providing sustainable solutions to as many people as possible, aimed at making these solutions affordable for everyone.

Interviewee Mia Stik adds another insight to the concept of a circular business. In her eyes, a circular business differs from a traditional business on the basis of the structure of the production process. Traditional businesses can set up the production process in such a way that they have a stable flow of raw materials as an input necessary for production, whereas circular businesses operate less structured, as a fixed and stable flow of raw materials is often not available for them. For her, working in the fashion design industry, often the design of a new product can only start after the available raw materials come in. There is no fixed design of the production process. Moreover, she adds the following dimension to the concept:

“Someone who sees something in everything, who sees something new in every product. That is a circular entrepreneur.”

What becomes clear is that all circular entrepreneurs feel you need to use at least one of the three R's, being Reduce, Reuse and Recycle, to fit in the picture of a circular entrepreneur. Otherwise, there is still much debate about the demarcation of the concept of a circular entrepreneur, even among those who are applying circular business models in practice.

4.3 Circular business operations

4.3.1 Intrinsic Motivation

As the economy is transitioning towards a circular economy, it is important that an increasing number of businesses choose to apply circular business models, instead of often high amounts of waste generating and environmentally demanding business models (Lewandowski, 2016).

As mentioned in the introduction of this research, not only large environmental benefits can be achieved, but there are also large potential financial benefits according to several studies (Ellen MacArthur Foundation, 2012; European Commission, 2018). It is therefore interesting to investigate what reasons and motivations the interviewed entrepreneurs have to choose for applying a circular business model in their business, or working for a business which applies a circular business model.

The following quote illustrates the motivation of one of the interviewees, Sebastiaan van Dulken:

“I just think the environment is very important. Before I started doing this I was very busy looking at how I could make my house as energy efficient as possible: solar panels, even collecting rainwater for the vegetable garden, that sort of things. So I was very busy with that at the time. The only thing I did not do yet was act sustainably with my work, so then I thought, maybe I should do something with that too, and then it actually crept in that way. This is actually a nice addition to what I actually already did, and that's how I adjusted my working career a bit.”

This quote illustrates the importance of personal opinions and values towards the environment and sustainability of the interviewees in the decision to strive towards circularity and environmental friendliness, and therefore applying a circular business model in their working lives as well. Another interviewee explained that his decision to start a circular business was driven by economic reasons, as he saw a business opportunity in selling circular furniture, made out of rest materials, which he used to do as a hobby before.

This intrinsic motivation and values of the entrepreneurs regarding the environment thus stand out as important reasons to work in a circular way in their businesses. The possibility to combine their personal motivation with economic opportunity is an important motive for circular entrepreneurship.

4.3.2 Processing costs

Relating to the production process, some papers on circular business models argue that circular business models entail higher processing costs in the production process (Lindner & Willander, 2017). Interviewed circular goldsmith Isolde de Ridder endorses this finding by stating:

“I am more expensive than the average, regular goldsmith. It will not be much more expensive, but I am more expensive. Because there is quite a lot of labour involved in recovering materials.”

In addition, interviewee Mia Stik stated the following on the higher processing costs she encounters:

“But for example, I receive material, and then I have to come up with a product from the material. Because I say yes to the product, and then something new has to be designed, and that is a kind of process. (...) Working in this circular way makes it a bit more difficult.”

The circular businesses can thus run into higher processing costs, as more working hours need to be spent on retrieving the necessary raw materials from their source, and product design is less plannable compared to a linear business where the necessary raw materials for production

can be purchased and are often immediately ready for use, and a fixed product design is in place.

4.3.3 Craft-oriented businesses

From the interviewees it appeared that the main business sector located on business park De Steiger is small-scale craft. Most companies focus on small-scale production of craft goods. Some examples: furniture made out of waste and rest materials, fashion made from used cloths and other materials, and a circular gold smith.

4.3.4 Self-employed start-ups

As the interviews were conducted, a thing that became clear was the fact that most of the interviewees are self-employed. Before conducting the interviews, this was not known to the researcher. Moreover, many of the interviewed businesses were start-ups. And in addition, most businesses in the study are renting their workspace or business location.

Now that the findings related to the business operations of the circular businesses have been presented, the next section will present the interview themes related to the first expectation, which expects that for circular businesses, different location factors are important, compared to the traditional literature on location factors. First, the results related to the location factors that arose from the traditional literature are examined.

4.4 Traditional location factors

4.4.1 Price

Most of the interviewees indicate that the relatively low rental prices were an important aspect in their location decision. The interviews with the entrepreneurs showed that the prices at business park de Steiger are relatively low. This is mainly because it is a relatively old business park, in particular the oldest business park in Almere. The relatively low prices often play an important role for SMEs and start-ups (Van Dijk & Pellenbarg, 2000). All of the interviewed businesses fall within the category of SMEs.

The following quote by Sander Maurits illustrates the above:

“And of course costs is an important issue for everyone. Because it is fairly cheap to be on a business site like this one.”

4.4.2 Accessibility

The accessibility of a specific location is an important aspect for businesses in their location decision (Van Dijk & Pellenbarg, 2001). The accessibility of business park de Steiger is very good according to the interviewees. Especially for car use, the location is favourable.

“Yes, main roads, you are next to the highway here, and that highway is very important for the people who live outside the city of course. (...) If you come by car it is of course nice that you are on the highway within one minute. And whether that is specifically interesting for circular business parks, I do not know, I think for every business park.” - Sander Maurits

The quote mentioned above illustrates that accessibility is an important aspect of a business location, and like this interviewee argues, this is important for any business park, not only for a park where circular businesses are located, or a park that wants to attract circular businesses. The following section will elaborate on the location factors that, according to research by among others Teh et al. (2014) and Mirata (2004) are important for circular businesses.

4.4.3 Space for growth / expansion

Space for expansion is one of the most important location factors for businesses (Van Dijk & Pellenburg, 2001). Many of the interviewed entrepreneurs indeed stated that their establishment on the business park was often at least partly influenced by the fact that their business required more space than they had available before.

4.5 Circular location factors

4.5.1 Institutional setting

Having the right institutional setting in a region is among the most important elements for successful development of eco-industrial parks (Mirata, 2004; Veleva et al., 2015). The results from the conducted interviews and the views of the interviewees on this are best illustrated with the following quote:

“Yes, a good institutional setting; I used to be less aware of what a municipality could do and mean for me, and that has actually only grown now that I am working circularly and have actually discovered that opportunity. Before that, I thought more of it: I just do it all myself. But now I notice that certain help, programs and so on really do have its advantages”. - Joost Bosker

The institutional setting in this particular case study is described in the elaboration on the case study earlier in this thesis.

Here the particular interviewee endorses the finding by Mirata (2004) that a right institutional setting is an important for the circular movement and an important element for the development of a favourable environment for circular businesses to operate.

4.5.2 Proximity to other circular businesses

The proximity to other circular businesses or circular entrepreneurs is an important aspect of circular entrepreneurship according to the interviewees.

“I think that if you give sustainable entrepreneurs the opportunity to work in close proximity to each other, that will stimulate them to engage in circular entrepreneurship. You have to be very persistent if you want to make this a success at the moment. And that is easier if you have people around you who look at things in the same way, who can have a conversation with you.” - Isolde de Ridder

Here, interviewee Isolde de Ridder points out the increased difficulty that exists in her eyes of carrying out circular business operations, compared to more traditional business operations, and that having other circular entrepreneurs nearby really helps in carrying out the daily

operations in a circular way. Moreover, Jeroen ter Heide adds that also in terms of customers, it is beneficial to be located close to similar circular entrepreneurs:

“Because I think we strengthen each other because we are on the same site, on the Steiger, (...) and my customers will also visit the neighbour, and vice versa.”

The proximity of other circular entrepreneurs is thus really experienced as an important issue for the interviewees, again illustrated by the quote above by Jeroen ter Heide.

4.6 Case-specific factors

This section will examine a remarkable finding about a specific factor that played a role on the case study location and the location decision of some of the interviewees.

4.6.1 Role of landlord

A remarkable finding that arose from the interviews is the role of the landlord of one of the multi-tenant buildings where a significant number of the interviewed businesses are located. The landlord of this building on business park De Steiger is said to attach great importance to sustainability and circularity, and therefore decided to look for tenants who work on these topics and fit with this. He specifically searched for entrepreneurs looking to start or upscale their circular business, and personally contacted the first circular business that then decided to locate on the location. After the first arrived, more followed. Arguably this individual thus played a role, either directly or indirectly, in the location decision for some interviewees. Within this multi-tenant building there arguably exists a ‘circular cluster’ of small-scale production firms.

4.7 Results Conjoint Analysis

This section will elaborate on the conducted conjoint analysis. In the conjoint analysis, the interviewees were asked to make a ranking of the list of location factors and characteristics shown in Table 3. The question was to rank the factors and characteristics in the list in order of importance from the perspective of a circular business.

During the interviews we experienced that many interviewees could only distinguish the most important three or four location factors out of the list of twelve factors. After about the fourth factor they mentioned, most respondents indicated that the rest was more or less of same importance. Therefore, the decision was made to only give a score to the four most important factors mentioned by the interviewees.

Table 3. *List of location factors and characteristics for conjoint analysis*

attractive public space
proximity to a market for products or services
specific characteristics of this business park
financial aspects
use of material and commodity flow of the Upcycle Center
proximity to other circular businesses
good institutional setting (e.g. active municipality which cooperates and stimulates circularity)
distance to city center / main roads
good accessibility (including public transport)
possibility to expand / grow
proximity to suppliers

The score system is as follows:

Rank	Score
1	20
2	15
3	10
4	5

Table 4 depicts the results of the conjoint analysis were obtained with top 4 of the ranking of most important factors provided by the interviewees taken into account and given a score:

Table 4: Results Conjoint Analysis

Rank	Location factor or characteristic	Score
1.	Proximity to other circular businesses	110
2.	Financial aspects	90
3.	Accessibility	75
4.	Use of material flow and commodity flow of Upcycle Center	65
5.	Possibility to expand / grow	40

The proximity to other circular businesses is thus regarded as the most important location factor of business park de Steiger by the interviewed circular entrepreneurs. This location factor is categorized among the circular location factors in the analysis. The second most important factor that came out of the conjoint analysis is the financial reasons.

The next section of this chapter will elaborate on the themes that are related to the second main expectation. This expectation is that business park de Steiger does satisfy some of the elements of an EIP, such as cooperation between firms, the institutional setting, and the exchange of knowledge. However, the more technical aspects, such as exchange of energy flows, is not expected to be present on business park de Steiger. As already covered in section 2.3, in this research the following definition of an EIP by Cohen-Rosenthal & Musnikow (2017, p. 16) is used:

“a community of businesses that co-operate with each other and with the local community to efficiently share resources (information, materials, water, energy, infrastructure and natural habitat), leading to economic gains, gains in environmental quality and equitable enhancement of human resources for the business and local community.”

4.8 Cooperation between firms

Most interviewees indicate that there is cooperation between the businesses on the business park. Especially within one particular multi-company building, where several circular entrepreneurs and businesses are located, there is a lot of cooperation between the businesses.

“Well, like here in the building there are already three or four circular entrepreneurs anyway, so if they have something that needs to be done, they walk in to me and vice versa. Because they also have materials that I sometimes need and vice versa. They have machines to do certain things, so if I want something lasered, I go to Jim, and if I want something technical I go to Sebastiaan from Ruig & Geroest. (...) Actually you go to each other more easily, since you all have the same goals.” - Mia Stik

As the quote above illustrates, there is a lot of exchange of knowledge and resources between the businesses. Several entrepreneurs indicate that it has a stimulating effect and that you

strengthen each other because you have the same goals. You are all concerned with minimizing the use of raw materials. Being located close together also helps to collaborate in this.

Most of the interviewed entrepreneurs indicate that they mainly collaborate with companies located within the same building. The physical proximity on a small scale is therefore certainly important for the interviewees. A number of them also indicate that they also work with entrepreneurs outside the building, who are also located on the business park.

However, contrasting to the most frequently heard positive view on the current status of cooperation between the businesses, one of the interviewees states the following about cooperation on the business park:

“Not enough in my view. And I am also not aware of other collaborations.” - Peter Mons

In general, the entrepreneurs are therefore positive about the degree of mutual cooperation, but there is still room for improvement, especially on the scale of the entire business park.

4.9 Can business park de Steiger be categorized as an EIP?

On the one hand, entrepreneurs like the fact that many entrepreneurs from the same sector, or same type of businesses are located. But one entrepreneur, Jim van der Wardt, indicates that in order to grow the site as a circular business park or eco-industrial park, it would also be good to attract other disciplines. This is necessary to progress economically in his eyes.

““And what I would really like to see, because now we are talking a lot about makers in the physical form, but I would think it would be really cool if this whole as a hub also would include other disciplines.. So especially from multimedia, from IT, IOT, so more from technology, marketing, and the media, so that there are many more cross-pollinations across all layers that you need to bring something to the table and to make money with, in other words, making it economically valuable and profitable. That simply consists of many more skills than what is now on the business park on average.” - Jim van der Wardt

Interviewee Peter Mons adds the notion that in his eyes, there is still a lot to be done in terms of cooperation and exchange of materials and ideas before de Steiger can be categorized as a circular business park or eco-industrial park. He argues the following about the status of de Steiger:

Well, the only party we exchange something with in a circular way is Rataplan, which also deals in second-hand furniture and that sort of thing. The upcycling platform is of no use to us, because we are seen as a company, so we are not allowed to go there. And for the rest, there is not very much exchange of stuff within the business park. Materials, ideas, and so on. I think it is very important that we are going to form a beautiful circular business park, but I think we are not there yet. - Peter Mons

The interviewees thus argue that more diversification on the different skills present on the business park, as well as the degree of exchange between the firms can add value to the business park and its status as an EIP.

4.9.1 Raw materials

Having permanent access to raw materials from the upcycle center, and possibly a stable material flow, would make it much easier for circular entrepreneurs to run their businesses. This would result in less processing costs, in the form of less time and effort spent searching for raw materials. This could provide an important stable material flow for many companies, which should facilitate business operations.

“So, the barriers that now exist regarding the material flow, if they could be removed, it could give a significant boost to the circular movement in the area, and those circular entrepreneurs will establish themselves there much easier because then you have your supplier very close. Because, for example, Ruig & Geroest (another circular company on de Steiger) where he gets all his materials from because they are still of such good quality from all over the Netherlands, that should also be properly arranged much closer by and much easier to get these materials. - Ludo Thijssen

The Upcycle Center could play an important role in providing a stable flow of raw materials for the circular businesses on business park de Steiger.

4.10 Policy of the municipality

The next part of the results will revolve around the themes related to the third expectation, which reads as follows: the expectation is that the guiding directive of local government policy intervention has a steering effect on the location decision of circular businesses.

4.10.1 Circular Economy policy

The policy of local governments, and their active role in stimulating and facilitating the transition towards the circular economy in their region is an important aspect for the success of an eco-industrial or circular business park (Mirata, 2004). However, according to Pellenbarg (2002) the initiative should not come from national and local government, but from businesses themselves. The interviews revealed that the initiative for the specific aim in the municipal circular economy policy which focuses specifically on business park de Steiger, did not come from the municipality, but from businesses located on de Steiger. Afterwards, the municipality and the businesses worked together on further developing the policy plans and documents.

4.10.2 Legislation and regulations

The interviews revealed that the circular businesses on business park De Steiger do encounter difficulties regarding legislation and regulations. For example a thrift store encounters high costs for dumping their non-saleable items, which restrains them from spending more of their revenues on their sustainable business goals, which include job creation for people at a distance from the labour market. Moreover, the interviewee indicates that they now have to refuse the intake of some products, as a result of these unfavourable regulation. The interviewee states:

“we are the gateway to the landfill. (...) I would have preferred: bring everything to us, then we can make a selection of what is and cannot be sold, and the rest really goes to the landfill.

And what can be reused, we sell that again. And we ensure that a lot of people can find work as a result.”

This specific business aims specifically to give used products a new owner, instead of the products ending up in the bin. This circular method of extending a product’s life span is hindered by the existing regulation. The interviewee moreover mentioned that the regulations for thrift stores are more favourable in other municipalities.

4.10.3 Upcycle Center

A large part of the interviewed circular businesses would like to have access to the flow of raw materials and goods that originates from the Upcycle Centre located on the business park. Until now, only the businesses located in the three business units in the building of the Upcycle Centre are allowed to use this flow of materials. These materials can be used as inputs in the circular production processes the businesses operate. The Upcycle Centre and its materials play an important role in the circular movement on the business park, and it could become even more important when more businesses would be allowed to make use of the material flows. However, strict national waste laws prohibit the municipality to allow more businesses to make use of the available resources. Interviewee Mannie Krak perfectly sums up the situation of the interviewees who do not have access to the goods and materials of the Upcycle Center yet:

“In the future I hope to make a lot of use of it, using the flow of goods from the Upcycle Center. I keep asking for it every time, but it takes time, unfortunately.”

4.10.4 Destination plan

The rigidity of the destination plan of the area comes out as a topic where opportunities for improvement are present. Adding the possibility of a catering permit and a retail permit could be ways to stimulate more circularity, and to attract public to the area. The businesses are currently not allowed to set up a shop to sell their products. Moreover, the destination plan does not allow catering services on the business park. However, these two things could add value to the circular movement that exists on the business park in the eyes of the interviewees.

“It could be attractive that there is more to do on the business park. I am also working on another project, which is a food hall, and we actually want to have that on the business park as well. And I think that something like that makes it more attractive for circular businesses, for example. And that food hall must also become very circular with a green greenhouse in it, and LED lights, you name it. A very green food hall / production. But we are now noticing that we are facing problems with the destination plan, which does not allow catering on de Steiger.” - Jim van der Wardt

4.10.5 Sustainable transport possibilities

People working on sustainability and circularity often value the environment. They often opt for the bicycle, or public transport, or an electric car. In the interviews it became clear that at the moment there are no public charging points for electric cars on the business park, and also at the businesses there are hardly any. Having the necessary infrastructure for electric cars

and forms of environmentally friendly transport can be seen as a precondition for growing a circular and sustainable business park.

“Well, I think that what can be done better is indeed the facilities that encourage you to come here in a sustainable way. Such as electric car charging stations, which the municipality is already working on, and better bicycle paths.” - Sander Maurits

4.11 Remarkable findings

The final part of the results will present some remarkable findings that were noteworthy in the eyes of the researcher.

4.11.1 Old business park

The interviews revealed that business park de Steiger is a relatively old business park. According to the interviewees, the fact that de Steiger is Almere's oldest business park is an important explanation for the relatively low (rental) prices on this business park. Besides the relatively low prices that the fact that de Steiger is a relatively old business park, one of the interviewed entrepreneurs highlighted another aspect of this fact:

“Well, you can settle on a modern site, but this is the oldest business park. Almere-Haven was of course the first part of Almere, and this business park was the oldest business park in Almere, so that does have something emotional, right? You can also demolish the entire area and turn it into a new, very modern business park, or you can reuse it. And that's what is actually happening.” - Mia Stik

This indicates that the establishment of many small firms in the many old factory buildings on the business park also fits well with the entire movement of circularity and reuse; the buildings are also reused, in a sense, instead of being renewed. You could say that this contributes to the circular appearance of the business park.

4.11.2 Creative entrepreneurs

The fact that many creative entrepreneurs are located on the Steiger is mentioned by many of the interviewed entrepreneurs, and often emphasized as pleasant. One of the entrepreneurs describes this as follows:

““The presence of many creative entrepreneurs reinforces each other. And also the presence of entrepreneurs working on circularity. Because we understand each other.” – Mia Stik

5. Discussion and Conclusion

In this section, the results are discussed, critical remarks will be made, and the main research question of this research will be answered.

First of all, it has to be noted that it is always arguable and difficult to draw generalizable conclusions from a case study research. Nevertheless, the findings about the importance for circular businesses of having other circular businesses in close proximity came out distinctly, especially from the conducted conjoint analysis. Moreover, the further related explanations and insights provided by the interviewed circular entrepreneurs endorse the importance of this proximity to other circular businesses. It seems probable that this factor, which is different from the traditional most important location factors, and categorized as one of the circular location factors, is also important for other circular businesses, and not only for this case study. Therefore, it would be an interesting avenue for further research to see whether this finding also applies to other business parks where circular businesses are located. However, a note should be made about the conjoint analysis conducted in this research. The interviews showed that it was difficult for the interviewees to rank the full list of factors that were given. Therefore, the decision was made to only give a score to the top four of the ranked factors. This decision to take into account the top four only could have an effect on the final outcome of the ranking in the conjoint analysis. For potential further research, the choice and set-up of the research method of a conjoint analysis should be more thoroughly considered, and perhaps a shorter list of factors could make the ranking process for interviewees more practicable. Moreover, it could have been of added value to also interview some 'regular' businesses located on the business park, to compare the location factors these businesses find most important with the ones given by the circular businesses. Building on this, another important aspect of this research that needs to be mentioned is that the demarcation between circular businesses and other businesses is arbitrary. This automatically makes the selection process of finding suitable circular entrepreneurs for the interviews arbitrary, as it is difficult to assess whether an entrepreneur or his or her business fits the picture of being circular. To research circular businesses more thoroughly, for example clearer criteria for defining circular businesses and demarcating these from other businesses could be drawn up. However, in addition, one can ask the question whether completely circular businesses do even exist in practice. This difficulty regarding defining circular businesses makes researching the topic challenging and often times arbitrary, but nevertheless researching the topic is relevant since the circular economy becomes more and more important in society. Another important concept of this research was eco-industrial parks. When assessing whether business park de Steiger can be regarded as an eco-industrial park, on the basis of this research it can be argued that some of the aspects and elements that are attributed to an eco-industrial park in the literature are present on the business park, such as a proper cooperation between firms and with the local government. Moreover, with the presence of the Upcycle Center, which can be regarded as an anchor company for the development of an eco-industrial park, there is also some exchange of materials on the site. However, in terms of energy and warmth and such more industrial type of sharing and exchanging of resources, there are no developments present on the business park. Perhaps, the absence of large industrial businesses on the business park plays a role in this lack of industrial exchanges, as was also suggested by Eilering and Vermeulen (2004). This absence of certain types of businesses and industries on business parks is something which can be at least partially attributed to the steering effect of (local) government policy on the location decisions of businesses. On the basis of this research, the role of local government

in stimulating the transition towards a circular economy on business parks seems to be significant. Proper cooperation between businesses and local government is very important in this, as came out of this research. However, the most famous eco-industrial park in Kalundborg, Denmark developed without interference of government in the beginning. The effect of government policy on the circular economy on business parks is hard to quantify. Nevertheless, as the importance of the circular economy will probably continue to grow over the coming years, it would be an interesting avenue for further research to research the policy tools and stimulating measures (local) governments could apply to further stimulate the transition more thoroughly towards the circular economy on business parks.

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Appendix

Appendix A: Invitation email for interview

Appendix B: Informed consent Dutch

Appendix C: Interview questions

Since all interviewees were Dutch, the interviews were conducted in Dutch. Therefore, both the email and the informed consent, as well as the interview questions are all written in Dutch.

Appendix A

Invitation email for interview

Beste heer/mevrouw (naam),

Mijn naam is Rik Kreijkes, ik ben masterstudent Economische Geografie aan de Rijksuniversiteit Groningen. Ik ben bezig met mijn afstudeerscriptie. Ik doe, in samenwerking met de gemeente Almere, een onderzoek naar circulaire bedrijventerreinen. Specifiek onderzoek ik de motieven van circulaire bedrijven om zich te vestigen op een circulair bedrijventerrein. Als case study onderzoek ik bedrijventerrein de Steiger in Almere, waar uw bedrijf gevestigd is.

Door mijn onderzoek hoop ik meer inzicht te krijgen in de visie van circulaire bedrijven op de voorwaarden voor circulaire bedrijvigheid. Dit inzicht kan de gemeente helpen circulaire bedrijven in de toekomst (nog) beter te ondersteunen en de transitie naar de circulaire economie te versnellen en te versterken.

Uw bedrijf is door de gemeente Almere aangemerkt als circulair bedrijf. Om meer te weten te komen over de motieven en barrières voor circulaire bedrijvigheid en over de positieve en negatieve kenmerken van bedrijventerrein de Steiger, zou ik graag met u een interview afnemen. Dit interview zal naar verwachting maximaal 45 minuten in beslag nemen, en kan zowel telefonisch als via Skype of een ander online medium plaatsvinden. Als u de voorkeur geeft aan een 'live' interview op locatie, is dat wat mij betreft ook mogelijk en houden we de gepaste 1.5m afstand.

Ik hoor graag of u mee wilt werken aan mijn onderzoek. Mochten er vragen zijn, bel of mail mij gerust. Het onderzoek wordt vanuit de Rijksuniversiteit Groningen begeleid door dr. Aleid Brouwer, u kunt ook contact opnemen met dr Brouwer indien u dat wenst.

Met vriendelijke groet,

Rik Kreijkes

tel: -

email: -

Dr. Aleid Brouwer

email: -

Appendix B

Informed consent Dutch

De informed consent wordt vóór het begin van het interview hardop voorgelezen.

Mijn naam is Rik Kreijkjes, ik ben een student van de masteropleiding Economic Geography aan de Rijksuniversiteit Groningen. Dit onderzoek beoogt de vestigingsplaatsfactoren die voor circulaire ondernemers van belang zijn te identificeren en analyseren. Ik doe dit onderzoek in samenwerking met de gemeente Almere. Ik ben geïnteresseerd in de persoonlijke verhalen en inzichten van diverse circulaire ondernemers die gevestigd zijn op bedrijventerrein de Steiger in Almere, en hun visie op de vestigingsplaatsfactoren die van belang zijn voor circulaire bedrijven. Daarom neem ik diepte-interviews af.

Bent u bereid deel te nemen aan dit interview en een aantal vragen over dit onderwerp te beantwoorden?

Het interview duurt naar verwachting ongeveer 45 minuten. Dit gesprek kan volledig anoniem worden afgenomen indien u dat wenst. De informatie zal dan worden gebruikt zonder iets te noemen dat uw privacy schendt.

Wilt u in dit onderzoek anoniem blijven?

Ik wil dit interview graag opnemen, zodat ik er indien nodig opnieuw naar kan luisteren. Alleen ik als enige onderzoeker zal naar de opnames luisteren. Na het transcriberen van het interview zal de opname direct worden gewist. De verstrekte informatie blijft binnen onze onderzoeksgroep. Ook mag u op elk moment besluiten het interview zonder gevolgen te beëindigen.

Heb ik, als onderzoeker, toestemming om dit interview op te nemen?

Zijn er nog vragen voordat we met het interview beginnen?

Appendix C

Interview questions

- Kunt u toelichten
 - wie u bent
 - wat uw bedrijf precies doet

- waarom het in uw ogen een circulair bedrijf genoemd wordt?

- Hoe zou u een circulair ondernemer definiëren?

- Bent u begonnen als circulair ondernemer? Of bent u / is het bedrijf later circulair geworden?
 - hoe is dat gegaan?
 - en waarom?

- Categoriseert u uw eigen bedrijf ook als circulair?
 - toelichten?

- Hoe bent u terecht gekomen op bedrijventerrein De Steiger?
 - Heeft het bedrijf zich hier direct gevestigd? Of zat het bedrijf eerst ergens anders?

- Wat zijn de voordelen voor u als circulair bedrijf van bedrijventerrein de Steiger, en waarom?
 - wat is ervoor nodig om dit te laten toenemen?

- Wat zijn de nadelen voor u als circulair bedrijf van bedrijventerrein de Steiger, en waarom?

- ondernemers een rangschikking laten maken van belangrijkste / minst belangrijke vestigingsfactoren
 - gratis werkruimte / financiële redenen (*gemeente: relatief goedkope grondprijzen*)
 - gebruik van goederenstroom
 - nabijheid van andere circulaire ondernemers (*gemeente*) + *groeïend in aantal*
 - specifieke kenmerken van dit bedrijventerrein
 - afzetmarkt in de buurt?
 - dichtbij leveranciers
 - goede bereikbaarheid
 - mogelijkheid om uit te breiden / groeien
 - afstand tot binnenstad / doorgaande wegen
 - goede institutionele setting (*actieve gemeente die veel samenwerkt en circulariteit stimuleert*)

- aantrekkelijke openbare ruimte (*gemeente*)
- toelichting vragen aan ondernemers
- zijn er nog elementen die missen in uw ogen (bijv. noem maar wat: een bedrijf op terrein stinkt enorm, of het asfalt is van goede kwaliteit)
- Heeft u nog andere bedrijventerreinen overwogen voor de vestiging van uw bedrijf? - waarom heeft u de voorkeur gegeven aan dit terrein?
- Is er samenwerking tussen de (circulaire) bedrijven op het terrein? Weet u ook op welke gebieden er wordt samengewerkt door bedrijven? (Kennisuitwisseling bijvoorbeeld)
- Wat zou er nodig zijn om nog meer circulariteit te creëren / circulaire ondernemers aan te trekken op de Steiger?
- Wat is uw kijk op de samenwerking met de gemeente en de rol die de gemeente probeert te spelen in het stimuleren en ondersteunen van circulaire bedrijven (op de Steiger)?
- Wat zou de gemeente beter kunnen doen om circulaire bedrijvigheid nog meer te ondersteunen/stimuleren?

Afronding

- Heeft u nog opmerkingen of toevoegingen over dit onderwerp?

Hoe vond u dit interview?