Circularity in a Linear System – A Roadmap Towards a Circular Ekkersrijt

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Abstract

This report explores how Ekkersrijt, a business park located in the Municipality of Son en Breugel, can work toward a fully circular economy. Several obstacles, such as the lack of a comprehensive understanding of circularity, in addition to limited trust and collaboration between companies, hinder the transition toward circularity. Therefore, there is a strong need for a feasible and practical strategy that promotes collaboration and knowledge sharing between businesses at Ekkersrijt.

As part of the municipality's broader trajectory, this project focuses on identifying strategies to enhance stakeholder engagement, improve collaboration, and implement circular practices required for the transition. Throughout the report, theoretical frameworks, such as Metabolic's Seven Pillars, with focus on the material, society & culture, and value pillars, alongside concepts such as Multi-Stakeholder Partnerships and Industrial Symbiosis, were used as a foundation for our analysis and proposed roadmap. Theoretical analysis, case studies, and stakeholder interviews confirmed that the lack of collaboration and centralised organisation remains the key barrier to circularity at Ekkersrijt.

To address these challenges, several initiatives to develop stakeholder relations, build trust and create a sense of community at the park are suggested. A key recommendation is the establishment of a park management as a central body to facilitate coordination and ongoing stakeholder engagement. To support this, a roadmap outlining seven workstreams guiding Ekkersrijt in its transformation have been developed.

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1. Introduction

1.1 Introduction of the research

Circular economy (CE) is an important element of the global strategy to combat climate change (MacArthur, 2019). The European Union defines circular economy as “a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, the raw materials are kept within the economy wherever possible thanks to recycling. These can be productively used again and again, thereby creating further value” (European Parliament, 2025).

Environmental pressures, resource shortages, and waste challenges continue to grow and transitioning to the Circular economy becomes increasingly urgent. Companies in Europe face growing regulatory pressure at both local and EU level to lower their emissions and adjust their business models to accommodate the EU’s CE ambitions (Ellen MacArthur Foundation, 2012).

Companies often face difficulties in transitioning to a fully circular model. Industrial symbiosis offers a valuable framework to facilitate this process. It refers to a collaborative approach where firms exchange resources such as energy, materials, waste and knowledge. Such collaborations enhance resource efficiency and help close material loops which contribute to a more circular economy (Fric et al., 2025; Martin, 2020)

At national level, the Dutch government has established a national target for companies and business parks to reduce their emissions by 50% by 2030 and to achieve full circularity by 2050 (Ministerie van BKZ, 2025). At the provincial level, Noord-Brabant is currently on a project called ‘Grote Oogst’, which aims to accelerate the sustainability of twelve business parks located in the province, parks that contribute significantly to regional pollution. One of the business parks participating in this project is Ekkersrijt, located in the municipality Son en Breugel.

Ekkersrijt covers an area of 260 hectares and provides jobs for more than 12,000 people. The Meubelboulevard within the park attracts 2,5 million visitors every year. Ekkersrijt is organized into subareas, each with its own focus: high-tech companies are based in the Science Park, Meubelboulevard to retail, recycling is centered in Ekkersrijt Northwest, and the Kanaalzone focusses on transport, logistics, and industrial operations. Ekkersrijt East is diverse with companies that vary in nature and scale (Grote Oogst, 2022)

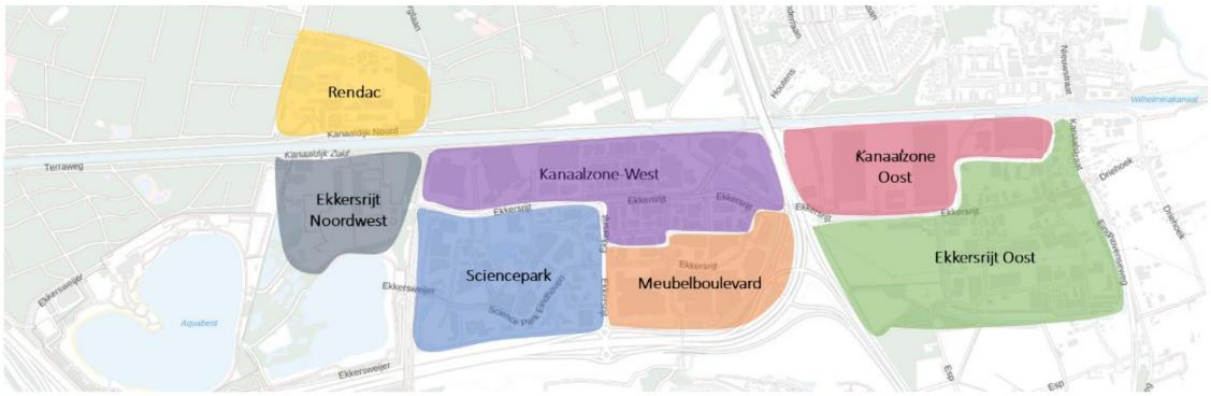

Figure 1, Subareas Ekkersrijt, Grote Oogst Plan,

Indusym, appointed by the municipality of Son en Breugel, as the organisation in charge of fostering circular connections between businesses in industrial parks, is supporting the municipality in achieving the goals of the 'Grote Oogst' project at Ekkersrijt.

An Academic Consultancy Training (ACT) team, consisting of students from Wageningen University, was asked by the municipality and InduSym to explore ways to facilitate the implementation of circular economy in Ekkersrijt. The ACT project has a duration of eight weeks and is part of a broader initiative to support the transition to a more circular Ekkersrijt. Previous efforts by the municipality of Son en Breugel and InduSym have focused mostly on collecting quantitative data regarding waste generation in Ekkersrijt. The focus of the ACT project builds on this foundation by providing a roadmap based on qualitative insights that could be used by other partners, such as Fontys University of Applied Science, to support the transition toward a circular Ekkersrijt. Throughout this report, terms such as "the project" or "the research" refer to the ACT project. Figure 1 shows the trajectory of this project, past efforts will help the ACT project to identify future steps, helping Ekkersrijt to become more circular.

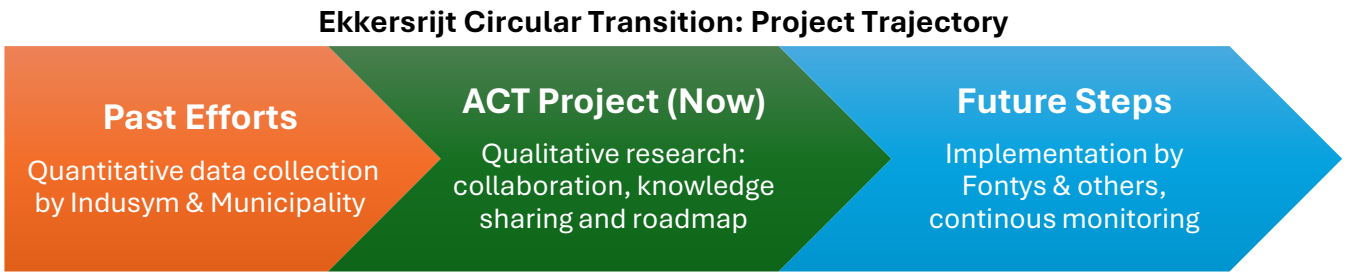

Figure 2: Project trajectory. This figure shows past present and future steps toward circularity at Ekkersrijt

1.2 Problem Statement

Efforts to make Ekkersrijt a more circular business park face several obstacles, such as limited collaboration between companies with regards to, resource exchange, and knowledge sharing. Many businesses lack a comprehensive understanding of what circularity entails, how to implement circular practices, and what potential benefits it may provide. Furthermore, circular transitions are often perceived as complex and time-consuming, which leads to resistance unless the advantages are clearly tangible and easily adoptable (Takacs, et al., 2022).

Therefore, there is a strong need for a feasible and practical strategy that promotes collaboration and knowledge sharing, as well as strategies to optimize material flows of businesses at Ekkersrijt.

1.2.1 Research Objective

The objective of this research is to develop a plan to improve Circular Economy at Ekkersrijt, this will be done by promoting collaboration and knowledge sharing among companies at the business park. The research primarily focusses on enhancing collaboration between businesses at Ekkersrijt and creating a roadmap to guide the transition of Ekkersrijt. The scope of this research is limited to specific aspects of circularity, based on the municipality's request. Specifically material waste flows and social aspects of circularity will be addressed. Other components of circular economy that have been proposed by other authors in this domain, like biodiversity and water use, fall outside of the scope of this research.

The main research question that will be answered to improve circularity at Ekkersrijt is:

What steps should be taken to enhance stakeholder engagement with regard to circularity through collaboration and knowledge sharing between companies to improve the overall circularity of Ekkersrijt?

Sub research questions:

- What are the current drivers and barriers for collaboration among companies within Ekkersrijt in implementing circular innovation?
- To what extent can communication and information sharing be fostered between companies to ensure successful collaboration and the closure of material loops?
- How do companies in Ekkersrijt measure and evaluate the success of their circular innovation efforts, and how does this influence their willingness to collaborate?
- What incentives are needed to encourage participation in a circular model?

2. Theoretical Context

This chapter gives insights on to the definitions and theoretical principles underpinning the concepts of circular economy and industry symbiosis, that are used throughout this report. Additionally, this chapter explores the tools available to measure the circularity of a particular area or city, as well the multi-stakeholder involvement (MSP) methodology, which offers several tools and structures to facilitate cooperation among a diverse group of actors and helps them align their interests and efforts toward a shared goal.

2.1 Circularity

Sustainable development has become a central priority for the European Union's strategy, aiming to advance economic growth without negatively impacting society or the environment (European Commission, 2025a). Sustainable development refers to meeting today's needs without compromising future generations to do the same. It consists of three dimensions, economic, environmental and social, across which policies need to align and support each other (European Commission, 2025b). To promote sustainable development, the model of Circular Economy (CE) has emerged as an approach (Korhonen, et al., 2018). The circular economy model offers a practical set of principles that can guide public and private organisations in their pursue of increased sustainability (Salomone, et al., 2020). However, the rapid increase in CE publications over the past decade, many of them narrow in scope and context with regards to CE, this has contributed to a fragmented and obscured understanding of the CE concept (Kirchherr, et al., 2023).

In their analysis of 117 definitions of the circular economy (CE), Kirchherr et al. (2017) found that, 46% highlight economic prosperity as the aim of CE, 37–38% highlight environmental quality, while social equity is only considered in 18–20% of the CE definitions. Only 13% of the definitions consider all three dimensions (economic, social and environmental) of sustainable development. This reflects the lack of consensus among authors on the fundamental pillars that make up the concept of circular economy (Chrispim, et al., 2023; Kristensen, et al., 2020). Yet it is important to include all three dimensions of sustainable development for CE to support countries' transition to sustainable development (Kristense, et al., 2019). Several authors and institutions have proposed core principles that help define circular economy in a broader context. Some academic proposals include that of Chrispim, et al., (2023), which defined the key elements to assess CE to be: the social dimension (e.g. health, well-being of employees, customers, and contributions to local community), stakeholder engagement, R-imperatives (10Rs as proposed by Reike, et al. 2018) and industrial symbiosis. An overview of the different definitions and what they include in this definition is given in table 1.

Non-academic organisations have also made attempts in defining a set of principles that underwrite the circular economy model. For instance, the European Union framework for CE consists of eight building blocks: 1) industrial symbiosis, 2) material resource efficiency, 3) product life-cycle extension, 4) biological products, 5) energy efficiency and renewable energy, 6) the performance economy, 7) the sharing economy and 8) the platform economy (Türkeli, et al, 2018). Additionally, the Dutch government describes CE as an economic system where consumer can choose to share products they only use occasionally, such as power drill or a car, instead of buying them. This means products are used more intensively, so that fewer products need to be made, reducing raw waste material use. In essence, the model seeks to reuse raw materials, prevent value destruction and treat the environment responsibly (Government of the Netherlands, 2025).

Furthermore, Metabolic, a circular economy consultancy based in the Netherlands and a leading organisation backing the systems transformation HUB supporting the European Green New Deal (Metabolic, 2024), proposes the Seven Pillar framework that helps conceptualize a more holistic view of CE. These pillars include maintaining materials at high value, using only renewable energy, enhancing biodiversity, preserving culture and society, supporting health and wellbeing, maximizing societal value, and sustainably managing water (Gladek, 2017).

These examples show the diversity of approaches to conceptualise CE principles. The following section discusses several frameworks such as the butterfly diagram, the 9R frameworks, 3P frameworks, and Metabolic's seven pillars, that show different perspectives for understanding and implementing CE strategies.

Table 1: The table compares different definitions of Circularity indicating what sources include, Economic, Environmental and Social aspect of circularity.

Source	***Economic***	***Environmental***	***Social***	***Additional Elements / Notes***
Kirchherr et al. (2017)	✓	✓	✗	Meta analysis of 117 definitions; only 13% cover all three pillars
Chrispim et al. (2023)	✓	✓	✓	Framework includes stakeholder engagement, 10R hierarchy and industrial symbiosis
European Commission (2025b)	✓	✓	✓	Policy focused CE definition to align economic, environmental & social goals
EU Framework (Türkeli et al., 2018)	✓	✓	✓	8 building blocks: e.g. industrial symbiosis, product lifecycles, sharing & platform economies
Metabolic (Gladek, 2017)	✓	✓	✓	7pillar systems model (high value materials, biodiversity, wellbeing, culture, societal value, renewable energy)
Government of the Netherlands (2025)	✓	✓	✓	Emphasizes product sharing, intensive product use, reduction in raw materials, and responsibility toward the environment

2.2 Frameworks for Circularity

2.2.1 Framework Construction

Multiple frameworks have been used to help conceptualise and structure circular practices. The Butterfly Diagram developed by the Ellen MacArthur Foundation (Ellen MacArthur Foundation, 2022) divides materials in renewable and finite materials and shows how to increase the life span of those materials and products (Skene, K. R. 2022). In addition to this model, the 9R Framework of circular economy categorizes approaches by level of impact, ranging from refusing and rethinking to recycling and recovering (Bühler, L. et al. 2024). While these frameworks focus on material flows, other frameworks like the People, Profit, Planet (3P's) model (Correia, 2019) and the Seven Pillars of Circular economy by Metabolic (2022) also include social, cultural, and value-driven dimensions.

For this project, which focuses on industrial symbiosis by promoting trust between stakeholders and enhancing collaboration, the focus is on three of the seven pillars from the Seven Pillars framework: material, society, culture and value creation. These pillars form the foundation of the approach and align closely with the practical and social challenges of improving circularity at Ekkersrijt. While the remaining four pillars, electricity, water, biodiversity and health & well-being, are important in the overall transition to a circular economy, they are outside the scope of this project due to time limitations. In the following section, the three pillars will be discussed in depth and the other pillars will be touched upon briefly. The seven pillars can be found in Figure 3. These pillars are constructed by "Metabolic" and help identify and visualize the focus of companies when it comes to circular economy.

2.2.2 The Seven Pillars

Materials

The material dimension of circularity focuses on the efficient and responsible use of resources across the entire lifecycle of products. It includes maximizing material longevity, recyclability and minimizing environmental impact through improved logistics. The Butterfly Diagram (Skene, K. R. 2022; Ellen MacArthur Foundation 2022, 23 mei) emphasizes that finite materials, such as metals and plastics, should circulate through loops such as reuse, repair, refurbishment and remanufacturing before resorting to recycling or energy recovery. This links to R3, R4, R5, and R6 of the 9R framework, as shown in Figure 3 (Potting et al. 2017, p.5).

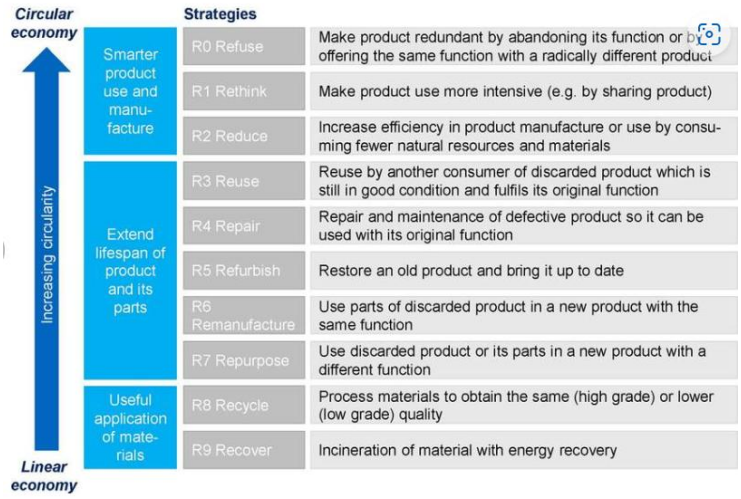

Figure 3: The 9R Framework, starting at R9: recovery and moving up to R0 where products are refused and used for something new (Potting et al. 2017, p.5).

To measure the improvement in resource use efficiency with regards to the material pillar, several measurements can be performed to assess progress. For instance, comparing the input of bio-based or recycled materials to the input of non-renewable materials, and by comparing transport distances for waste products before and after focusing on material efficiency.

Society & Culture

This dimension closely aligns with the People aspect 3 P's model, which focuses on social responsibility, collaboration, and well-being (Elkington, 1997). This pillar has a focus on internal and external social cohesion. It highlights the importance of involving stakeholder and increasing collaborative initiatives to cultivate a shared sense of purpose and long-term cooperation (Metabolic, 2017). The societal pillar also aligns with the UN Sustainable Development Goals (SDGs), such as: SDG 8: Decent Work and Economic Growth, SDG 16: Peace, Justice, and Strong Institutions SDG 17: Partnerships for the Goals (United Nations, 2015).

Value

The value pillar focuses on value increase of a product or service; this value is beyond financial compensation and is mostly measured in societal contribution. This value increase can occur by utilizing the resource to its fullest extent, by which it contributes to the aesthetic, emotional, ecological etc. values (Metabolic. 2017, February 6). The SDG 12 Maximizing resource value; sustainable design, SDG 9 Innovation for non-financial value creation and SDG 11 Aesthetic, cultural, emotional value in design are all covered by this pilar (United Nations, 2015).

Energy

The energy pillar emphasises reducing energy wastage and promotes the production of green energy by the park itself (metabolic. 2017, February 6).

Water

The water dimension focuses on the quality of water and where the water is transported. The aim is to minimize water usage all together and avoiding pollution (Metabolic. 2017, February 6).

Biodiversity

The biodiversity pilar ensures that efforts are made to preserve and protect biodiversity in the direct facility of the park, even if this would result in a reduction of profits or efficiency (Metabolic. 2017, February 6).

Health & Wellbeing

The health and well-being pillar focuses on a safe working environment for employees with regards to harmful substances but also allows for a social safe working environment (Metabolic. 2017, February 6).

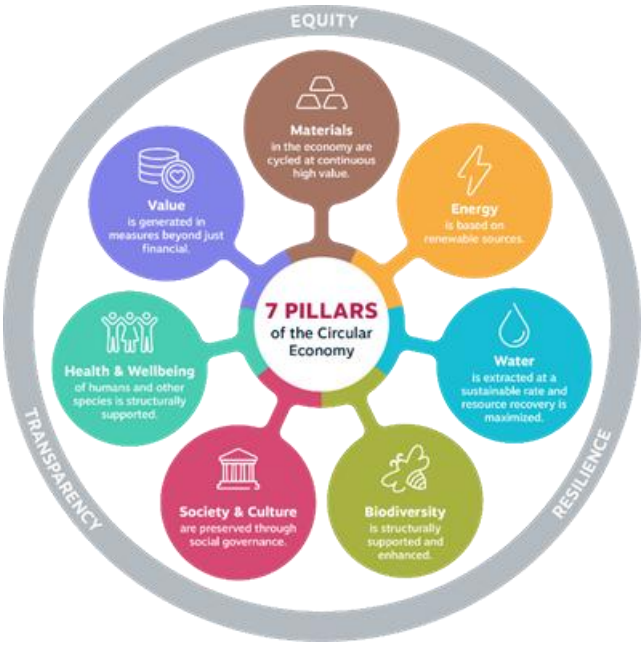

Figure 4: Seven Pillars of circular economy (Metabolic 2017, February 6). The pillars show the seven dimensions of CE, Material Society and Culture and Value will be the main focus.

The Seven Pillars of CE, as shown in Figure 4, provide a comprehensive framework to visualize and structure circularity. By understanding the scope of each pillar, the model can help identify circular opportunities and challenges. In the results section, the Seven Pillars will be revisited in relation to Ekkersrijt.

2.3 Circularity Assessment Tools

A Circularity Assessment (CA) tool is a method or platform to evaluate how well a system such as a business, city, or industrial area implements and strives to circular economy practices. Four CA tools have been researched that are able to assess the circularity of cities. These tools are compared to evaluate their ability to assess, a business park or industrial region. They vary in complexity, scope, and intended use. The circular assessment tools share the same overall goal: assessing circularity in a given region. This is done through a series of standard steps. First, an analysis of collaboration is performed to evaluate how well different stakeholders within the city function together or how willing they are to work together. Next, the value chain is analysed, examining factors such as imported of materials, longevity of materials in the system is determent, and how much waste is produced. Additionally, the environmental and economic value of these processes is assessed, often using the 9R framework and a value assessment (Vanhuyse, 2023; Muscillo et all., 2021).

2.3.1 CityLoops

CityLoops is a European project to assess circular economy within cities. Within this project a comprehensive tool has been developed. This tool is free to use and is explained in great detail how it works and what steps should be performed to analyse a city in detail (Keijsers et al. 2022). This tool is mostly focused on throughput and visualizing the materials, in any form, trough the city. This tool offers municipalities and business districts the opportunity to structure the flow of materials within their district, which allows them to inventory and make rules accordingly (Bellstedt & Chaudhary, 2022). Moreover, it includes exploring stakeholder involvement and collaboration (CityLoops: Urban circularity assessment method. Deliverable 4.4 Metabolism of Cities, 2025). The tool is also structured for reanalysis every 5 years giving an overview of the progress made over the years. This progress is analysed in a dashboard (ICLEI Local Governments for Sustainability, 2023).

2.3.2 Circle Assessment

The circular assessment tool, developed by Circle Economy a circularity assessment company based in Amsterdam with a main focus on climate, offers organisations a standardized method to analyse circularity and evaluate performance of a city. This tool allows users to visualize material flow with an easy-to-use dashboard. This dashboard gives insights into how companies could create strategies for circularity based on the 9R method (Circle Economy 2020). However, the Circle Assessment is a paid tool, which reduces the transparency of the tool. Because of this the full power of the circular assessment cannot be analysed through its fullest extent as measurement units and data analysis data was not available for on the website of Circle Assessment. However, the organisation stated, standardization of measurement units will be performed. The results

in generalizing waste streams between big and small companies and the type of company. The way of standardization is not clear and therefore can give skewed results with unwanted biases (Circle Economy, 2008).

2.3.3 Circelligence by BCG

This tool provides a comprehensive analysis of the community/company's circularity. This tool takes all the value chain steps into account from raw materials to the end-of-life stage evaluating how long material stays in the system (Boston Consulting Group, 2025). This analysis can help identify what materials have a fast throughput through the system and in doing so pinpoints main areas of focus with regards to CE. Identifying what materials have a fast flow through time can help in focusing circularity efforts on the biggest waste streams. After the analysis the data integrations is rather easy, allowing for efficient data extraction and analysis (Boston Consulting Group, 2022). This tool also has a user-friendly dashboard with intuitive features that facilitate easy identification of areas. With this interface also CA models can be run (Boston Consulting Group, 2025). However, the BCG tool is also a paid for tool, reducing the ability to analyse the tool to its fullest extent. In addition to this, it requires extensive data inputs which are challenging for companies to obtain due to limited data infrastructure. Additionally, the interface makes it difficult to analyse company size areas reducing its usefulness (Meyer zum Felde, 2020).

2.3.4 Metabolic Analysis

The Metabolic analysis tool offers tailored analytical ways to address the specific needs for different organisations to fit the scope of their field (Metabolic, 2025). The analysis is based on scientific and system-based approaches, reducing bias and increasing trustworthiness. This tool allows for in depth analysis (Metabolic, 2025) and multi-purpose analysis, but this comes at a cost. If at some point different analysis are preferred, the tool cannot be compared to the original tool making it more difficult to comparing the data over different years (Bellstedt & Chaudhary, 2022). Consequently, this tool is not standardized, and orders of magnitude still have to be debated. The metabolic analysis tool is also not autonomous as it needs external consultation for the analysis to work optimally (Metabolic, 2025). A clear overview of the strengths and weaknesses of the different assessment tools are given in table 2.

Table 2: This table identifies strengths and weaknesses for all four assessment tools. Based on the results City loops shows promising results.

Tool	Strengths	Weaknesses	Best Use Case
City Loops	Designed specifically for cities, integrates well with urban planning strategies, and provides actionable insights.	May not be as effective for smaller regions: more focused on urban environments.	Large-scale municipal planning. Can be individualized
Circle Assessment	Standardized approach, easy-to-use dashboard, and globally recognized.	Requires a paid subscription reducing transparency, and generalizes data, which may not account for local nuances.	Businesses or cities looking for an accessible, broad analysis.
Circelligence	Highly data-driven, integrates well with corporate and industrial ecosystems, and allows scenario modelling.	Not transparent (paid tool), requires high-quality data inputs, and might be complex for smaller-scale applications.	Large industrial areas with good data availability. Where social symbioses exists.
Metabolic Analysis	Customizable and in-depth, provides a scientific systems-based approach.	Less standardized, making cross-comparison difficult; often requires external consultation.	Complex regional or industrial assessments needing deep sustainability insights.

This overview of circular assessment tools shows the different approaches available to evaluate circularity. Each tool offers different strengths and weaknesses depending on the objectives of a project. By understanding these tools' intended use, the most appropriate framework can be selected for assessing circularity. In the results section we will apply these findings to Ekkersrijt, identifying the best suited tool to support the project goals.

2.4 Industrial Symbiosis

The process of becoming circular can help companies achieve their sustainability goals. Companies individually striving to achieve the circularity goals could take a long period of time, as collaboration has shown to have a positive effect on achieving goals timely (Andrews & Rapp, 2015). To make the transition from linear resource usage to a circular process, collaboration between companies can provide additional opportunities and speed up this process (Mishra et al., 2019). A developed method to let companies collaborate on their waste materials to become more circular is Industrial Symbiosis. Initially, Chertow (2000) came up with this method, which comes down to trying to collectivise individual operating companies with their waste streams. Followingly, waste streams, such as waste products, wastewater and an excess of energy, are exchanged between the individual companies and are re-used as a resource for the other company. Companies in this system are situated closely to each other, which can provide them competitive advantages.

2.4.1 Measuring Tools Industrial Symbiosis

In the industrial symbiosis method, three tools are used to match companies, namely input to output matching, stakeholder processes and materials budgeting (Chertow, 2000).

2.4.1.1 Input-output matching

The first tool is to match the in- and outputs of different companies. This is done by collecting waste data about the companies and seeing if other companies could use the waste, when this technically feasible. Velenturf et al. (2019), provides examples of how companies could integrate in- and outputs of different companies. For example, one company could use the other companies' organic by-product material to generate bioenergy, of which the residues where later used as a fertilizer (Semple et al., 2017). Another example is where a biorefinery could use one company's metal waste and turn it into bio-hydrogen fuel (Murray et al., 2017).

2.4.1.2 Stakeholder processes

It is important for companies to communicate with each other and construct relationships, which can create the foundation for Industrial Symbiosis. Strong interconnectivity, trust and personal relationships between organisations can improve material exchanges, efficiency, and the overall success of an industrial symbiosis network (Herczeg et al., 2017c; Perrucci et al., 2022). An example about a close relationship is between a producer that shared unneeded growing grounds with an oil processor that could use the land to produce biomass fuel to be used by other companies (Bain et al., 2010). A coordinating body or park management can help with the collaboration and communication between organisations in an industrial park. A park management can foster and guide collaboration and communication between firms located on the industrial park (Chen, 2022; Perruci, 2022), and to ensure alignment between organisations to support shared goals. Park management is responsible for maintaining public spaces, ensuring safety, and improving accessibility within the business park. It also plays a key role in representing the interest of the companies and stakeholders, and it should serve as a bridge between the business park and the local government (Park management, 2025). In this case, the park management should also ensure that companies are committed to industrial symbiosis and promote a transparent communication culture. By encouraging a cooperative approach, awareness on sustainability issues can be raised and show how industrial symbiosis can help tackle these sustainability issues (Salomone, 2020).

2.4.1.3 Material budgeting

A last tool Chertow (2000) provides is materials budgeting. This tool translates to that an overview/map should be created among businesses to visualize the movement of waste. The map is used to pinpoint significant areas where the most potential improvement could take place. Currently the commissioner has already constructed such a map that shows where most waste is generated on the business park and where the waste materials are transported to.

2.5 Stakeholders

Table 3 outlines the key stakeholders involved in the project and their respective roles, interests, and contributions. These stakeholders are essential for achieving the goals of the project, as they each bring unique perspective and expertise to the initiative. Understanding their involvement helps clarify how the project is structured and how each group contributes to the overall success of transitioning toward a circular economy at Ekkersrijt.

Table 3: Key stakeholders based on their role, interest in the project and the contribution. Six key stakeholders have been identified.

Stakeholder Group	Role	Interest	Contribution
Local Municipality	Governance and policy support	Economic development, sustainability goals	Facilitate collaboration and provide funding
Business Park Management	Operational management and facilitation	Efficient resource management, park growth	Implement circular practices, engage companies
Companies in Ekkersrijt	Implementation of circular initiatives	Business growth, cost reduction	Share resources and participate workshops
Research Institutions	Knowledge and innovation provider	Academic collaboration	Conduct studies, provide expertise in circular economy
Local Community	Stakeholder engagement and feedback	Quality of life, job opportunities	Participate in workshop, provide inputs on community needs
Environmental NGOs	Advocacy and awareness	Environmental protection	Promote sustainable practices and community education

2.5.1 Multi- Stakeholder Involvement

The transition to a circular economy requires collaboration between a diverse set of actors, including businesses, local governments, research institutions, and communities, each bringing their own perspectives, interests, and expertise. Given the diversity of these groups, it is essential to adopt a collaborative approach that ensures all actors work towards a common goal. To achieve this, a multi-stakeholder partnership (MSP) is useful. MSP's are designed to facilitate cooperation among different actors by providing tools and structures to align their interests and efforts toward a shared goal (Brouwer et al., 2019).

A multi-stakeholder partnership (MSP) brings together groups with different interests to work collaboratively on complex problems. Even though stakeholders may have varying perspectives or stakes, MSPs rely on structured processes that help them cooperate effectively. Effective MSPs include several key elements. First, a shared understanding of the issue must exists. Each stakeholder should have a clearly defined goal, and the overall purpose of addressing the issue must be understood to all involved. The partnership should also ensure inclusive engagement, involving all individuals or groups

affected by or connected to the issue should be involved from the beginning. Effective MSPs also bridge different sectors and levels of society, connecting disciplines like government, civil society, and both local and national institutions.

A successful MSP follows a flexible but agreed-upon timeline, promotes collaborative learning, and balances top-down strategies with bottom-up input. This type of collaboration is important as governments and institutions often struggle to address complex environmental and societal challenges on their own. In the context of the circular economy, cooperation between various actors is essential to create spaces for sharing perspectives and co-creating solutions. Such partnerships help combine strategic guidance with local insights to improve circularity in a way that is inclusive and sustainable (Brouwer et al., 2019)

2.5.2 Designing the Process

The effectiveness of an MSP relies on its design, which includes planning activities and events necessary to achieve desired outcomes, tailored to the specific needs and context of the participants. To design an MSPs it is first necessary to understand the context, use participatory methods and tools, and develop change strategies. Furthermore, the MSP process includes four phases; initiating, adaptive planning, collaborative action, and reflecting monitoring (Brouwer et al., 2019).

Phase 1: Initiating

This phase focuses on understanding why collaboration is necessary and identifying key stakeholders. It is essential to build trust and involve respected and neutral leaders to guide the process. Clear motivation and early buy-in are critical for long-term success. (Brouwer et al., 2019).

Phase 2: Adaptive planning

In this phase, stakeholders collaborate to define what kind of change is needed and explore different ways to achieve it. Instead of locking into one fixed plan, they create a flexible roadmap that can evolve over time. This allows everyone to stay aligned and respond to new developments as they arise (Brouwer et al., 2019).

Phase 3: Collaborative Action

Plans are put into motion through coordinated and committed efforts. Clear roles, timelines, and resources are essential to ensure actions are carried out. Flexibility is needed to adapt as new challenges may arise.(Brouwer et al., 2019).

Phase 4: Monitoring

Ongoing reflection helps track progress and improve the process continuously. Regular check-ins and open dialogue support a learning culture. Success criteria should be clear and feedback should be used to guide improvements. (Brouwer et al., 2019).

The four phases have been visualized in figure 5.

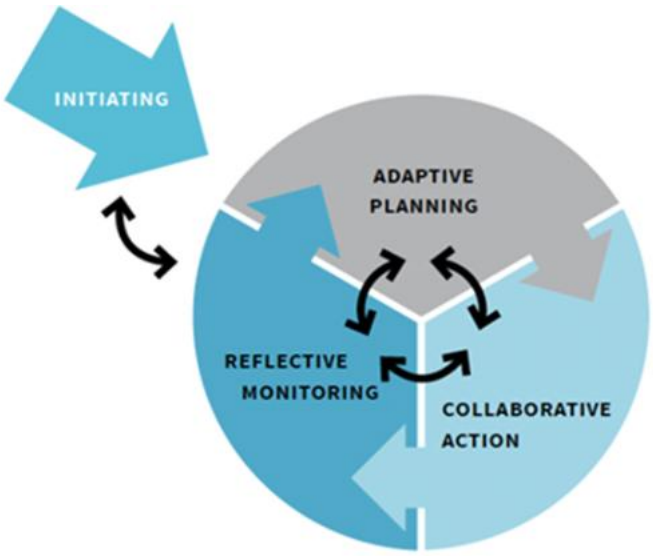

Figure 5. shows the four phases of the Multi-Stakeholder Partnership process (Brouwer et al., 2019). The figure shows the stable feedback loop of the partnership process where each step is linked to the other steps.

2.6 Knowledge Hub

2.6.1 Definition

The creation of a knowledge HUB is one of the approaches that can be used to stimulate circularity in a business park (Kaipainen et al., 2023). Evers (2008) describes a knowledge hub as:

> "a local innovation system that are nodes in networks of knowledge production and knowledge sharing. They are characterized by high connectedness and high internal and external networking and knowledge sharing capabilities. As meeting points of communities of knowledge and interest, knowledge hub fulfils three major functions: to generate knowledge, to transfer knowledge to sites of application; and to transmit knowledge to other people through education and training" (p. 10).

2.6.2 Activities

A knowledge hub creates improvements such as enhanced knowledge creation, information sharing, community specific interventions and the movement of knowledge (Brar et al., 2023). These benefits are crucial for the existing problems on Ekkersrijt, such as lack of collaboration and knowledge sharing. A key indicator for success in a knowledge hub are activities on a regular basis. Kujala et al. (2023) mentions that interacting frequently with stakeholders can help in achieving sustainability goals and optimisation of the stakeholder network. Frequent activities in the knowledge hub could entail lifelong education sessions, where knowledge translated to education is created by members of the knowledge hub and shared to other members (Klein et al., 2020). Moreover, Klein et al. (2020) mentions that Planned Collaboration Programs (PCP) are needed for companies to keep up with the latest circularity developments. PCP is done through one-on-one meetings with academia and businesses by workshops and short lectures about a certain circularity topic.

Besides the importance of activities in a knowledge hub, the social aspect should also not be disregarded. A paper by Sol et al. (2017), mentions the importance of clear contracts in a knowledge hub. Additionally, active participation of the entire community will be an important factor for success (O'Brien et al., 2020).

3. Methodology

3.1 Methodology Approach

A qualitative approach is used to answer the research question:

- What steps should be taken to enhance stakeholder engagement with regard to circularity through collaboration and knowledge sharing between companies to improve the overall circularity of Ekkersrijt?

A qualitative approach means that primarily data collected through interviews are used to advise the commissioner. As the project plan includes mainly social aspects, interviews were selected as the main method for gathering. Additionally, data from the literature is also used.

With the qualitative approach, the focus is on thematic analysis (Clarke & Braun, 2016). This type of analysis is used by discovering themes and patterns across the data. Through interviews, reoccurring options to improve the circularity should be discovered. The options will be carefully selected and included in possible recommendations.

3.2 Research Population

The collection of data will take place in Ekkersrijt business park. The park is home to about 350 companies, which is the research population of this project (Gemeente Son en Breugel, 2024). The research population ranges from small national companies to large international conglomerates active in different industries, such as retail and tech. Within the timeframe of the project, there is limited time to collect data. Therefore, a limited sample is collected of the research population is collected.

The commissioner provided a list of contact details of 18 companies on Ekkersrijt. Since there are no other established connections, the list with established connections is used to sample from. This means that a convenience sampling method is selected. From the list of 18 companies, a sample size of 7 companies was used. In this sample, companies with a range of operational backgrounds are present. The backgrounds of the companies range from specific service providers to companies engaged in the logistical side of Ekkersrijt. Additionally, an extra interview was planned with the park management to collect an important stakeholder perspective as well as with the overseeing sustainability governor of the municipality of Son en Breugel.

3.3 Data Collection

The main data collection is done through interviews with a selected sample of companies. An interview guide was developed based on literature and in- and external discussions, for example with the commissioner. The full interview guide can be found in appendix 8.1. Before the conduction of the interviews, the interview guide was first validated with one company on Ekkersrijt. Through this validation, the interview guide was fine-tuned to gather data of all the other companies. For the interview with the park manager other interview questions were prepared to align with the perspective of the park manager. All interviews were scheduled for a maximum of 30 minutes. The respondents were asked about the possibility to record the conversation. The respondents were assured that the conversation would remain confidential and would only be used for research purposes. If information is used by companies it is anonymized and made sure that it is not traceable back to the companies. The interviews were conducted in the week 5 and 6 of the project.

3.4 Data Analysis

The data analysis was performed on the input received through the interviews. All of the interviews conducted with the companies were recorded, which were used to highlight the main points to the questions. We have focused on the main points mentioned in the interviews and compared them side-by-side. Since the interview questions were connected to the research questions, the main points to the questions aligned. However, with this approach possible biases could occur, such as selection- and researcher bias. These biases were taken into regard by implementing Inter-Rater Reliability (Gwet, 2014). Multiple students have worked on the data analysis part. Throughout this process, the analysed parts were discussed among team members and agreed upon. This increases the reliability of the data analysis, since multiple perspectives on the selection and conclusions of the data were aligned.

4. Results and Discussion

The main findings of the literature review and interviews are presented and discussed in this section. Firstly, the Seven Pillars and the circularity tool to assess circularity at Ekkersrijt will be presented. This is followed by a review of stakeholder engagement and circularity in practice. Hereafter, the most important findings of the interviews will be presented and discussed. Finally, a roadmap with recommendations to make Ekkersrijt more circular will be delivered.

4.1 The Seven Pillars in Practice

For this project, the focus is on three of the seven pillars from the Seven Pillars framework: material, society, culture and value creation. These pillars form the foundation of the approach and align closely with the practical and social challenges of improving circularity at Ekkersrijt. The three pillars and their relevance for Ekkersrijt will be discussed below.

Materials

At Ekkersrijt, a lot of waste products are transported to other areas of the Netherlands. This is an unsustainable practice that can be improved by local reusing or local recycling of products, cutting transportation cost and distance. Furthermore, a lot of products are seen as “waste” but could still fulfil a role as resource. For Ekkersrijt this means integrating practices such as shared procurement, repair and refurbishment services, and coordinated waste stream management through industrial symbiosis. It also involves designing material input in such a way they are recoverable and easily separable, ensuring they retain value and can re-enter circulation.

Society and Culture

At Ekkersrijt, the social and cultural dimension pillar is important in achieving industrial symbiosis. To improve collaboration, companies will need to share resources, collaborate on waste management and exchange knowledge. Achieving this requires building trust, enhancing communication and establishing shared objectives. Additionally, stakeholder engagement is an important aspect to ensure alignment with the broader vision of Ekkersrijt. Creating a circular mindset within the companies and park culture will support the transition to a circular economy.

Value

With an increased collaboration between companies at Ekkersrijt, the intrinsic value of products will increase. By reducing the unsustainable use of resources through resource sharing and industrial symbiosis. Additionally, circular practices can also create social and economic value for the community by improving public perception of the park. The

improved reputation could make the park more attractive to visitors, companies and investors. Moreover, creating a campus like park with green areas, walking paths and biking lanes would make the park more attractive for people to work and visit, thereby increasing value of Ekkersrijt as a whole.

4.2 Circular Assessment Tool Ekkersrijt

The Urban Circularity Assessment tool by CityLoops was selected to measure circularity on Ekkersrijt. From the identified methods, most circular assessment tools follow similar steps to assess circularity but differentiate in their specific methodologies and applications. In this study, we examined four tools, CityLoops, Circle Assessment, Circelligence, and Metabolic Analysis. Among the four tools, the CityLoops tool emerges as most relevant to establish a circularity baseline for Ekkersrijt. Designed for urban and regional transitions, the Urban Circularity Assessment (UCA) tool by CityLoops offers a practical framework that aligns with Ekkersrijt's vision to become more circular. The tool focuses on material flow analysis combined with stakeholder engagement, making it suitable for identifying collaboration between companies.

Urban Circularity Assessment

CityLoops project was funded by the European Union (EU) to develop procedures, approaches, and open access and open-source tools. The aim is to integrate circularity in planning and decision-making processes to enhance the transition to a circular economy (*ICLEI Europe Projects*, 2024).

The UCA tool has been developed by the CityLoops project to measure urban circularity by evaluating material flows, resource stock and circular economy performance (CityLoops, 2020a). The tool has originally been designed to assess municipalities and cities but could be adapted to fit business parks like Ekkersrijt. The UCA consists of three parts, the material flow and stock accounting, the indicators, and the circular economy assessment.

Material Flow and Stock Accounting

The material flow accounting measures what enters and exits the system, this shows how much is extracted locally, how much is imported and exported, and how much waste and emissions are emitted. The stock is what is staying in a system for a longer period and counts as a buffer between resource intake and emissions or waste outtake. It gives an idea of what could potentially be reused or will be counted as waste (CityLoops, 2020a).

Indicator Framework

The data that is collected from the material flow and stock accounting can then be analysed by using an indicator framework to measure circularity of the area. The UCA proposes 21 direct and indirect indicators that assess material flows, ratios, productivity, and loop closing efficiency. By using these indicators, insight into resource utilisation, circularity and environmental/economic impact are provided (CityLoops, 2020b.).

Circular Economy Assessment

The data should be reviewed to identify gaps and evaluate quality. The interpretation of all results, including indicators and visualisations, need to be carried out. A circularity dashboard can be created showing the input and output circularity of the area, such as the one presented below in figure 6. This could be used to identify next steps and track progress toward a more circular economy.

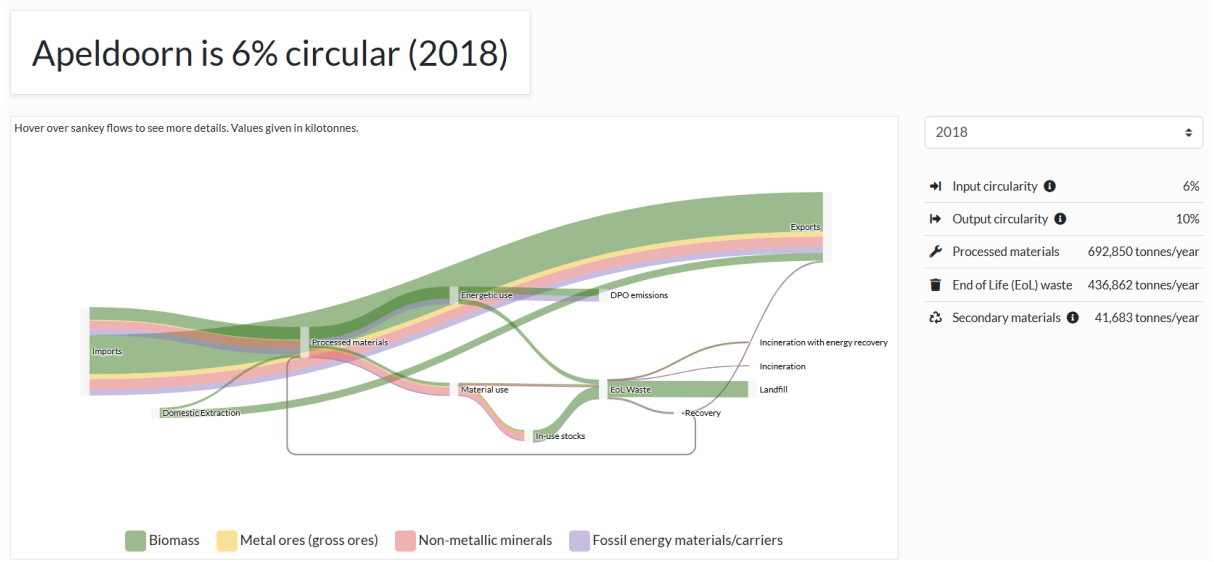

Figure 6. Dashboard example from CityLoops project.

UCA in Business Parks

As business parks use many resources and generate a significant amount of waste, tracking used input, internal use, and output will help identify inefficiencies. Additionally, gaining a better understanding of material flows could help identify circular business opportunities. This tool will help set a circularity baseline for the park, and track progress toward local and regional sustainability goals. Even though the tool is originally designed for urban areas, the tool can be modified to better suit business parks like Ekkersrijt. Instead of focusing on residential buildings, the focus will be on commercial and industrial resource streams and material stocks.

The UCA tool does not include standardized indicators on stakeholder engagement, yet as mentioned in the section 1.1 stakeholder engagement is fundamental pillar to promote CE in Ekkersrijt. There are several metrics that have been proposed to measure this aspect, such as the number of CE related meetings, the number of local CE initiatives (Droege, et al., 2021), employee participation and the number of local stakeholders engaged (Vinante, et al., 2021). Moreover, indicators could be added to assess potential resource exchange between companies, and to monitor material stock to position resource availability. Regarding the social pillar of CE, employee satisfaction and wellbeing, there are also some methods available to assess these aspects such as

surveys on employee satisfaction, wellbeing and the presence of certifications such as OHSAS 18001 which focus on occupational health and safety within companies (Sacco, et al., 2021: Pigosso, et al., 2018). In appendix 8.2, a list of all indicators relevant for the CE assessment in Ekkersrijt is provided.

It is important to consider the entire supply chain, the UCA assesses local circularity but may not capture the whole chain. Moreover, industries have different circularity challenges and customised indicators are required.

4.3 Stakeholder Engagement at Ekkersrijt

In the context of Ekkersrijt, the transition towards a circular economy requires active collaboration among a wide range of stakeholders, including companies, the municipality of Son en Breugel, knowledge institutions and local communities. These groups have different interests, responsibilities and capacities, but all play a key role in shaping the parks circular future. To ensure that these actors work together effectively, the implementation of a multi-stakeholder partnership (MSP) will be a useful strategy.

An MSP in Ekkersrijt can help align the goals of the different stakeholders and encourage joint ownership in the process. A structured MSP approach can make sure that all companies, big or small, in the park are included in the process, and that learning, and innovation are shred.

The design of the MSP in Ekkersrijt should reflect the areas specific context and goals. according to the four phases of MSP development by Brouwer et al (2019), the initiating phase would involve identifying key stakeholders, building trust among them and specifying the need for circular initiatives.

In the next phase, adapting planning, stakeholders should co-develop a shared vision for circularity. Workshops and co-creation sessions facilitated by park management could help touch upon themes such as industrial symbiosis, waste management, or shared mobility. The result would be a roadmap, choosing the direction and possible ways to reach the goal, without locking into one single path, since not everyone might agree on specific ways or goals

The third phase, collaborative action, is the development and implementation of projects, such as platform for industrial waste exchange, the development of a shared sustainability hub, or pilot programs for circular procurement. Clearly defined roles for each partner (e.g., municipality as enabler, businesses as implementers, park management as knowledge partner) and access to shared funding or subsidies would be vital to support implementation.

In the monitoring phase progress would be tracked using measurable indicators, and results regularly discussed in stakeholder meetings

4.4 Circularity in Practice

Business parks around the world focus on circularity efforts. Each business park has its own efforts towards circularity and are not always shared yet. In this chapter an overview will be presented of current practices towards circularity by different business parks. Providing business parks with an overview of available solutions thought of by other parks could also help prioritize the need of information sharing and collaboration.

4.4.1 Business Parks in the Netherlands

In the Netherlands, business parks around the country are focusing on circularity. A proportion of efforts by business parks are identical, but some business parks also include distinct initiatives. For instance, Greenport Venlo is focusing on infrastructure, such as making the business park bike-friendly (*Greenport Venlo*, 2025). This enables commuters to come by bike to work daily, which relates to the health & wellbeing dimension of the employees. To build new buildings and roads, the business park agreed on not using natural gas anymore. When sand is extracted from construction sites it is re-purposed for a sand embankment, which is used to boost biodiversity and the circular economy. Sustainable building has also been shown to have a contribution on becoming more circular (Marek & Krejza, 2024). For example, when more materials such as sand are re-used or recycled, this has an impact on the circularity of the buildings. Marek and Krejza (2024) also mention that the use of renewable resources instead of natural gas in construction has a positive impact. Lastly, Greenport Venlo also includes a rail terminal, where goods can be transported in larger quantities by train as an alternative to road transport, as can be seen in figure 7.

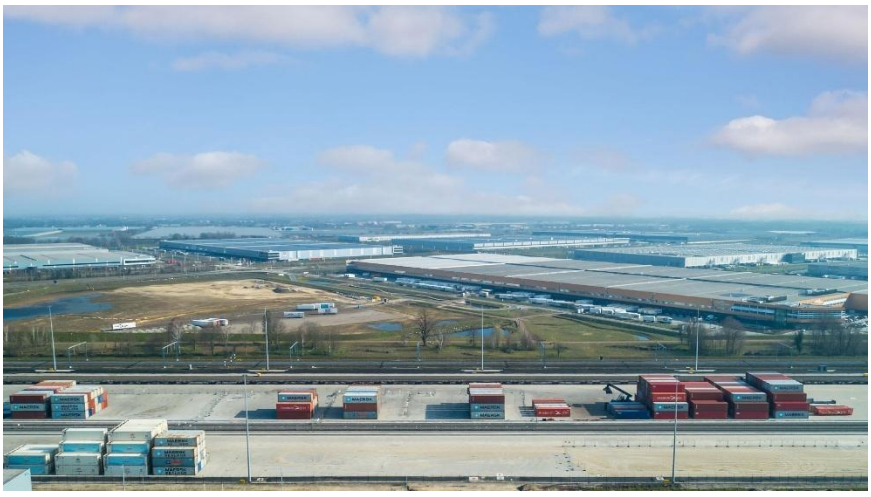

FIgure 7: Railway Greenport venlo, providing sustainable way of transportation (Greenport Venlo, 2025).

The “Kleefse Waard”, located in Arnhem is another business park known for its circularity efforts. This park focuses, like other business parks, on generating sustainable energy, such as solar energy. Additionally, the collection of waste, such as plastic is one of the focal points (IPKW, 2024). According to Bucknall (2020), of all plastic every used, about

80% is destroyed. Since there are limited technological options to re-use plastics, they are mainly recycled. However, the “Kleefse Waard” takes the collection and recycling of plastic one step further. A company called “Plastic Fantastic” is active on the business park and uses collected plastic for new products. For example, the company creates chairs, benches and trash cans with the waste plastic (*Plastic Fantastic*, 2025). In figure 8, pieces of furniture created by plastics on the business park can be seen. In a different area, like heat generation, the vision of the business park is more on a transitional method, thus not completely circular yet. Whenever maintenance is done on the green space, the wood waste, such as leaves and branches are collected to be used for heat generation. Furthermore, there also is an R&D centre, where companies, educational institutions and the government are researching more sustainable transport alternatives. The initiatives from this business park, such as solar energy, recycling of plastics and value creation of waste production, relates to several dimensions of circularity.

Figure 8: Furniture made from platic waste products (IPKW, 2024).

“Waarderpolder” business park, located in Haarlem, recently organised a collective waste collection day (*Waarderpolder,* 2025). On this day about 75 employees from companies on the business park worked together to clean up waste in nature. The business park organises more activities to promote circularity, such as the week of the circular economy. The activities show the involvement of the society & culture pillar of circular economy within the business park. An interesting initiative “Waarderpolder” promotes is a resource coach. The resource coach is employed by the business park and consults companies on the possibilities of becoming circular. Possibilities include the re-usage of waste and waste separation, also relating to the material pillar of CE. The park management collaborates with an electronic waste company. This company, as seen in figure 9 collects of all onsite companies the old electronic devices and primarily tries to refurbish it. When this is not possible, the electronic devices will be taken apart and separate materials will be recycled. Debnath (2020), describes the way that electronic waste can be turned into useful materials again. Materials extracted from e-waste, like

glass could be re-used by a tv manufacturer for example. Moreover, useful metals are also extracted which in its turn could be used by different types of companies demanding these metals. This way e-waste could be used again as resources for other companies.

Figure 9: Electronic waste collection (Waarderpolder, 2025).

4.4.2 Leading Business Park Worldwide

Internationally, efforts are also made towards circularity. The world leading example in circularity is the Kalundborg Symbiosis business park. This business park has been collaborating with public and private companies onsite for more than 50 years to achieve circularity (Kalundborg Symbiosis, 2025). The business park is expecting to achieve their target of 70% less CO2 emissions by 2030. They have achieved their success by creating a foundational network for the companies to share energy, water and materials, which can be seen in figure 10. Additionally, trust and clear communication combined with innovation and scalability have contributed. A paper by Paché (2024) mentions that the generalization of Kalundborg is rather hard, because it heavily depends on the context. Context, such as the level of trust, types of companies and the regulations have a significant effect on the implementation.

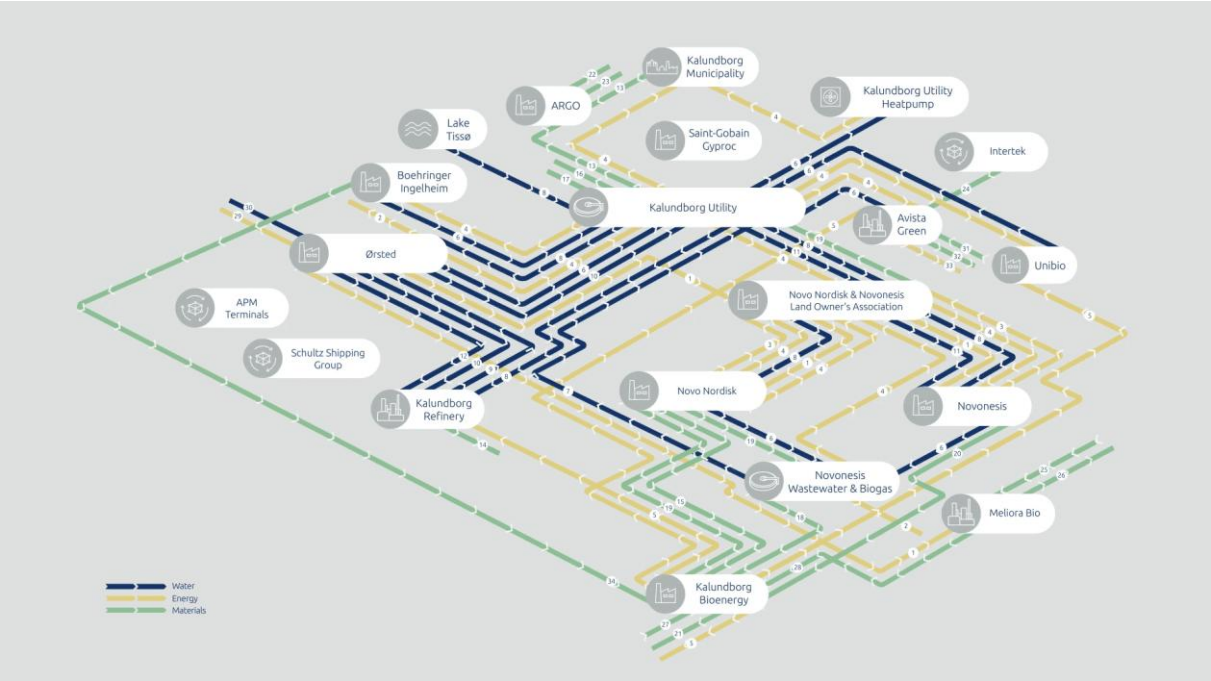

Figure 10: Ecosystem Kalundborg (Kalundborg Symbiosis, 2025).

4.4.3 Technologically Oriented Business Park

A business park in Austria called Green Tech Valley is focusing on the technological side of achieving circularity. The business park has provided more than 600 green innovations so far and its technologies are increasingly used (Green Tech Valley Cluster, 2024). On their website, a range of specific problem-based solutions are provided for companies on- and off-site to become more circular. Regarding waste collection, there is a processing company that makes use of sensor-based waste sorting. This leads to higher recycling rates for the companies, because the waste is separated better. Other innovations that are implemented are 3D printing of metal and energy from wastewater. A technology like creating energy from wastewater can positively enhance circularity as it relates to both the energy and water pillars of the circular economy.

Lastly, ideas from circular cities could be useful for business parks to use based on the society & culture pillar of circular economy. City Loops, an initiative by the European Union, is focused on creating circular cities. One city included in their program is Porto, where circularity is implemented on a large scale (Claro et al., 2023). Food contributes about 22% to the total greenhouse gas emissions and a significant proportion of it goes to waste (Chapagain & James, 2013). In Porto, food waste was identified as a key indicator to focus on. Interesting initiatives were discovered as a solution to food waste. For instance, when restaurants and supermarkets had a surplus of food, this was donated to places with a deficit. They created a system where this was HACCP certified (Mergulhoagencia, 2024). The food that couldn't be used anymore was used for compost. Additionally, the City Loops also organised a circular idea contest. This stimulated people

in the city to come up with new circularity ideas, which were created locally, thus really suited the community.

Overall, the initiatives from the business parks touch upon all of the pillars of circular economy. Although not every business park meets all of the dimensions, the different initiatives could be combined to form a plan to become circular.

4.5 Interview Findings

In total nine interviews were conducted, which provided valuable insights on important topics, such as the current view on circularity, what circularity initiatives are there and how companies can collaborate better. From the interviews the most recurring answers were selected to form a conclusion for Ekkersrijt.

4.5.1 Definition of Circularity

While the definitions of circular economy between the interviewed parties vary, some central principles can be identified. The majority of the organisations emphasise waste reduction and conservation of resources by reusing or closing material loops. This material-oriented approach forms a common foundation in the perception of CE. Concrete examples given by companies include product repair and reuse, separate waste collection, material recycling and buy-back schemes for reuse of components.

At the same time, there are differences in the scope and focus level of the definitions. Some companies approach CE from a practical viewpoint aimed at waste sorting and reusing, others have a broader approach that includes energy efficiency, and environmental and social aspects. Moreover, the extent to which collaboration is viewed as integral to CE varies. Some businesses view industrial symbiosis as an essential part of CE, whereas others solely focus on their own operations.

The definition of circularity based on the interviews: “Circular economy is a system aimed at maximizing the value of resources and materials throughout their life cycle, with the goal of minimizing waste and dependence on new raw materials.”

4.5.2 Social Cohesion at Ekkersrijt

During the interviews it was evident that most companies located at Ekkersrijt perceive there is a low sense of community feeling. Communication between businesses is minimal, and there is limited awareness of what neighbouring companies are doing. One respondent noted: *“It is just a business park like all business parks. A bit cold, a bit impersonal, and full of large premises and buildings.”* It was noted that this lack of cohesion hinders collaboration between companies. Additionally, some businesses are hesitant to collaborate because of concerns to share confidential information.

The interviews revealed that companies are open and willing to collaborate when shared benefits and outcomes are clearly defined and they can see the value collaboration brings to them. It was mentioned that addressing mutual challenges for companies could be a good starting point for collaboration. Mutual challenges that were mentioned are parking issues and accessibility.

A logo could help to support creating a community feeling (Black & Veloutsou, 2017). A potential logo for Ekkersrijt was created.

Figure 11. Community logo concept for Ekkersrijt. Designed using OpenAi's ChatGPT

4.5.3 Current Collaboration and Barriers

The findings from the interviews showed that companies mainly operate individually, and that collaboration is rare. The lack of social cohesion at Ekkersrijt is a key barrier for companies to connect and initiate joint efforts. Additionally, time limitations, differing priorities or capacity to participate in initiatives that do not directly add value to their company hinder collaborative initiatives. Economic considerations like additional costs associated with collaboration also play a role in companies reluctance to participate in collaboration initiatives. Moreover, as mentioned above another key concern includes the risks of sharing confidential or sensitive information. Some international companies face limited flexibility or intrinsic motivation to participate in collaborative efforts unless there are concrete outcomes.

Some examples of current collaboration between companies that were mentioned during the interviews are the exchange of residual flows, joint use of facilities or logistic collaborations. One respondent mentioned: *"We collaborate with a transportation company, which is also located on Ekkersrijt. They handle deliveries for us."*

Moreover, an attempt for collaboration around electronic waste collections was pointed out during the interviews. Even though this initiative by InduSym surrounding centralized waste pick up has been evaluated positively by the interviewed companies, it was mentioned that clear and timely communication is essential to give companies enough time to prepare for participation in such an initiative. A business noted that there have been electronic waste collections in the past, but the business required their IT team to prepare for the collection and did not have sufficient time to prepare to participate in the initiative. It was noted that it would be helpful to schedule these initiatives in advance so companies can properly prepare for this to help deal with internal inflexibility.

Additionally, a company mentioned the existence of a platform, possibly intended to facilitate exchange of resources and waste streams. However, they were unsure of the

exact function and how to access it. Other companies seemed to be unaware existence of the platform. Better communication regarding existing services and products may increase company participation in circular initiatives.

4.5.4 Improving Collaboration

Interviewees emphasized that the organisation of regular events, get-togethers or workshops can help to increase collaboration between businesses. Moreover, these events provide an opportunity for companies to exchange knowledge and skills to learn from one another. It emerged from the interviews that to help companies find shared interest or needs, events could be organised where companies can present what they are working on. Companies also emphasized that events focusing on specific themes are more appealing to participate in. Sharing of knowledge and creation of awareness on circularity will most likely lead to collaboration and circular innovations (Köhler, 2022).

Respondents indicated that these events or get togethers should be organised regularly to sustain involvement of companies. One respondent noted: *"I would think, once every three months, I would think that has more impact than, say, every month. Enough to still see each other every now and then and check in on how things are going, without it becoming a huge effort."* It was noted that there has been a joint brainstorming session involving companies and the municipality, but the process progressed mainly through email and occasional Microsoft Teams meetings. This led to a lack of structure and clarity regarding the specifics of the collaboration. Companies may not have a clear overview of their specific role within the project, which obstructs their full commitment. Despite these challenges, collaboration has been identified as an essential first step.

It was underscored that the presence of a coordinating body could help in facilitating these events. The establishment of a coordinating body, in this case Park Management, can manage and organise activities and can function as a representative body with an overview of the wishes and needs of all companies. This would enable them to actively stimulate collaboration between businesses.

Furthermore, it was suggested to create a marketplace platform for material exchange to help exchange residual flows. Such a platform can provide transparency regarding surplus materials and can foster collaboration among companies. However, effective communication is essential to ensure the platform is used efficiently.

4.5.5 Campus Feeling at Ekkersrijt

Respondents reacted positively to the idea of the municipality to give Ekkersrijt more the look and feel of a campus. An environment at Ekkersrijt should be created where employees are able to socialize and networks, which promotes the trust building process and exchange of ideas. It was mentioned the sense of community feeling could be improved by creating common areas like cafes and sports facility centres. Additionally,

the placement of benches and walking paths in Ekkersrijt should promote social cohesion among employees, networking and the overall community feeling. Moreover, it was noted that efforts should be made to make the area more green. One respondent provided an example of a business park in Deurne, where they had a serious problem with water management. Many companies reduced spaces where water can enter the ground drastically by increasing parking spaces, leaving very little green space. Heavy rainfall causes flooding inside buildings. This shows that, beyond creating a pleasant environment, adding more green space is also very important for water management. Especially in the context of climate change (Slingo, 2011).

Insights derived from the interviews pointed out that companies expect the municipality and park management to provide direction and coordination for the establishment of a campus feeling at Ekkersrijt. However, the municipality would rather see the companies taking initiative with regards to this plan.

During the interviews it emerged that it would be beneficial to involve local community and citizens of Son en Breugel in activities organised in Ekkersrijt. Involving local volunteers in workshops or other initiatives can help strengthen the connection between Ekkersrijt and the surrounding community. This can attract new employees to Ekkersrijt.

4.5.6 Establishment of Park Management

Several companies show a positive attitude towards the establishment of park management as a coordinating body that facilitates collaboration between companies on Ekkersrijt.

4.5.6.1 Companies' View on Park Management

Companies have described their view on the role of park management in different areas. The first area is organisation – companies view park management as a facilitating body that could organise evens to enhance relationships and trust building between companies. This is seen as an important aspect to overcome the lack of cohesion and the community feeling. It could function as a central organisation that aligns the vision of companies and tackles common challenges. It has also been noted that park management can help stimulate companies to participate in circular initiatives.

Secondly, companies feel park management can foster collaboration by providing an overview of companies' needs and waste streams, promoting a circular economy. Some companies see park management as a potential platform or marketplace where companies could exchange products and waste streams.

Moreover, companies expect park management to facilitate contact and communication among businesses. It could be a central point of contact for businesses to address questions. Additionally, park management could help increase awareness of activities

and circular initiatives on the park by providing newsletters or through other ways of communication.

4.5.6.2 Municipality and OVE Representative View on Park Management and Challenges

The municipality and other governing bodies with regards to park safety and park development see the urge for park management but recognise the challenges that comes with this. Currently, there is the "Stichting Beveiliging Bedrijven Ekkersrijt "(SBBE) and "Ondernemers Vereniging Ekkersrijt" (OVE). The role of the OVE representative is only eight hours a month and mostly focused on administrative tasks and communication. It was suggested that a park management could serve as an umbrella organisation joining the existing networks.

The importance of a representative board and phased approach has been mentioned. Moreover, it was noted that a BIZ or investment fund is required to achieve a functioning park management. To establish an investment fund, the companies will need to agree on investing money in this. The municipality emphasizes the importance of value creation to get companies on board.

4.5.7 Ideas to Improve CE at Ekkersrijt

The establishment of a recycle centre on Ekkersrijt has been mentioned as a step in the process to become more circular. This could enable more effective waste collection, with the opportunities to reused waste. A shared marketplace, or otherwise recycling could help in reducing waste. Park management could play a facilitating role in coordinating this.

Some companies have indicated they face challenges implementing circular measures, such as solar panels, due to the fact they are renting the buildings, and landlords may have different priorities.

4.6 Park Management Establishment

Based on the interview results there was a strong consensus among participating companies that there must be a coordinating authority. This coordinating body should be responsible for organising trust building activities that can facilitate collaboration between business in the park and the engagement of the local community. Moreover, there was an agreement among participants that this coordinating body should also be in charge of facilitating communication between companies and other stakeholders. One key aspect of this included informing all members of Ekkersrijt about the companies' needs regarding circularity and their waste streams, such that synergies can be formed in the handling and processing of these wastes. The importance of such a facilitating entity is also well supported in literature. For instance, Mirata, et al., 2005 in their study of the Landskrona Industrial Symbiosis Programme (LISP) in Sweden, argues that coordinating body should be established to assist in the collection and analysis of relevant data for the identification of improvement areas related to circular economy. Additionally, they highlight the role of such bodies in assuring the commitment of relevant regional parties to collective action, informing them about opportunities related to their operations, and facilitating more effective and frequent communication among participating parties. This is further supported by Perrucci et al. (2022), who underline the importance of coordinating bodies in leading information flows between companies and supporting their collaboration.

4.7 Circular Initiatives

Based on the interviews, ideas were identified to be suitable for Ekkersrijt business park. In the following sub-chapters these ideas have been worked out more in detail to make it tangible for Ekkersrijt to implement.

4.7.1 Sporting Facilities

To ensure employees at Ekkersrijt are as productive as they can possibly be, the work environment should be optimized to do this. Research has shown that when people are in a good mood, the efforts they put in socializing with other people drastically increases allowing for a better feeling of community (Burton, 2008). In addition to this, good employee mental health has been associated with increased productivity on the work floor (Burton, 2008). One of the most effective ways to increase mental health of employees is by means of physical activity (Brown, et al., 2011). Implementing sport facilities on Ekkersrijt to increase mental health. Allowing people of all companies to go for a quick lunch sport session. By doing so, increasing work productivity, mental health of the employees and increasing the chances of social interactions between companies. These claims are further backed up by the interviews conducted at Ekkersrijt as some companies stated that they would prefer ways to interact with other companies, for instance by means of a sporting facility. Furthermore, a BCC study among gen-Z people have shown that they prioritize the facilities that are present at their work environment (BBC Bitesize Careers Survey, 2025). This indicates that with a sporting facility Ekkersrijt improves its value for potential employees. The sporting facilities can even be opened to the people of Ekkersrijt increasing social interaction and creating a feeling of community between the park and de municipality.

4.7.2 Community Gardens

With the changing climate temperatures will rise and the weather will become more unpredictable with regards to participation (Slingo & Palmer, 2011). With this city areas need to adapt, to discharge all the rainwater. Water dissipation can be done in different ways, but all efforts are focused on allowing water to enter the ground. Cities and other areas that consist of a lot of stone and concrete do not all have adequate water discharging capabilities. Based on interviews, Ekkersrijt has been stated to not be able to handle water discharge from big rain storms, this will become a problem in the future. Ways to mitigate these problems can be done by allowing water to enter the ground more easily, for instance by making more green spaces. The higher temperatures as a result of climate change also come with problems for city area's (Slingo & Palmer, 2011). Ekkersrijt does not have a lot of green spaces to mitigate temperature spikes, the concrete floors allow for a lot of heat to get trapped within the park resulting in soaring temperatures (Santamouris, 2015). This also can be mitigated by green areas as plants evaporate water by which the temperature drops (Santamouris, 2014). Greening Ekkersrijt allows for

climate mitigation and making the park more future proof. Greening the park can be done in several ways but most profoundly, community gardens can be a good option. Community gardens allow people from Son en Breugel to connect with the business park, increasing the community feeling. Study by Ohmer, et al. (2009) stated community gardens in the following way:

> "While today's community garden programs are designed to provide green space for the production of food and flowers, they also help to reclaim devastated urban areas, engage residents and other community stakeholders in conservation practices and other community improvement efforts, and facilitate social interaction and a sense of community among residents."

Increasing the greenness of Ekkersrijt also comes with a beneficial increase of biodiversity, improving the value of Ekkersrijt for with regards to conservation and connecting to nature. The addition of community gardens links to the Value, social, biodiversity and water pillars of the 7 pillars model.

4.7.3 Knowledge HUB

In the interviews the need of a central building for knowledge sharing was identified. The identified problems such as lack of information sharing and collaboration could be improved through a knowledge hub. The hub should attract stakeholders from different backgrounds (Brar et al., 2023). For Ekkersrijt the stakeholders should include inhabitants of the municipality, academia from neighboring educational institutions, companies on Ekkersrijt and municipal and governmental institutions. According to the companies, meetings should be held on a regular basis, such as every 3 months. Examples of meetings are ranging from information sessions, such as workshops for the entire business park about circularity practises to one-on-one meetings with academia to keep up with the latest developments (Klein et al., 2020). Moreover, the knowledge hub could also employ a resource coach that can actively advice companies about the possibilities of material circularity (*Waarderpolder Grondstoffen & Afval*, 2025). To maintain a successful knowledge hub, clear and transparent agreements about to what extent information is shared, need to be signed between stakeholders (Sol et al., 2017). The knowledge hub could create benefits such as enhanced knowledge creation, information sharing, community specific interventions and the movement of knowledge (Brar et al., 2023).

4.7.4 Online Marketplace

One of the ways resource sharing can be motivated et Ekkersrijt is by means of an online marketplace. Some efforts have been done by the municipality of Son en Breugel to build and sustain an online marketplace. This however did not have the wanted results, as little to no companies make use of this network. Conform with the interviews conducted, companies stated that they either didn't know of the existence of this network or did not

use it for various reasons. Based on literature and other case studies the “marketplaces” as such show various result (Migliore, et al., 2020). The results range from not being used at all, for instance at Ekkersrijt, to being used extensively used like at business park the Kleefse Waard (Industriepark Kleefse Waard, 2025). when looking in to the reasons why the Kleefse Waard did show different, promising results compared to Ekkersrijt the collective mind set and the social cohesion where determined to be the key differences. The social foundation improvements that are proposed at Ekkersrijt will help improve the longevity of the marketplace and decrease the chances of failure.

4.7.5 Recycling Efforts

To have more control over the waste streams several parks have tried to establish a recycling centre, like business park “De Hurk” (De Hurk Werkt, 2024).This allows the park to have more control over the waste streams and in doing so have a clear overview of what waste is disposed. The municipality of Son en Breugel already has a recycle centre, but the capacity of this centre is not sufficient as the companies do not dispose of their waste there. By controlling the waste streams the streams can be more easily kept separate improving recyclability. The overseeing body of this recycle center van also contact companies that may use the “waste” handed to them by other companies. Based on the interviews conducted at Ekkerrijt some companies do already work together in such a way by moving “unusable” wood form one company where the other company can use it to construct other things with. In line with the progress made by Indusym at Ekkersrijt with regards to waste collection the organisation of the business park can schedule regular pick up moments for waste collection, this has been evaluated positively. The waste collection enables waste collection of small waste streams that do have recyclability value but are not in high enough quantities present to make it economically viable for a single company to discard of it separately from general wast (De Hurk Werkt, 2024). When opening up the recycling center to the people of Son en Breugel the park increases its social value.

4.7.6 Biofuel for Closing Bio Waste

The transport is one of the biggest emitters of greenhouse gasses (Woodcock, et all., 2009). Sustainability efforts to reduce the impact of this sector have been made by moving from fossil fuel based engines to electrical an even hydrogen based engines. Both have their drawbacks and are not the standard when it comes to moving cargo. An other option, that is in use already is, engines that run on bio-based fuels. In Europe 10% of the fuel produces is sources bio-based and is used in most cars (European Commission, 2023).

Bio-based fuel is made from organic materials, this can range from food scraps to animal manure and grass cuttings (Ho, et al., 2014). This conversion can be done on small and large scales and is therefore interesting as a use case on Ekkersrijt.

Companies now just throw out their food scraps as they hold no value for them. Collecting these scraps and transforming them into useful products (Singh, A., 2022) helps closing material loops, reducing on climate and environmental impact and helps reducing transport cost. As mentioned previously waste collection in bulk can help companies reduce on their impact of the environment, reducing cost and making waste disposal more-efficient. Building on this premise, introducing trucks that fully operate on biological, locally sourced bio-fuel can cut even more in the emissions and costs of waste collection. Volvo, as of last year produces trucks that are able to drive on 100% bio-fuel (Volvo Trucks, 2024).

In addition to the closing of the food scrap cycle, grass cuttings can also be used to produce biofuel (Lebaka, 2013). Grass cuttings obtained from the field at Ekkersrijt can help increase production. The overproduction of fuel that is not used by the collection trucks, can be used to heat buildings by converting it in to electrical power.

4.8 Limitations of the research

Several limitations of this research were identified that might have had an impact on the report.

First, there were time limitations to this research. The time for this research was two months, which caused several limitations. Activities were selected that suited the time frame for this project. Therefore, a limited literature review was performed, and only a small proportion of companies were involved in qualitative research. A limited sample size implies that the results of this research are hard to generalize to the entire business park. Additionally, the participating companies were not randomly selected but assigned by the commissioner of this project. This might have caused the interview results to be subject to selection bias.

Secondly, for the pillar of circularity there was a focus on only three of the seven pillars and the other pillars are left out. More in depth research can be done to also explore the other elements of the seven pillars.

Thirdly, in the methodology chapter, the limitation of the researcher- and selection bias were addressed. These biases have implications for the outcomes of the research. Since parts of the interviews are manually and not systematically selected, important points could be missed. The proposed solution for this bias was the inter-rater reliability. The interviews were analysed by multiple members of the team and discussed. Through agreements on the selection of the data, the reliability of the choices improved.

Lastly, there has not been triangulation in the research methods. In the project there has mainly been a reliance on the qualitative data and the available literature. The usage of another source of data, such as quantitative data. The triangulation of data source would have improved the trustworthiness of this report (Hartley & Sturm, 1997). Therefore, in a future project plan, the usage of quantitative data is also proposed for the circularity measurement.

4.9 Roadmap

As a deliverable, a roadmap was proposed. Figure 11 presents a recommendation outlining how different workstreams within the roadmap could be structured. The workstreams are ordered based on priority but are not sequential. This means that the next workstream can take place simultaneously even when the previous workstream is not completed yet. When the roadmap is put in practice, the plan should help Ekkersrijt become more circular. In the following section, each workstream is described in greater detail, including its main objective, the stakeholders responsible for its implementation, and the intended timeframe for completion. A comprehensive plan outlining the specific actions to be undertaken over the next year is provided in Appendix 8.3.

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Figure 12: Roadmap including seven waste streams for circularity at Ekkersrijt

4.9.1 Workstreams

Workstream 1: Park Management Establishment

Description

The aim of this workstream is to establish a park management authority to take over responsibility of organising the necessary activities promote the collaboration between businesses in the park and the engagement of the local community. To establish this park management authority the first step would be to complete the necessary legal procedure needs to be followed to form a Business Investment Zone (BIZ). After consensus is met and the BIZ is formed, the park authority will be staffed with the necessary personnel to meet its responsibilities. Provisional office space within or outside the Ekkersrijt business park is required. This must be decided by the respective authority at that time. The medium- and long-term plan is that the park authority offices reside within the Knowledge HUB building which will be constructed within Ekkersrijt (more detail in Workstream 6).

Objective

Establish Park Management by January of 2026

Pillars

This workstream supports mainly the society and materials pillar, as the park management will be in charge of enhancing stakeholder engagement and promoting the implementation of the 9Rs framework in Ekkersrijt, through increased company collaboration.

Company benefit

With the establishment of park management on Ekkersrijt, businesses will be able to benefit from a dedicated third party responsible for organising the events and activities needed to foster trust and collaboration among company representatives. This initiative will create opportunities for companies to form new businesses relationships to work on circular economy projects that allow them to save resources, increase their sustainability and cultivate a culture of environmental responsibility within their companies.

Responsible party

Given the political and legal procedures that need to be followed to form the BIZ, the municipality will be responsible for the establishment of the park management authority.

Communication

- Website establishment

All communication regarding the establishment of park management will be performed via email and postal mail. These communication channels will be essential for the creation of the BIZ and ensuring all stakeholders are aware of the relevant news around this workstream.

Monitoring

To monitor the progress in the formation of the park management authority, a Kanban board will be constructed with the activities that need to be completed to achieve the objective of this workstream. This Kanban board is split into three sections containing all the activities or tasks that still need to be done, the ones that are in the process of being completed and the ones that are done. By January of 2026 all activities must be completely finished.

Timeline

July 2025 – July 2027

- Establishment of team July 2025 – Dec 2025
- Up and running January 2026

Workstream 2: Building trust and awareness

Description

The aim of this workstream is to build trust and increase awareness among companies in Ekkersrijt. Strong intercompany relationships are essential to foster a collaborative culture where companies are open to sharing knowledge, resources, and working together on circular initiatives. Trust is the foundation for success on long term cooperation and industrial symbiosis.

Objective

The main goal is to increase intercompany collaboration through relationship building activities that promote trust and connection between businesses. To make this objective more concrete, the aim is to organise a minimum of six structured activities per year, such as networking events, workshops, and co-development sessions. The target is for at least 40% of companies in the park to be actively involved, which is defined as participating in at least two of these organised activities annually. Progress will be reviewed through participation data and feedback by the end of the year.

Pillars

This workstream supports the society and culture pillar, since it emphasises stakeholder collaboration, relationship building and creating a culture of openness and shared value.

Company benefit

Companies participating in this workstream benefit by increasing visibility within the park, making it easier to identify potential business partners, clients, or service providers. It will also create opportunities to develop new business models and innovate collectively on sustainability initiatives.

Responsible party

Park Management will be responsible for the design of activities and events aimed at relationship building. It will also act as a neutral facilitator to ensure inclusive participation. Lastly it will monitor progress and adapt strategies based on feedback.

Communication

A communication strategy will include:

- Monthly newsletters with upcoming events and motivating or success stories
- Regular in-person meetups, company tours and co-creation workshops

Monitoring

- Use of a Kanban board to track
- Number of activities organised
- Participation rate per company
- Feedback scores from attendees
- Increase in intercompany collaborations per year

Timeline: Ongoing from January 2026

Workstream 3: Stakeholder engagement

Description

The main goal of this workstream is to create stronger stakeholder engagement and build lasting relationships among companies at Ekkersrijt and the surrounding community. To create a community feeling at Ekkersrijt, it is essential to engage the companies and the establishment relationships among companies.

Stakeholder engagement is one of the most important aspects of making a more circular park of Ekkersrijt. Building trust and raising awareness are essential first steps to foster collaboration among companies. Once this foundation is in place, it is important to maintain companies' involvement. Clearly defined benefits and expectations of collaboration are crucial for businesses participation. Regularly organised events can help keep companies motivated and promote collaboration and engagement. This includes hosting knowledge sharing sessions, workshops, and events which promote collaboration and mutual understanding. Additionally, to stimulate engagement among companies, physical spaces will be created that encourage informal encounters. Cafes and restaurants should settle in Ekkersrijt to create a space where people can meet each other, co-work, or just enjoy a coffee. Moreover, initiatives such as creating a shared logo could strengthen the sense of unity among stakeholders.

Figure 13: Example of a shared logo for Ekkersrijt

Other stakeholders of Ekkersrijt are the citizens of Son en Breugel and the surrounding community of Ekkersrijt. To include the surrounding community of Ekkersrijt, events should also be made available for citizens and some get-togethers should be organised especially for the community to create a relation between them and Ekkersrijt. There will also be looked at social work or volunteer work opportunities in Ekkersrijt.

To support the circular transformation of Ekkersrijt, social initiatives should also be encouraged. This could be realized by attracting cafes and restaurants with a social mission. Examples of such establishments are Brownies & Downies and Happy Tosti, which operate with inclusive employment practices.

Objective

Park management should organise activities. The first get-to-know each other event should have been organised by the end of 2025. Events should be organised at least every three months, so four times per year from 2026 onwards.

Pillars

This workstream supports the value pillar, emphasizing stakeholder engagement, collaboration and value creation for stakeholders.

Company benefit

When companies know the businesses around them, it helps create a sense of community. A strong community feeling encourages mutual support and enhances opportunities for collaboration. This sense of community enables companies to identify opportunities for collaboration, share resources, and exchange expertise. These interactions can enhance operational efficiency and stimulate innovation, which can result in benefits for companies involved.

Responsible party

Park management is responsible for organising events and stimulate stakeholder engagement.

Communication

Communication will be done via email. Besides, a platform/website will be established where events etc will be promoted.

Monitoring

- Use of a Kanban board to track
- Participation rate of stakeholders
- Feedback scores from attendees

Timeline:

January 2026

The engagement of stakeholders starts immediately when Park Management is established. Engagement of stakeholders is one of the most important steps and therefore has priority.

Workstream 4: Circular Assessment Ekkersrijt

Description

The aim of this workstream is to evaluate the current level of circular economy implementation at Ekkersrijt to create a baseline and establish a procedure for periodic evaluation. The implementation of the CA tool involves several key steps. First, all key industries in the business park should be identified and their material flows need to be mapped. When this has been done, engagement with businesses is required to gain a better understanding of the feasibility of the tool and their willingness to cooperate. Next, the UCA indicators will need to be modified to align with industrial symbiosis. Finally, a pilot project is required to tests the adjusted UCA tool on a small group of companies.

Objective

Complete the first CA assessment by the end of July 2027, with subsequent evaluations every five years.

Pillars

This workstream supports the material and value pillar of the circular economy framework. By implementing a recurring measurement tool stakeholders will be able to track their progress toward full circularity. The visibility of the progress will help raise public awareness of Ekkersrijt's companies' path in the transition toward a circular economy, which will in turn enhance the ecological and social value of their products and services.

Company benefit

The CA will provide all stakeholders in Ekkersrijt with a clear benchmark of the current state of circularity within the park. Likewise, it will highlight the historical progress and offer insights into the efforts required to achieve the park's long term circular economy goals. Providing transparency regarding the CA will allow companies to better align their strategies, showcase their progress and plan future improvements.

Responsible parties

- Park Management
- Fontys University students
- Company representatives

Communication

All communication regarding the CA assessment will be performed via email newsletters and postal mail. This ensures all stakeholders remain informed of the progress in the implementation of the CA assessment, key milestones and the companies participating in the process.

Monitoring

For park management it is important to keep an overview of the circularity progress at Ekkersrijt. That is why park management will need to make sure that every five years a circularity assessment is done and that the results are carefully stored in their facility.

Timeline

July 2026 - Dec 2050

- First CA assessment completed by July 2027.
- Second CA assessment completed by July 2032

Workstream 5: Campus Re-design

Description

This workstream aims to create a greener, more attractive and circular business park by developing a campus style re-design that reflects the needs of companies and aligns with circular economy principles. The workstream will be divided in five stages as described below.

Objective

Change the public perception of Ekkersrijt by 2030 through the integration of circular elements.

Pillars

This workstream touches upon all seven pillars of CE. It relates to the material pillar by enhancing networking and collaboration between businesses on Ekkersrijt, enabling circular initiatives such as industrial symbiosis. Creating a campus like environment strengthens community feeling and improves employee wellbeing, aligning with the society & culture, and health & wellbeing pillars. Additionally, the redesign creates economic and societal value through improved reputation and attractiveness, addressing the value creation pillar.

The design can also contribute to the water, energy and biodiversity pillars. Green areas can support rainwater management, while water reuse systems could reduce water demand. Integrating renewable energy sources, such as solar panels on shared buildings, can power public lighting and EV charging stations reducing energy dependency. Biodiversity can be enhanced by including insect hotels, green walls and green areas throughout the park.

Company benefit

Redesigning Ekkersrijt to create a campus feel enhances the attractiveness of the park. An increase in visitors might benefit companies located on Ekkersrijt. Additionally, it will improve employee wellbeing and productivity by offering a pleasant work environment. Additionally, it encourages networking and collaboration through the establishment of shared spaces.

Timeline

July 2025 - July 2027

Stage 1. Needs Assessment

Create a digital survey and distribute this to all businesses on Ekkersrijt to collect input on infrastructure needs such as shared eating green spaces, shared parking, EV chargers, walking paths, and bike lanes. Visuals can be included to help envision the future campus feeling. In addition, an in-person input session will be organised for companies to discuss their needs and give final input.

Responsible party: Municipality and park management

Communication: All communication will go through park management via email and in-person meetings

Monitoring: Municipality and park management to keep track of companies' survey responses and participation in input session. Reminders will be sent to businesses that have not yet responded. Feedback will be collected and analysed for the next stage.

Timeline: July – August 2025

Stage 2. Concept Development through Design Challenge

Partner with a university to organise an architecture student design challenge for a circular campus redesign. Define criteria based on the needs assessment and additional circular aspects such as the reuse of waste, setting up a recycling centre, and establishing green spaces and integration of social elements such as a knowledge HUB, sports facilities, and veggie gardens.

Give students approximately three months to submit their proposals. Establish a mixed jury of members from the municipality, company representatives and circularity experts, and select three finalists.

Responsible party: Municipality, InduSym and partner University

Communication: Municipality/InduSym to communicate with the partner University through email and meetings to organise the challenge and communicate expectations, design criteria and deadlines. The municipality will be responsible for communication related to the jury process and final selection.

Monitoring: The organisers will monitor student engagement and design relevance

Timeline: September 2025 – January 2026

Stage 3. Design Evaluation and Selection

Organise an exhibition showcasing the designs of the three finalists. Give the stakeholders the chance to give final input and vote on the preferred option.

Responsible party: Municipality and park management

Communication: The municipality/park management will coordinate communication through email invitations, social media and community outreach. Clear guidelines on how businesses can vote will be communicated ahead of time. Final results will be communicated to stakeholders through email and social media.

Monitoring: The municipality will track stakeholder participation, gather stakeholder feedback and follow up regarding results and next steps.

Timeline: February 2026

Stage 4. Detailed Design and Procurement Preparation

Adjust the winning design to reflect the final input from the stakeholders. Engage a surveyor or spatial planner to provide a cost estimation and apply for funding.

Hire professional architects/engineers to create the architectural plans for procurement.

Responsible party: Municipality and/or designated project manager

Communication: The municipality or project manager will be responsible to organise design meetings with architects, engineers and key stakeholders. Project progress meetings to be organised to keep stakeholders involved, updates to be shared through email.

Monitoring: The municipality will review whether the final design includes final stakeholder input. Municipality or project manager will be responsible for keeping track of progress and timing.

Timeline: March – October 2026

Stage 5. Implementation and Construction

Start the procurement process. Implement the campus redesign in defined workstreams, ensure stakeholder communication and monitor progress. Assign a project manager to oversee timeline, budget and quality.

Responsible party: Municipality and designated project manager

Communication: Active communication should be done through regular email updates and phone calls. Regular meetings to be scheduled with key stakeholders.

Monitoring: Monthly progress reports and progress meetings with key stakeholders

Timeline: November 2026 - TBC

Figure 14: Petting Zoo, Flower Box, Green Campus, Padel Court, and Veggie Garden

Workstream 6: Knowledge HUB

Description

A knowledge hub will be created at the central park management building at Ekkersrijt. Accommodations in the hub should entail conference rooms, offices and an informal meeting room, such a cafeteria. The knowledge hub provides the companies, academia and the municipality the opportunity to meet every 3 months about circularity efforts and ideas. The engaged stakeholders should sign clear agreements with each other to maintain trust. The knowledge hub will also employ a resource coach that advises companies on their circularity potentials. The knowledge hub provides the small- and large scaled companies on Ekkersrijt an easy-accessible and mutual way to obtain circularity ideas.

Objective

The objective of the knowledge hub is to keep companies aware of the latest circularity developments through information sharing and community engagement/collaboration and gives companies the chance to sit together and rent rooms.

Pillars

The knowledge hub creates an improving a circular environment for companies with different cultures to collaborate, this directly links to the Social, Cultural and Value pillars.

Company benefit

The knowledge hub provides small and large scaled companies fair and easy accessible circularity knowledge. The knowledge hub is there to create new connections between companies, which should create benefits for all parties involved.

Responsible party

Park Management

Communication

Active communication should be done through regular email updates and phone calls by the park management with all of the engaged companies. Invitations of events should be clearly communicated with exact times and dates of when it takes place.

Monitoring

The effectiveness of the knowledge hub can be measured through questionnaires with the companies about their latest circularity efforts. On the other hand, keeping track of the number of companies engaged and amount of information shared in the knowledge hub, can indicate success of the hub.

Timeline

Ongoing from January 2026

Workstream 7: Sustainability efforts

Description
After a strong basis for knowledge sharing has been set and trust is built on Ekkersrijt, workstream 7 can be implemented. Workstream 7 aims to improve resource sharing and waste management. In doing so reducing costs, mitigating environmental impact and increasing company-company interactions.

Pillars
Workstream 7 of the roadmap is oriented within the social & cultural ,material and the value pillars of the seven pillar model. But also touch upon the biodiversity and energy pillars.

Timeline
February 2026 – December 2049

Workstream 7.1: Reviving online marketplace
The online marketplace offers companies the opportunity to put unused or otherwise wasted materials up for sale. The marketplace can also be used to share/lease resources and services, company vans but also services.

Company benefits
Participating in the marketplace with regard to materials directly leads to increased revenue for the selling party. Also the company that is buying products from the marketplace can cut on transport costs and reduce the environmental impact associated with importing materials. In addition does this interaction also increase the social interactions between companies. Companies that participate the marketplace for services or to sublease products, also gain revenue from doing so and increasing the social cohesion on the park. The marketplace can also be used to bulk buy products and services like window cleaners, gardeners and catering.

Pillars
This redesign of the marketplace touches upon the material and value pillars of the 7 pillars model

Responsible party
Park management and companies

Communication
Clear communication of the existence of this sharing platform is key to involve companies. Recommending and creating awareness of the existence of this marketplace in the online newsletter and on social events will increase the exposure to the marketplace increasing likelihood of usage

Monitoring
Scoring the posts of materials and comparing them to the week before gives insights in the usage of the marketplace. By introducing an “sold via marketplace” button companies can inform park management that their products have been sold via the marketplace. This allows for a real time checks of the marketplace.

Timeline
February 2026 (after park management is established) - February 2027

Workstream 7.2: Recycle Centre
Besides the marketplace a recycle centre is needed to assure circular practices.
The recycle centre will increase in size and be accessible for all companies that have “waste” to dispose but also allows the inhabitants of Son en Breugel to dispose of their bigger waste products, increasing the value of Ekkersrijt for the inhabitants. The collected waste can be allocated to other parties that recycle/reuse them but also allows for central pick up that reduces on carbon footprints and more efficient transport.
In construction the recycle centre companies to reduce on infrastructure committed to recycling waste but also allows for an increase of social cohesion between Ekkersrijt and Son en Breugel.

Pillars
This redesign of the recycle centre touches upon the social & cultural pillar, material and value pillars of the 7 pillars model

Responsible party
Park management or company running the centre

Communication
Informing the inhabitants of the city but also the companies that the centre exists increases the likelihood of usage.

Monitoring

- Usage monitoring can be done based on the tonnage of product that comes in
- Keeping detailed records of what is soled allows the governing body to see what percentage of the “waste” streams is collected again for reusage and recycling.

Timeline

Designing: January 2026 – January 2027
Reconstructing: January 2027 – December 2028

Workstream 7.3: Biomethane production for green transport

The conversion of bio waste products like food from companies and the municipality to bio-fuel will reduce transport cost and the carbon foodprint associated with transport. This workstream is in line with the material pillar but also touches upon the energy pillar.

Benefits:

By participating, companies that share bio-waste like food scraps to convert to bio based fuel like bio-methane will help close material loops, save on costs for transport and reduce their carbon foodprint.

Pillars

This Biofuel phase touches upon thematerial, value, biodiversity and energy pillars of the 7 pillars model

Responsible party

Municipality and Park management or company running the recyclecenter

Communication

Companies need to know what kinds of food can be used to fuel the trucks, this can be done by means of knowledge sharing efforts at the knowledge hub.

Monitoring

- Companies that participate in the initiative by handing over their food scraps can be scored, in order to validate the participation scores.
- the total amount of bio-flue produced can be scored, this allows for calculations to see if the production is high enough.

Timeline

Legal actions and design: January 2026 – January 2029
Building: February 2029 - July 2044

5 Conclusion

The report addressed the following research question: What steps should be taken to enhance stakeholder engagement regarding circularity through collaboration and knowledge sharing between companies to improve the overall circularity of Ekkersrijt? To investigate this research question, a literature review was done, and interviews were conducted.

Summary of key findings

The report identified that while there is growing interest among companies in circular economy (CE), mainly related to material flows, there is a lack of comprehensive and mutual understanding of CE. Collaboration between stakeholders is limited because of social barriers such as a lack of trust and a sense of community, insufficient knowledge exchange, and the absence of a coordinating body. However, companies expressed strong interest in collaboration with other stakeholders on site. Moreover, it was pointed out that companies need to get a clear understanding of tangible benefits of participating in circular practices and collaborations.

Implications

The findings obtained by the literature review and interviews allow the construction of a roadmap and short-term action plan detailing the necessary workstreams to promote stakeholder collaboration and kickstart circular economy initiatives in Ekkersrijt. Likewise, this research provides insights into the companies' conceptual understanding of CE, as well as their perspectives on how trust and collaboration among companies can be enhanced.

Overall contribution

This report contributes to the growing interest in advancing circularity in industrial parks combining theoretical insights with practical tools. It shows that social factors such as trust, communication, and coordination are key to enabling collaboration and circular innovation. By emphasizing stakeholder engagement and structured governance, the report offers actionable strategies to encourage circular practices in a similar context and support broader sustainability goals.

Future research

To obtain a more concise overview of the current circularity of Ekkersrijt is, and the willingness of companies at the park to participate in CE, further research is recommended. Future research should focus on collecting data from all companies and sectors located on Ekkersrijt. Additionally, future research should look at all pillars related to circularity.

Follow up studies can implement the chosen city loops tool to set a basis for circularity, after which objectives can be set and steps can be taken to improve circularity. Understanding how to effectively communicate the benefits of circularity will be crucial in encouraging broader participation and long-term collaboration between companies et Ekkersrijt.

Moreover, this report has identified several initiatives to enhance circularity at Ekkersrijt. Future research could elaborate on these initiatives for successful implementation.

6 Acknowledgement

This project relied heavily on the participation and input of governing bodies, companies, and other experts. Therefore, we would like to acknowledge their contributions.

First, we would like to thank the municipality of Son en Breugel for setting up this project and giving us the opportunity to investigate circularity at Ekkersrijt. In particular, we want to thank Floris who has been so kind to participate in our interview and provided valuable insights and data needed for the report.

We are also grateful to our academic advisor, Edwin Keijsers, for helping us identify key concepts, structure the report and giving insights into the CityLoops project. A special thanks goes to our coach, Marlies Leenaars, for her continuous guidance throughout the duration of this project.

We further acknowledge the contributions of Indusym, whose support with data acquisition and stakeholder engagement was a big help. We would especially like to thank Mattijs for his involvement in our weekly meetings and facilitating connections with relevant companies.

We are also very thankful to all the companies that took the time to participate in our interviews. Their insights helped underpin our research and helped directing the project.

Lastly, we would like to thank Dankeld Vanmeenen from Fontys university of Applied Sciences for his feedback on our draft report and insights on future research.

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8 Appendix

8.1 Interview questions

Algemeen:

1. Hoe zou u de circulaire economie definiëren?
2. Welke strategieën op het gebied van circulaire economie zijn momenteel van kracht met betrekking tot afval voor uw bedrijf?
    - Aan de hand van de 7 pilaren
3. Hebben jullie inzage in de hoeveelheid afval die je genereerd?
    - Zo ja, hoeveel van uw afval wordt ongeveer gerecycled, hergebruikt of een nieuwe bestemming gegeven?
    - Welke strategieën gebruikt u om materiaalafval te verminderen?
4. Is er een samenhorigheidsgevoel binnen Ekkersrijt?

Specifieke vragen over samenwerking:

1. Hoe werkt u momenteel samen met andere bedrijven op het gebied van circulaire economie?
    - Kun je hier een voorbeeld van geven?
2. Wat zou je helpen om meer samen te werken met andere bedrijven op het gebied van circulaire economie?
    - Kan je hier een voorbeeld van geven?
3. Zijn er dingen die uw bedrijf belemmeren om deel te nemen aan circulaire samenwerkingen op het park?
4. Met welke uitdagingen wordt u geconfronteerd bij het proberen circulaire principes toe te passen in uw bedrijf?
5. Welke ondersteuning is nodig om de samenwerking tussen organisaties op het gebied van circulariteit te vergroten?
6. Hoe zou u een ideaal netwerk van bedrijven voorstellen dat samenwerkt om materiaalkringlopen te sluiten?
    - Kunt u een voorbeeld geven?

7. Op wat voor manier zou park management kunnen helpen bij het verbeteren van circulariteit binnen Ekkersrijt?

8.2 Circular Economy Indicators

Indicator	**Unit**
Input socio-economic cycling rates (ISCr)	%
Output Socioeconomic Cycling Rate (OSCr)	%
Input Ecological Cycling Rate Potential (IECrp)	%
Output Ecological Cycling Rate Potential	%
Input non-circularity rate (INCr)	%
Output Non-circularity Rate (ONCr)	%
Remaining non-renewable primary resources	%
Remaining interim outputs	%
Material recovery	%
Direct Material Input (DMI)	tonnes / year
Domestic Processed Output (DPO)	tonnes / year
Domestic Material Consumption (DMC)	tonnes / year
Domestic Material Consumption Corrected (DMCcorr)	tonnes / year
Local and Exported Processed Output (LEPO)	tonnes / year
Processed Material (PM)	tonnes / year
Interim Outputs (IntOut)	tonnes / year
Secondary Material (SM)	tonnes / year
Net Addition to Stock (NAS)	tonnes / year
Physical Trade Balance (PTB)	tonnes / year
Social Indicators	
Number of CE related Meetings	# Meeting/Month
Number of CE related initiatives	# Initiatives in Ekkersrijt /Year
Number of local stakeholders engaged	# Stakeholders/ Initiative
Employee participation	%
Employee satisfaction	%
Presence of occupational health and safety certifications	#

8.3 One Year Action Plan

I. Circular Assessment

The following methodology is based on Deliverable 4.3- SECTOR-WIDE CIRCULARITY ASSESSMENT METHOD- of the CityLoops project. Please refer to this document for more detailed information of the steps presented in this handbook.

Stage 1 – Preparation and Scoping

The aim of this stage is to undertake the necessary activities to establish the scope and methodology needed gather the information necessary for the assessment.

Specific actions:

1. Establish a project coordination team that will be in charge of the assessment, this should include students from Fontys University and a coach from InduSym.
2. Prepare the context of Ekkersrijt, create an overview of the following:
   - Companies located on Ekkersrijt
   - Company size
   - Company sectors (NACE codes)
   - Land use
3. Make a list of all the information that is already available regarding the resources that are in and outflowing the park in the form of wastes, the number of businesses present in Ekkersrijt, their size and the most important sectors present in the park. Some information regarding waste has already been collected by InduSym. Therefore, an overview should be made of what information is already available and what is still missing.
4. Define the companies to include in the pilot circularity assessment project and schedule a meeting with key representatives of the companies, the municipality and InduSym. In the meeting the following aspects should be discussed and defined:
   - Agree on the spatial boundaries of the assessment (e.g. Ekkersrijt, Son en Breugel or the Netherlands)
   - Define how missing information and data will be collected from the companies.
   - Define the indicators that will be important for the circularity assessment.

Responsible:

- Fontys: In charge of making the pilot circular assessment, organizing the activities and gathering information
- InduSym: Provide information, connection to companies and domain expertise.

Timeline: November 2025

Stage 2 – Data Collection

The aim of this stage is to undertake the necessary activities to gather the missing information for the assessment.

Specific actions:

1. Contact stakeholders and schedule meetings to gather information.
2. Make a data base of all the information following the following three data layer structure defined in the SCA method:
   Layer 1 – Company context
   - Geographic area, employee number and economic activity

   Layer 2 – Economic activity by material
   - Activities tied to each waste streams (ex: cardboard waste from packaging)

   Layer 3 – Material flows and stocks
   - Quantities of materials used, reused, recycled, landfilled, or exported.

Responsible:

- Fontys: In charge of collecting data and making data base.
- InduSym: Provide information, connection to companies and domain knowhow

Timeline: December - April 2026

Stage 3 – Data Processing

The aim of this stage is to undertake the necessary activities to gather standardize, clean and analyse data.

Specific actions:

1. Standardize, clean, and structure the collected data.
2. Use existing templates (provided in the CityLoops method) for geospatial and material data.
3. Map flows using Sankey diagrams or stock-flow models.

Responsible:

- Fontys: In charge of processing data and creating stock-flow models

Timeline: May 2026

Stage 4 – Data Analysis

The aim of this stage is to analyse the data and calculate metrics to measure circularity.

Specific actions:

1. Use the VE3 objectives (Reduce harmful material use, increase secondary material use reduce waste and landfill reliance, etc.) as a framework to guide the data analysis.
2. Calculate mandatory indicators for circularity (e.g., DMC, recycling rates, self-sufficiency metrics).
3. Establish a baseline and set objectives
4. Identify areas of improvement or opportunities for action.

Responsible:

- Fontys: In charge of analysing the data.

Timeline: June – July 2026

Stage 5– Interpretation, Stakeholder Engagement & Road mapping

The aim of this stage is to interpret the results obtain from the data analysis and present findings to local stakeholders.

Specific actions:

1. Interpret results to identify material hotspots and circularity gaps
2. Compare performance against benchmarks or similar parks (e.g. other EU demonstrator cities).
3. Present findings to stakeholders.
4. Facilitate **multi-stakeholder partnerships (MSP)** sessions to:
    - Validate findings
    - Co-develop interventions to work
    - Establish a shared roadmap for improving circularity.
    - Define follow-up actions (e.g. pilot projects, policy adjustments, targeted collaborations).

Responsible:

- Fontys: In charge of reporting, presenting findings and defining follow up actions

Timeline: August- September 2026

II. Pilot Green Space

Description

The aim of this project is to create shared green spaces to strengthen the sense of community and enhance stakeholder engagement. While these green spaces can be fully integrated into the campus design, launching a pilot project creates the opportunity to undertake quick action and learn and adapt as required before broader implementation.

This pilot study of creating green spaces will integrate circular initiatives, such as using waste products as resources for the creation of the vegetable garden and seating area. Plastic waste could be used for benches and tables, wooden pallets to build raised garden beds and compost bins, cardboard as weed barriers for the vegetable garden, and organic waste for composting. The creation of the green space will be divided in several stages as detailed below.

Stage 1 – Site Selection and Design

Select a suitable location for the green space, consider elements such as accessibility and sunlight. Actively involve stakeholders in selecting the location and designing the layout to increase sense of ownership. Stakeholder input can be collected through an online survey.

Draft designs for the garden and seating layout. Based on the design, create an overview of materials required.

Responsible: Fontys students in collaboration with the municipality and InduSym

Timeline: September – October 2025

Stage 2 – Identification of Waste Sources and Company Engagement

Based on the materials required for the green space, relevant waste sources will need to be identified from companies located on Ekkersrijt or in the Municipality of Son en Breugel. Identified companies to be contacted and meetings to be scheduled to discuss participation and timelines.

Responsible: Fontys students in collaboration with InduSym

Timeline: October – November 2025

Stage 3 – Find Relevant Partners

Production partners

For some elements, such as benches and tables made from plastic waste, manufacturing must be outsourced. During this phase, research on potential manufacturers needs to be done and quotes and timelines need to be requested from potential partners.

Construction partners

An overview of stakeholders willing to help with the construction of the green space has to be created, this could include involving the local community. If required, contact external contractors for the preparation and installation of the vegetable garden and request quotes and timelines.

Other partners

Transportation to pick up waste from participating companies will need to be arranged. Moreover, a workshop where items, such as the garden beds or compost bins, could be built needs to be arranged. As site selection and ground works still need to be done, temporary storage may have to be arranged to store these items.

Responsible: Fontys students in collaboration with InduSym

Timeline: November – December 2025

Stage 4 – Material Collection and Production

Start collecting waste from participating companies for manufacturing or building components for the green space. Set clear quality standards for the collected waste to ensure usability.

Responsible: Fontys students in collaboration with InduSym

Timeline: January - March 2026

Stage 5 – Construction

Prepare the site and install required infrastructure such as water access and pathways. Once the site has been prepared and production of items has been completed, the seating area can be installed, and the vegetable garden can be set up. Community volunteers could be included in the set-up of the green space via the organisation of a volunteer day.

Responsible: Fontys students in collaboration with InduSym

Timeline: April – May 2026

Stage 6 – Grand Opening

Organise a launch event to celebrate the project and connect stakeholders. Public communication via the municipality.

Responsible: Municipality

Timeline: June 2026

Stage 7 – Monitoring and Feedback

Collect feedback from stakeholders through a short online survey and integrate this into the larger campus redesign.

Responsible: Fontys students in collaboration with InduSym

Timeline: September 2026

III. Multi-stakeholder Partnerships (MSP) Interventions

This intervention entails organizing a half-day stakeholder meeting aimed at getting feedback on a specific issue relating to advancing circularity within the business park. The goal is to influence stakeholder perspectives, foster initial collaboration and identify potential areas of shared interest for future initiatives.

Intervention 1: Increase trust within companies

This intervention is about building personal relationships and increasing trust within companies. The goal is to create a space where people feel comfortable opening up, understanding each other's perspectives and learning from each other. Activities will focus on dialogue, storytelling, and hands-on group exercises. It is also important to ask for feedback at the end of the session to understand what worked, what didn't, and how to prepare for next meetings.

Responsible: Park management (lead), companies (participants)

Timeline:

- Start preparation: 2-4 weeks before
- Duration: 4 hours
- Follow-up: 1-3 months after

Example:

Time	Activity
30 min	**Welcome**: Why trust matters
30 min	**Icebreaker:"**Getting to know you": small groups or pairs share their background, roles, and what they hope to achieve through the collaboration. Tip: use fun, engaging methods such as "Two truth and a lie" or "common ground" to promote openness and reduce intial barriers
45 min	**Value Expectations Exercise:** Participants individually or in pairs list value they consider important for trust (transparency, reliability, respect) Group discussion to identify shared values and expectations of the partnership
45 min	**Story Sharing:** Personal examples when trust was built or broken focusing, and lessons learned.
45 min	**Group activity;** "Trust circle" or "blind trust walk" where one person guides a blindfolded partner through a simple obstacle course or task emphasizing communication and reliance.
15-30 min	**Wrap-up;** Summarize key insights, discuss next steps, and collect feedback

Intervention 2: Organizing a circular economy workshop

A series of workshops aimed at educating companies and stakeholders on circular economy principles, best practices, and practical implementation strategies. The workshops are meant to be informative and hands-on, combining expert inputs with interactive sessions. Post-workshop feedback should be collected immediately after each session to adapt to future workshops.

Responsible: Park management (lead), InduSym (support), companies (participants)

Timeline

- Start preparation: 1 month before
- Duration: 4 hours
- Follow-up: 1-3 months after

Example

Time	Activity
30 min	**Welcome & Introduction**: Opening by InduSym and park management, explaining goals of the workshop and importance of circular economy in the business park. Brief agenda overview.
45 min	**Expert Talk**: Presentation by guest speaker on key circular economy concepts and successful examples from industry. Time for Q&A at the end.
45 min	**Interactive Session 1 – Circularity in Practice**: Group work where participants map their own company's current practices and identify potential circularity gaps or opportunities.
15 min	**Break**
45 min	**Interactive Session 2 – Collaborative Brainstorming**: Mixed stakeholder groups ideate potential cross-company circular initiatives or resource exchanges. Use facilitation tools like post-it mapping or value chain visualization.
30 min	**Group Share-back**: Each group presents key ideas and possible next steps. Facilitator highlights common themes.
15-30 min	**Wrap-up & Feedback**: Summarize key takeaways, explain next steps, and gather participant feedback via forms or short reflection.

Intervention 3: Stakeholder Engagement and feedback session

This session offers a platform for stakeholders to reflect on progress, discuss challenges, share insights, and propose new ideas related to circularity initiatives. It helps to strengthen trust and awareness. It also ensures ongoing engagement and guides adaptive management of the project, so that if something needs to be adjusted, it can be done. Getting feedback at the end is essential to tailor next sessions to the most pressing needs.

Responsible: Park management (lead), municipality (support), companies (participants)

Timeline:

- Start preparation: 4-6 weeks before
- Duration: 4 hours
- Follow-up: 1-3 months after

Example:

Time	Activity
30 min	**Welcome & Opening Remarks**: Hosted by park management, outlining the purpose of the session and how it contributes to ongoing circularity efforts.
30 min	**Progress Update**: Presentation of what has been achieved so far, key learnings, and current metrics or visuals to show progress in circularity efforts.
45 min	**Open Dialogue – Challenges & Needs**: Facilitated discussion where stakeholders express current barriers, needs for support, or policy considerations. Input from municipality where relevant.
15 min	**Break**
45 min	**Roundtable – Opportunities & Next Steps**: Stakeholders brainstorm new opportunities, partnerships, or initiatives. Use facilitation techniques like World Café or fishbowl discussion.
30 min	**Collaborative Prioritization**: Using dot voting or a priority matrix, identify shared interests or ideas that can move forward.
15-30 min	**Wrap-up & Feedback**: Summary of agreements, next steps, and timeline. Collect participant feedback and adjust future sessions based on suggestions.