CIRCULAR INTITIATIVES IN OVERIJSSEL: DEEPENING, BROADENING AND SCALING-UP

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Abstract:

By 2050, the whole of the Netherlands, including the province of Overijssel, should be circular. Local circular initiatives can contribute to this. To do so, these need to be professionalized and scaled up. This research analyses the possibilities and barriers for specific niches in the contribution to this circular transition. By using various aspects of the Transition Theory and Strategic Niche Management, the internal and external influences on circular grassroots initiatives were *analysed. By conducting 11 interviews, and by including additional documents, 5 cases where researched. These in depth interviews provided insight on the specific strategies applied in the cases studied and which barriers these face. The findings of the research suggest that, while SNM is correlated to professionalization, for broadening/diffusion a broad network and broad and social learning where the most important. The research also shows that projects, where products or materials are reused, experience more barriers.*

Key words: Circular Economy, Transition, Scaling-up. Broadening, SNM, TM

1. INTRODUCTION OF RESEARCH

A growing world population, an even faster growing middle class with growing consumer opportunities, and a constant travel demand for resources are not attuned to the resources available on the planet. Conservative business behaviour is contrary to sustainable development. If this "business-as-usual" continues, resources will be depleted by overconsumption and overcrowding. The needs of current generations will be met, but these will hinder the needs of future generations (World Commission on Environment and Development, 1987).
In recent years the concept of a circular economy has become popular, which is about to replace the current linear economy. The circular economy is an economic system aimed at eliminating waste and to continuously use the available resources. Waste must be food for new products and processes. Circular systems use sharing, reuse, repair, renovation, refabrication and recycling to create a closed system that minimizes the use of resources as well as the production of waste, pollution and carbon emissions (Geisdoerfer et al, 2017). Materials are no longer just a means for economic growth (Ellen MacArthur Foundation (EMF), 2013).

In order to stimulate the transition from a linear to a circular economy, the Dutch government has set a goal to make the Netherlands fully circular by 2050 (Rijksoverheid, 2016). To achieve this, the government works together with industry partners, knowledge institutions, nature and environmental organisations, municipalities, trade unions, financial institutions and other civil society organisations. By signing the raw materials agreement in 2018, the province of Overijssel joined the government's plan to use 50% less raw materials by 2030 (Province of Overijssel, 2018). Federation Natuur & Milieu Overijssel works with companies, governments and consumers, at a provincial level, to develop the aspects of a circular economy.

The province of Overijssel is part of the transition to a circular economy and wants to support, and accelerate, the necessary technical, social and economic innovative movements (Province of Overijssel, 2020). With the Regional Transition Agendas they wish to bring parties together in order to work on the implementation. For programme-wide themes, the province focuses on laws and regulations relating to waste flows, business connections and business development, and does so bearing entrepreneurs in mind in particular. This research aims to match and complement these ambitions by examining the factors that influence the scaling-up of local circular initiatives that try to contribute to this transition. It is not so much about entrepreneurs, but more about niches in the form of grassroots initiatives. These are interesting to investigate as these are more community-oriented. It is only in the field of energy that these types of grassroot initiatives have received a great deal of attention.

This study further seeks to establish a connection with the results of the 2019 study by the Planning Bureau of the Living Environment, which concludes, amongst other things, that local initiatives can make an important additional contribution to the acceleration of the transition to a circular economy. Not because of the volume of raw material flows, or of its great economic importance, but mainly because of the combination of circular goals with other goals, such as improving the street scene or social cohesion in the neighbourhood or involving people who are disadvantaged in the labour market. This means that these initiatives have a strong connection with local people. "These activities are important because they create support and awareness for a circular economy, make tangible what circularity can mean at a local level, and help to achieve other goals. Circular economy is sometimes also the connecting force that enables the various stakeholders to achieve their main goal together with others. The research thus shows that it is possible to create a kind of win-win situation, where working towards a circular economy also contributes to solving local or social problems and vice versa "(Planbureau voor de leefomgeving, 2019, p.54).

To initiate the transition to a circular economy, it is necessary for local grassroot initiatives / niches to professionalise, build up continuity and scale-up. It is possible to go "deeper" into the circular economy in practice. This knowledge can be shared with a "broader" network and can be "scaled up" to a larger level. A niche is a small, defined sector in which a particular specialization can flourish. Grassroots initiatives are niches that are less market-oriented and more community-oriented. The aim of the research is to analyse which internal niche strategies stimulate the deepening, broadening and upscaling, and which external social barriers influence this process. The main question therefore is:

How do internal niche management and external social barriers affect the *deepening, broadening and scaling-up of local circular grassroots initiatives in Overijssel?*

Sub questions are:
- What influences the professionalization, scaling-up and building up of continuity of local circular initiatives?
- What can Natuur en Milieu Overijssel and the Province of Overijssel mean for the professionalization and upscaling of local circular initiatives?

2. SCIENTIFIC AND SOCIETAL RELEVANCE

In the scientific field, this research can contribute to the knowledge about the role of niches within a transition. Until a few years ago, research into grassroots initiatives' contributions to a sustainable transition was quite limited (Hossain, 2016). Research has mainly been done on traditional niche experiments (Sengers et al, 2019). Nevertheless, in recent years a number of studies have been conducted on grassroots initiatives and their contribution to a sustainable transition (Seyfang & Longhurst 2013a; Seyfang & Longhurst 2013b; Brown & Vergragt, 2008; Seyfang & Haxeltine; 2012; Vergragt & Brown, 2012; Martin et al, 2015; Monaghan, 2009; Seyfang et al, 2013; Smith et al, 2014; Phelps, 2013; White & Stirling, 2013; Ornetzeder & Rohracher, 2013; Hess, 2013; Feola & Nunes, 2014; Gupta, 2012; de Vries et al, 2016; Boyer, 2014; Tartiu & Morone, 2017; Feola & Butt, 2015; Hermans et al, 2015; Smith et al, 2016; Korjonen-Kuusipuro et al, 2017; Nicolosi et al, 2018; Blanchet, 2015). A number of these studies, like this research, have been structured around the principles of Strategic Niche Management or Transition Management (Seyfang & Loghurst 2013b; Seyfang & Haxeltaine, 2012; Hoppe et al, 2015; Seyfang et al, 2014; Seyfang & Longhurst, 2015; Hargreaves et al, 2013; Raven, 2010; Wolfram, 2018; Kirwan et al, 2013; Hatzl et al, 2016; Pellicer-Sifres et al, 2018). Most of these studies focused on energy, community currency, agriculture, organic food and cohousing (Hossain, 2018). There is no further research that specifically focused on circularity. This research contributes to the existing literature by further exploring the influence and practical possibilities of Strategic Niche Management and Transition Management within grassroots initiatives. Unlike the other studies, the emphasis here is placed on the circular economy(the flow of raw materials in particular), and thus research is carried out on other types of grassroots initiatives.

This research will also have a social contribution by analysing the role of local circular grassroot initiatives in Overijssel. This research can contribute to the awareness and support of work in grassroot initiatives. It also gives insight where this transition in Overijssel experiences barriers and where new possibilities lie. By comparing and testing various circular initiatives for barriers, recommendations are made that may support a social transition . For actors, who have organized themselves in circular initiatives, this research may also provide insights on how to manage the niche and how to possibly make it function better by applying new strategies. It can also help the province in the annual evaluation and revision of their state proposal 2020-2023 on circular economy.

3. LITERATURE OVERVIEW AND CONCEPTUAL MODEL

This section provides an overview of literature relevant to this research project. First, the theory of the circular economy is highlighted. After this section, the Transition Theory is explained. A distinction is made between market niches and grassroots initiatives ,and Strategic Niche Management and Transition Management is introduced.

3.1 Circular Economy

The basic idea of a closed economy was conceived as early as the 1960s (Boulding, 1966). This was later addressed in an opinion to the European Commission (Stahel & Reday-Mulvey, 1981). The first country to put circular economy into practice was China, as shown in its 11th five-year plan of 2006-2010 (State country People's Republic of China 2006). Since then, there have been quite a few views on what a circular economy is or should be; some of which have been published in peer-reviewed scientific literature and some have been prepared by professionals, such as policy papers and reports (Kirchherr et al, 2017a). The different definitions are not necessarily contradictory, but they generally have a different focus. The circular economy can be seen as an alternative economic paradigm for resource management, or as a concept aimed at adding value to the current economic system while reducing resource pressures.

According to Kirchherr et al (2017a), who researched 114 different circular initiatives, there are different core principles, goals and enablers that are used either separately or together. One of the core principles is the R-Ladder, which can come in various forms. They assume 4 R's: reduce, reuse, recycle and recover. In this study we use the R10 Ladder (shown later). There is also the core principle of the system perspective, which sees the circular economy as a system at various level, such as the micro level that focuses on the product level, of company and consumer; the meso level that focuses on the regional level of industrial parks, for example; as well as the macro level that focuses on the entire industry at a national or global level. In addition, there are several goals that fall under circular definitions: sustainable development, quality of the environment, economic prosperity, social equality and effect on future generations. Also, business models and consumption behaviour as the two enablers are established.

In 2013, the Ellen MacArthur Foundation released a report titled Towards the Circular Economy: Economic and Business Rationale for an Accelerated Transition. This comprehensive report considered economic and business opportunities for the transition to a restorative, circular model in the EU (EMF, 2013). This was the most influential circular economy report in recent years, which has influenced many definitions that followed (Kirchherr et al, 2017a). Many of the previous named aspects were reflected in this report. The circular economy was herein defined as (EMF, 2013, p.7):

"A circular economy is an industrial system that is restorative or regenerative by intention and design It replaces the 'end-of-life' concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models".

This is presented by the Ellen MacArthur Foundation in Figure 1 with a focus on materials. This model shows the biological flow of material on the left side, and the technical material flow on the right side which will be the focus of this research. On the biological side, there is the possibility to bring as many products and materials back into the biosphere as possible via non-toxic, restorative loops centrally, first by extracting biochemical raw materials, then by anaerobic digestion or composting.

This leads to the restoration of the biosphere. With regard to technical materials, there are four cycles identified: maintenance of the product; reuse or redistribution of the product; renovation of the product and recycling of the materials that the product is made out of. On this technical side, quality improvements are also possible; this is called upcycling (Ellen MacArthur, 2013).

FIGURE 6 **The circular economy—an industrial system that is restorative by design**

1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input
Source: Ellen MacArthur Foundation circular economy team
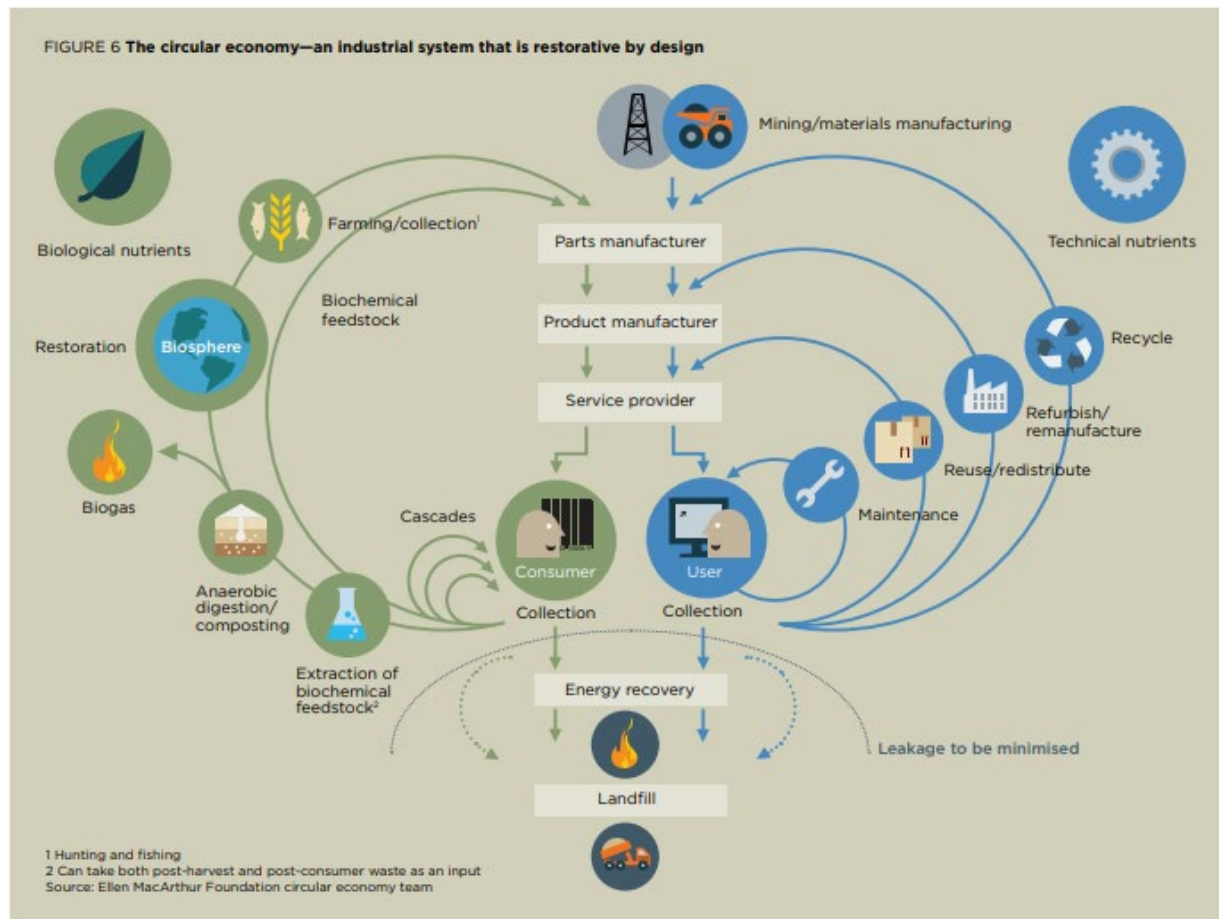
Figure 1: The Circular Economy Cycles (Ellen MacArthur Foundation, 2013).

Central to the representation of the circular model are the so-called 'cascades'. These cycles reflect the reuse of materials in multiple economic activities. The different cycles are also called the levels of circularity (Cramer, 2015), because these have a certain hierarchy, in which the smaller cycles are preferably used first. The hierarchy encompasses the 10R strategies that were previously named:

Category	#	Strategy	Description
Product slimmer gebruiken en maken	10	Refuse	Voorkomen van gebruik van virgin-materials / grondstoffen
	9	Reduce	Verminderen van het gebruik van grondstoffen
	8	Rethink	(Her)ontwerpen van een product met circulariteit als uitgangspunt
Levensduur verlengen van product en onderdelen	7	Re-use	Product hergebruiken
	6	Repair	Onderhoud en reparatie -> levensduur verlenging
	5	Refurbish	Product opknappen
	4	Remanufacture	Nieuw product van secundaire materialen
	3	Repurpose	Producthergebruik, maar met andere doel/functie
Nuttig toepassen van materialen	2	Recycle	Verwerking van product naar grondstof en hergebruik
	1	Recover	Energieterugwinning uit materialen

Although this figure, in combination with the illustration of the Ellen MacArthur Foundation, reflects the circular economy well, the aforementioned definition is not yet entirely complete according to Kirchherr et al (2017a, p.229). A complete definition of the circular economy would then be:

"An economic system that replaces the end-of-life concept with the reduction, alternative reuse, recycling and recovery of materials in production / distribution and consumption processes. It operates at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim of achieving sustainable development while simultaneously achieving environmental quality, economic prosperity and social justice , for the benefit of current and future generations. This is made possible by new business models and responsible consumers."

3.2 Transition

3.2.1 Choice of transition theory

The aim of this research is to investigate the development and contribution of local circular initiatives to the transition towards a circular economy. For this purpose, the processes that affect niches are analysed. Several theoretical approaches have been considered to base this research on, such as process management, the network approach, Collaborative Governance and the Diffusion of Innovations theory.

The network approach can be a useful theory because it explains how different actors work together and what the role of niches is in this. Policy networks are central to the network approach (Buitendijk et al, 1996). Policy networks are seen herein as "patterns of social relationships between interdependent actors, which form around policy issues and/or policies, and are formed, maintained and changed through series of games, in which the actors try to influence as much as possible by

practicing strategic behaviour on policy processes" (Klijn & Teisman, 1992, p. 33). The process tries to search for goals but also comes up with a middle ground.

In line with this theory, the concept of Collaborative Governance has been developed. This is the cooperation between government organisations, companies, civil society organisations and individuals Collaborative Governance concerns "the processes and structures of decision-making and management of government policy involving people constructively across the boundaries of government agencies, government levels and/or public, private and social areas to achieve a public goal that would not otherwise be possible" (Emerson et al. 2012, p. 3).

Another theoretical approach is Business Process Management (BPM). According to Heurter (2007), here provisional procedural agreements are being made between the actors involved in a process. Business Process Management refers to work within a company or institution as to align the customer's wishes with the resources available to achieve this. Effectiveness and efficiency, as well as innovation, flexibility and integration with available assistive technology, are then discussed (Jeston & Nelis, 2014). BPM is intended as a continuous work in order to improve the results and is therefore itself a process, an optimization process. It's power lies in structured improvement. Various methods are used to discover, model, analyse, measure, improve, optimize and automate business processes (Jeston & Nelis, 2014). This is mainly about the process of reaching a consensus rather than the content. This process could help local circular initiatives to professionalize and optimize their services.

Rogers' Theory of Innovation is a theory that aims to explain how, why and at what rate the spread of an innovation takes place within a social group or organisation (Rogers, 1995). This can help to explore how circular innovations are spread through niches and how this can be improved. Rogers distinguishes five phases, and identifies five different groups that accept the product of a new idea. The five phases of the adoption process are knowledge/awareness, persuasion, decision-making, implementation and confirmation/continuation (Rogers, 1995).

The Network Approach, Collaborative Governance and Process Management focus on managing a large and complex set of actors, and finding a consensus in this. This can provide a good insight into how the various parties cooperate in grassroots initiatives. However, these theories do not address how this can contribute to large-scale societal change. The connection to grassroots initiatives and a circular transition is hard to make. That is why these were not chosen for this study. Process management focuses on internal processes to innovate products and services. The Diffusion of Innovation theory focuses on how innovations can be shared. However, this is mainly aimed at the business and market level alone, and does not specifically include the multiple social levels. However, the interaction between different types of parties is an important part of grassroots initiatives, and interaction between different social levels is seen in this study as being an important aspect for the transition to a circular economy. For this reason, the Diffusion of Innovation theory was not chosen as the central starting point of this research.

The transition to a circular economy can be considered a "wicked problem", because it transcends levels of scale and domains and requires structural change. Dirven, Rotmans & Verschaik describe 'wicked problems' as poorly structured problems, which are surrounded by a great deal of uncertainty and characterized by a high degree of complexity (2002; p. 23). The basis of such 'wicked problems' is what is known as flaws that have gradually crept into certain social systems (Rotmans, 2006; Loorbach, 2007). This complexity is reinforced by increasing environmental dynamics. In this rapidly changing society, boundaries determined by time, place, technology and morality are shifted

or blurred. This creates a persistent problem. According to Rotmans (2006), the transition theory is suitable for this.

Due to the "persistent" nature of the current economic system, the transition theory is therefore chosen for this study. Structural changes and innovations are necessary to get out of the lock-in of the current economy. The transition theory combines the aspects of the other theories mentioned and focuses on different social levels. With its "multi-level perspective", this theory ideally focuses on the structures of a large number of complex actors, as well as the diffusion of innovation through niches. Together with Strategic Niche Management (Geels & kemp, 2000) and Transition Management (Rotmans, 2003), the internal and external influence for a circular initiative to disseminate and integrate circular innovations can be investigated. This can be used to build a structure as to investigate how local circular initiatives can contribute to the transition towards a circular economy by understanding, sharing and scaling-up the knowledge.

3.2.2 Transition Theory

In order for a transition to a circular economic system to take place, small-scale initiatives/projects must first emerge and must be developed into a large whole to form this system. Several theories have been written about such sustainable transitions. In 2002 Geels wrote his work Multi Level Perspectives (MLP) as 'a medium-range theory that conceptualizes general dynamic patterns in socio-technical transitions' (Geels, 2011, p.26). These different levels are niches, socio-technical regimes and an exogenous socio-technical landscape (Geels, 2011). The landscape is the macro level. These are developments in the field of politics, culture, worldviews and paradigms. The socio-technical regime is the meso level, which consists of a system of dominant practices and structures, such as rules, customs and interests, which are shared by groups and actors (Kemp & Bosch, 2006). This concerns markets, user preferences, industry, science, policy, culture and technology. At the micro level are the niches. These are small networks of actors, who support novelties based on expectations and visions, and who make efforts to link different elements in a connected web (Geels, 2011).

As Figure 2 shows, the niches are stimulated by the landscape and the socio-technical regime. The landscape itself also affects the socio-technical regime. When the niches have developed as part of the regime, the regime can influence the landscape. By developing themselves, and through opportunities, niches can break through in the social/technical regime.
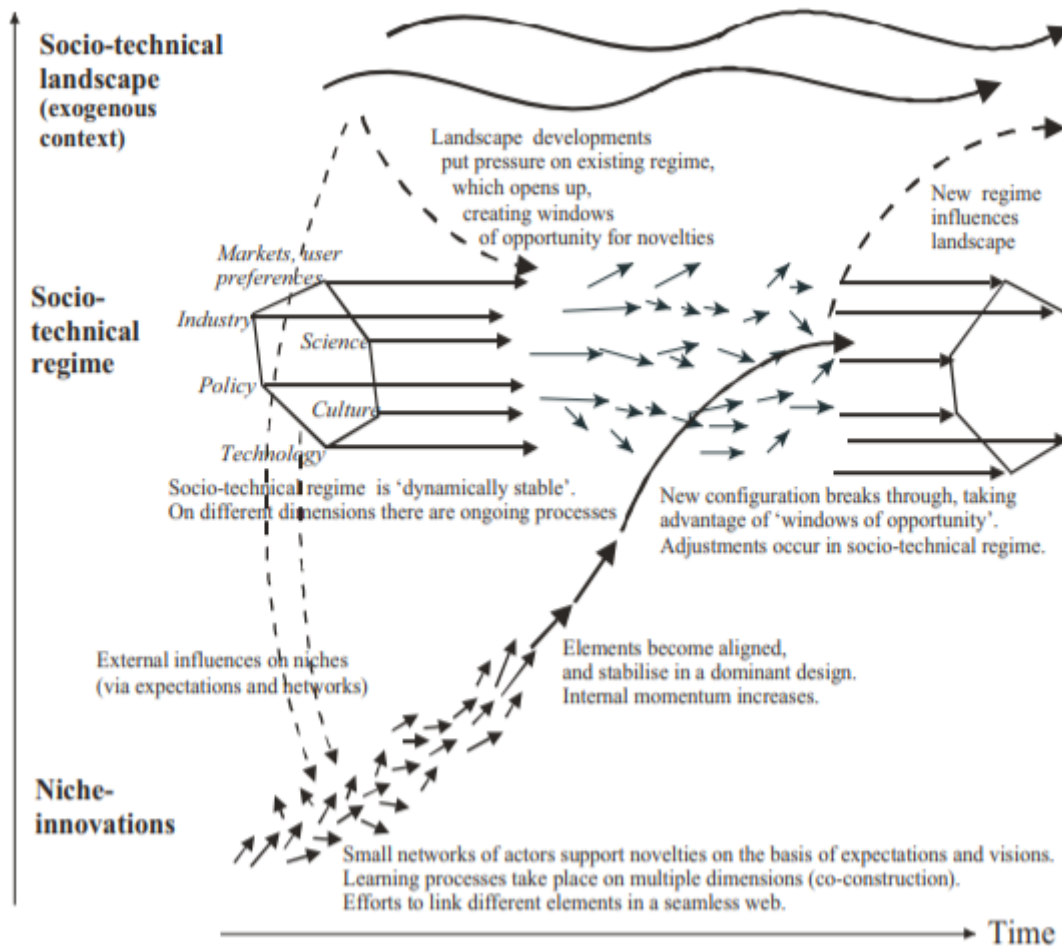
Figure 3: Dynamic multi-level perspective on transitions in socio-technical regimes (Geels, 2011).

3.2.3 Deepen, Broaden and Scaling-up

Niches can contribute to the transition in different ways. Rotmans and van den Bosch (2008) describe this, using three 'steering mechanisms' that enable niches to optimally contribute to the transition. This includes "deepening", "broadening" and "scaling-up". These concepts help in researching how niches contribute to the transition. It also helps to analyse whether niches are just innovating and experimenting or whether these are also spreading knowledge or potentially create a vital network.

Deepening

In-depth niches learn about the complex relationship between new practices and cultures and the structures of the existing regime. In this process, the participants learn about the possibilities and limitations of the project/experiment that is central to the niche in depth. This concerns both the innovative possibilities themselves and the context in which the niche operates. Internal learning processes are the most important key to a successful deepening. Aspects, such as the scale, the diversity of the project, the competencies and dedication of the actors involved and the formulation of learning goals, play an important role in this (Kemp & van den Bosch, 2006). Deepening refers to 'learning to meet a social need in a local context in a different way' (Rotmans & van den Bosch, 2008, p. 30). Deepening constitutes a (local) constellation of culture, practices and structures that meets a fundamentally different way of providing a social need (ibid.). A niche deepens when participants learn about new ways of thinking, and doing this in a given context, as well as when the project is improved and adapted within the given specific context. Deepening is important for the transition

because it provides important knowledge about the circular economy, which can potentially be acquired, in practice.

Broadening
Broadening connects different niches, which can lead to a niche cluster and, ultimately, to a niche regime. The 'broadening' mechanism is defined as 'repeating and linking a transition experiment in different contexts to other functions or domains' (Rotmans & Van den Bosch, 2008, p.32). It is the repetition of an experiment within the niche and the application of learning experiences in a different context.

These new applications, within a broader context, can only be explored if sufficient knowledge has been gained about the possibilities and limitations of an experiment in the given context. If a niche wants to expand successfully, it needs to adapt and connect with other innovations so that the experiment / project can be optimized (Kemp & van den Bosch, 2006). This optimization depends on the extent to which the different initiatives want to contribute to the same social challenge and create an overarching vision. What is learned during this broadening process must be linked back to the contribution to the social challenge (Kemp & van den Bosch, 2006).

A niche is successfully broadened if it consciously makes the link with other innovations/initiatives, or if the project/findings have been used by other niches or repeated within other contexts and domains, and when the learning experiences are linked back to the broader societal challenge/vision. Broadening is important for a transition to a circular economy because the required knowledge is spread to multiple actors and circular initiatives, which can spread to other areas and be applied more frequently.

Scaling-up
Scaling-up takes place in many intermediate steps, which means that initially small changes in niches can eventually 'grow' into broader changes in the dominant culture, practices and structures of the regime (Rotmans & van den Bosch, 2008). It is seen as the anchoring of new structures and thinking at a higher level (meso), which arises from the search and learning processes of transition experiments within the niches (micro) (Kemp & van den Bosch, 2006). A new and influential sub-regime is being formed that can serve as an alternative to the current regime. This requires interaction between scale levels. The experiment should be linked to a strategic vision supported by a group of leaders, and later by key figures within the regime. In addition, it is essential that the niche is, or becomes, part of a strategic program or a larger change process (ibid.).

A niche contributes to the scaling-up process when the learned new structures and thinking are anchored at a higher/broader level, if these new ways of working receive support from the network's leaders and amongst the key figures of the regime, and/or the initiative becomes part of a major change process or a strategic program.
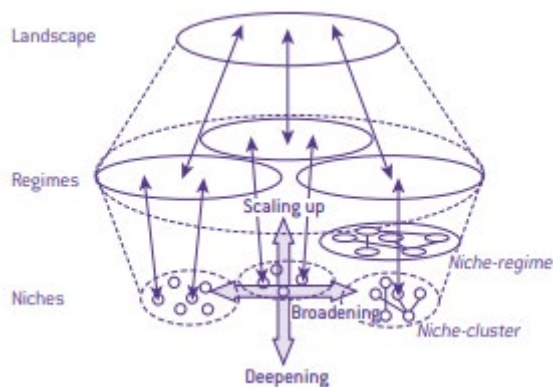
3.2.4　Distinction between two types of niches

A niche is a "social subsystem that can be understood as being a (local) constellation of culture, practices and structure that deviates from the regime (or dominant culture, practices and structure)" (Rotmans & van den Bosch, 2008). A niche is relatively powerless, compared to the regime, but can meet fairly specific societal needs, often in unorthodox ways (de Haan and Rotmans, 2008).

Seyfang and Smith (2007), distinguish between market-based niches and grassroots initiatives. Market-based niches operate within the market economy, while grassroots initiatives operate within the 'social economy'. The social economy provides flexible, localised services in those situations where the market cannot. Sustainable innovations within the market economy depend on subsidies and investments, until these can fully compete in the market. This is the conventional form of innovation. Companies generate commercial income from the sale of the products they innovate. The driving force is profit; companies try to use the benefits of innovation in order to stay ahead of the competition and thus create more profit on the market (Schumpeter, 1961). These are often technological, product-oriented innovations.

Grassroots initiatives will increase the focus on non-technological innovations. Grassroots initiatives form in the social economy of community activities and social entrepreneurship. They also emphasize different social, ethical and cultural rules. There are different organisational forms: cooperatives, voluntary associations, mutual partners, informal community groups, social enterprises. It uses different types of resources, such as grant financing, limited commercial activities, voluntary input and two-way exchanges (Seyfang & Smith, 2007). Five identifiable characteristics in the grassroots sector are the small scope, the low profile, the voluntary character, being citizen-led, as well as community-led groups (Chanan, 2004). These could be initiatives to improve the street scene or social cohesion in the neighbourhood or to involve people who are disadvantaged in the labour market. Examples are Buurman (local reuse of materials), Re-boot (discarded and abandoned boats that are cleaned up and repaired for reuse), thrift shops and various urban agriculture initiatives (for more social cohesion) (PBL, 2019).

Grassroots initiatives are driven by social needs and ideology. The social economy offers flexible, localised services in situations where the market cannot provide these. Established production and consumption systems fail in some communities because groups are socially and economically disadvantaged or do not have access to certain (innovative) goods, services and markets (Seyfang & Smith, 2007). In addition, some grassroots initiatives develop practices based on re-ordered priorities and alternative values, leading to more ideological commitment (Seyfang & Smith, 2007).

Table 1: Market-based and grassroots initiatives

	Market-based initiatives	Grassroots initiatives
Context	Market economy	Social economy
Drive/focus	Profit, loan	Social need, ideology
Niche	The market rules are different: taxes and subsidies temporarily protect an experiment from full market forces	The values are different: alternative social and cultural expressions that are possible within a niche

Organisation form	Companies	Diverse range of organisational types: voluntary associations, cooperatives, informal community groups, (start-ups)
	14	
Incoming sources	Commercial activities	Grant financing, voluntary input, mutual exchanges, also (limited) commercial activities

Such grassroot initiatives can contribute to circularity by proceeding with one or more of the strategies on Lansink's Ladder. The initiative's actors use regional secondary raw materials or work on waste reduction. Residents, businesses and institutional representatives take care of the reuse, redesign or repair of used products. They can also work on joint projects for sustainable services instead of products, or on a sustainable energy initiative. This creates new flows. Local circular initiatives produce circular products or services in the action perspective of residents/consumers and thus create a new processing chain.

3.2.5 Strategic Niche Management & Transition Management

Broad social renewal processes, such as a circular transition, cannot be controlled in their entirety. However , the direction and pace of the transition may be affected. This can be done by niches, amongst others. Social innovation can flourish with the right initiatives (Rotmans, 2003). There is no generic recipe for managing transitions. However, it is possible to draw up certain strategies and test these.

Geels & Kemp (2000) developed Strategic Niche Management (SNM). This theory describes the processes needed for the successful operation of a Niche. Stabilisation is the most important concept here. The innovative nature of a niche creates a lot of uncertainty. That´s why the development should stabilize. This stabilisation is a gradual process that is driven by "learning". Learning to develop is an important function of niches. This takes place within a specific social network of actors involved. These actors are individually involved in the niche from their own interests, which are collectively translated into strategies and expectations. This results in three key processes within a niche:

1. The establishment and stabilisation of a social network,

2. The formation and stabilisation of strategies and expectations,

3. Learning processes (about developments, user wishes, etc.).

Experiments play an important role in niches. By experimenting with a new development, one will learn about the effectiveness, application possibilities and feasibility. If experiments are successfully conducted, it is easier to expand the network and obtain resources. The niche can gradually stabilise through a cycle of learning processes, expanding networks and strategy development. A well-developed and stabilised innovation can then create more support and become an alternative to the regime, or can penetrate the regime (Geels & Kemp, 2000).
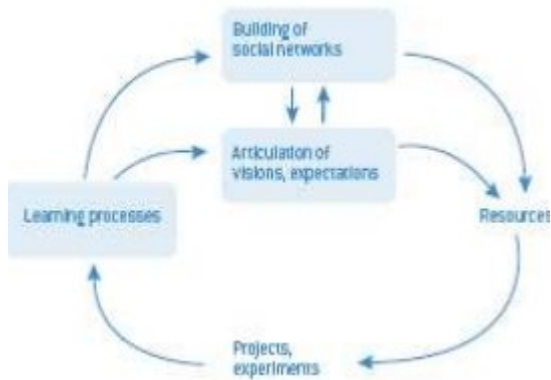
Following the transition theory, Rotmans (2003) has come up with the Transition Management theory. Transition Management aims to steer transitions in terms of influence and adjustment. In view of the Transition Theory, this can be in line with Strategic Niche Management. Rotmans states that there is no fixed way to achieve a transition. However, he has drawn up a model of ten directives that are considered to be the most important actions to be taken to enable a transition. These ten directives are described below:

1. Setting up a transition arena. The aim is to create permanent support for the intended transition. Selected actors come together to form the innovation network. Actors complement each other in order to attain a competent network.
2. Organizing a multi-actor process. A control room and renewal space will be created. The right conditions are created for the actors involved, in order to develop the intended transition in the long term.
3. Defining the transition issue. A transition is often a major social problem with multiple domains, scales and actors. A so-called 'wicked problem'. A proper demarcation of the issue is therefore important.
4. Formulating different problem perceptions. The actors involved all have their own motives, interests and goals. This leads to different problem perceptions. It is therefore necessary to clearly formulate and communicate the problem perceptions and underlying motives and goals. This creates a common agenda.
5. Developing a long-term vision. Long-term visions for a common transition goal are being developed. These are innovative and inspiring final images, which are inspired from different angles and each with its own transition path. These goals can evolve and, finally, the most achievable goal will be chosen.
6. Exploring the transition paths for the chosen transition goal. The transition final images are the starting point here. Different transition paths must be developed for each final image. As many options as possible must be kept open. The transition paths must evolve during the process.
7. Developing and applying the right tools. In order to carry out the transition process, the right tools must be chosen, developed and applied. These include processes, measures and arrangements. It must be clear which party is responsible for which type of instrument. Experiments can be carried out for this purpose.
8. Formulating intermediate purposes. Interim objectives form a testing framework for current policy and long-term vision. The intermediate goals are derived from the final image and can build on certain sub-themes or initiatives that have been defined at an earlier stage.

9. Evaluating intermediate goals and learning effects in development rounds. The actors concerned should periodically evaluate the intermediate objectives. From these learning processes, the transition process can then be adapted.
10. Organizing the next transition round. On the basis of the intermediate purposes, and the lessons learned from this, a new cycle can be organized. The process is being reoriented and redesigned. A larger group of actors can be involved in order to increase the support base.

3.2.6 Barriers

External influences must also be taken into account. Social barriers may influence the functioning of the niche and its environment. Four general barriers can be derived from multiple scientific studies (Bomberg & McEwen, 2012; Bastein et al, 2014; Kirchherr et al, 2017b; Jesus & Medonca, 2018; Rizos et al, 2015):
- financial barriers
- institutional barriers
- technical barriers
- social barriers

The most often identified barrier is the financial barrier. This is because in many cases it is difficult to realise sufficient capital for the necessary investments (Bomberg & McEwen, 2012; Rizos et al, 2015). In addition, legislation and regulations play an important role. Obtaining permits and subsidies can either create possibilities or barriers, as well as guarantee the long duration of these processes. In line with the transition theory, this institutional barrier can also be called the fortitude of the regime. Technological barriers also play a role, due to a lack of the right technical infrastructure or a lack of knowledge and experience (Walker, 2008; Jesus & Medonca, 2018).

In addition, a social barrier can be distinguished, which mainly relates to the size and intensity of the support base. This barrier can then be distinguished into an individual or communal level. At an individual level, the person's attitudes and perceptions play a role, as does the lack of information and knowledge. It may also be thought that one person cannot make a difference. At a common level there is a threat that the benefits of contributing to circularity / transition will not initially end up with the individual, but more at a low rate for all or only parts of the community. As a result, people's incentives to participate in circular initiative can be low. This is also referred to as the "collective action problem". To solve this, an overall behavioural change is needed, and individuals must be mobilized (Bomber & McEwen, 2012).

3.3 Conceptual model

The conceptual model below summarizes how the different parts of the theory are related. Niches are the form of grassroots initiatives that can contribute to the transition by deepening, broadening and scaling-up. This is possible when the internal processes follow the principles of Strategic Niche Management and Transition Management. The formation and stabilization of a network, goals and learning processes are important in this. However, there are external barriers that can affect these internal processes or the deepening, broadening and scaling-up itself. This may happen financially, institutionally, technically or socially.

Table 2: Conceptual Model

Grassroots Initiatives

Internal influences: Strategic Niche management & Transition management

- Creation and stabilization of a social network
- Creation and stabilization of expectations and strategies
- Learning processes

External influences: Barriers

- Financial
- Institutional
- Technical
- Social

Deepening, Broadening, Scaling-up
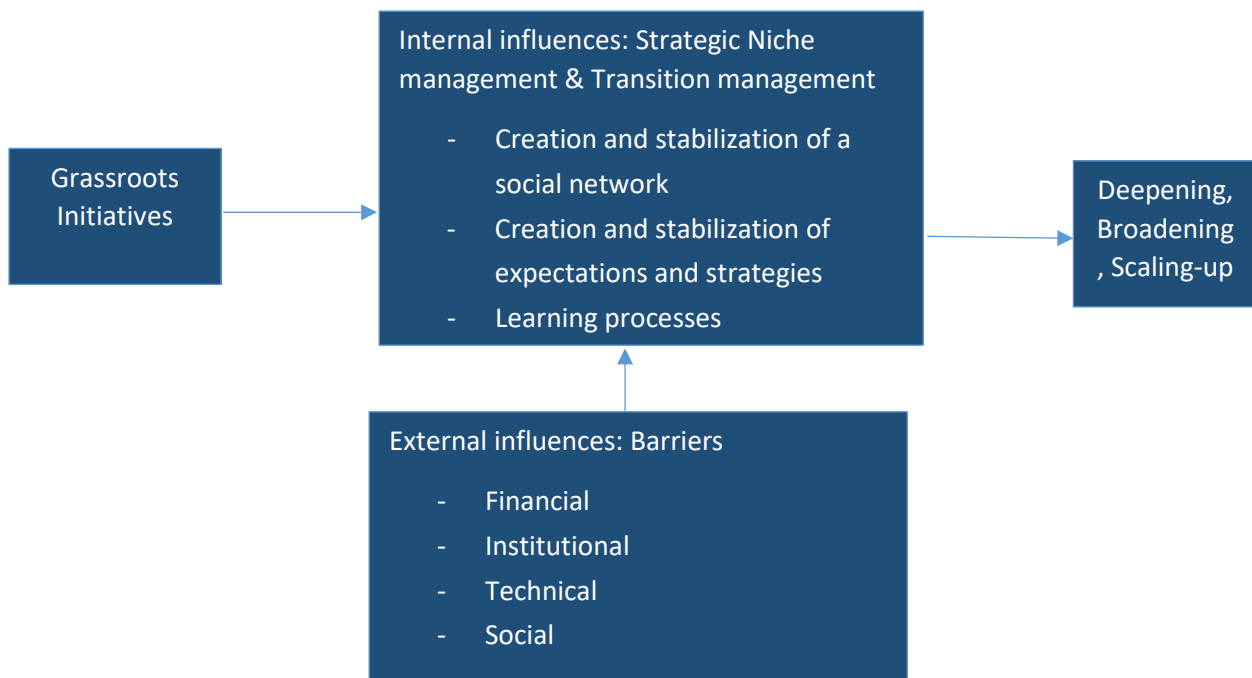
4 Operationalisation

Within a grass-root initiative, various actors work together on one or more projects. Together they form the social network. These parties can then set expectations and objectives as to which line the projects should proceed. Learning processes take place within the projects that are set in motion by experiments and developments, after which adjustments can be made. In order to be able to assess these processes, as described by Strategic Niche Management, a number of indicators from Transition Management theory that are considered important for the formation and stabilization of networks, expectations and learning processes are linked to these. These indicators are linked to an ordinal score from 1 to 5. For these scores, the two extremes, on which the assessment will be based, are explained. In addition, a list of socio-economic and technical barriers is drawn up from the explored literature. The indicators for deepening, broadening and upscaling are also determined from the Transition Management theory.

4.1 Internal management strategies

4.1.1 The Formation and Stabilisation of a Social Network

Within a niche, there are actors are who work together to investigate, test or implement an innovation. These actors together form a social network. In order to assess the quality of the formation and stabilisation of such a social network, a number of characteristics from Transition Management and Strategic Niche Management are defined, which are considered characteristic of the proper functioning of a social network (Van Lindt & Van den Bosch, 2007; Boon et al, 2014; Hoogma et al, 2002; Kemp & van den Bosch, 2006; Rotmans & van den Bosch, 2008).

Broad network

An ideal network consists of a large support base of actors and parties from different backgrounds, domains and scale levels, as to generate the widest possible knowledge and competence platform. For the optimal effect of a niche, the network consists of actors from different and specific backgrounds coming from all areas of society (Van Lindt & Van den Bosch, 2007; Hoogma et al; 2002; Rotmans, 2006; Schot & Geels,2008). For a broad network, it is important to involve not only market participants, such as suppliers of services, products or technology, but also (potential) users, the (local) government, the neighbourhood community, scientific institutions and civil society organisations, such as the environmental movement (Kemp& van den Bosch, 2006; CCT, 2008). The extreme scores for this indicator are:
- 1: The network consists of few parties from the same domain or field of work
- 5: The network consists of many parties, of many different domains and fields of activity (government, business, knowledge institutions, intermediaries, civil society organisations)

Network depth

The collaboration should also be in-depth in order to make sufficient use of the network. People who represent organisations must be able to mobilize commitment and resources within their own organisations and networks (Schot & Geels, 2008). They should also have the mobilization potential to anchor the results / lessons learned in their own organisations. In order to be able to carry out the project, it is important that the available resources are properly distributed. This may entail data, money, facilities, etc. Resources must be shared with each other so that the essential actors and domains can be utilized. (Van Lindt & van den Bosch, 2007; Rotmans & Van den Bosch, 2008). If there is no or a limited exchange of resources, this will lead to a limitation of the implementation of the project, and the goal may subsequently have to be adjusted. When all possible resources are used in

the network, this can contribute to a stronger development of the niche. The extreme scores for this indicator are: -1: Not all parties are able to make sufficient resources or knowledge available, so that the project can hardly be carried out or not at all. -5: Each party is able to provide its resources and knowledge as optimal as possible

Division of roles

When creating a social network, it is important that the rules and roles in the network are clear for everyone. Within the network of the niche there are several actors with their own competencies, which can be of added value. It is therefore important that every actor involved in the project is given a clear role on the basis of their competencies, so that the network can be used as well as possible, while at the same time keeping an overview of the common strategy (Boon et al, 2014; Rotmans, 2006). Involvement indicates, amongst other things, how the work is divided within a niche. The extreme scores for this indicator are:
- 1: There is no clear division of roles and one party carries the project, so competencies are not used properly.
-5: Tasks are clearly divided and everyone contributes equally to the project, by making the most of their competencies

Table 3: Indicators of formation and stabilization of network

The formation and stabilisation of a Social Network		1	2	3	4	5
A	The composition of the network is broad (insiders, outsiders)					
B	The composition of the network is in-depth (mobilisation means)					
C	There is a clear division of roles					

4.1.2 The formation and stabilisation of strategies and expectations

The initiative is innovative

The processes are innovative. To lead a transition, innovative ideas need to be explored within the niches. Within the niche, new ways of thinking and perspectives are explored in order to solve a problem, which are compared with existing developments (Kemp & van den Bosch, 2006; Thomke, 2003). This can be either at the micro-level of the experiment itself or for solutions at the regime level (CCT, 2008). Innovation can be distinguished into two types; Incremental innovation and disruptive innovation. In the case of incremental innovation new applications and improvements are made but within already existing innovations. In the case of disruptive innovation new product designs, technologies or business models are made (PBL, 2019). Alternatives to the current way of producing and consuming are concretely developed. The extreme values for this indicator are:
- 1: There is incremental innovation. The initiative builds on existing developments, and tries to improve and/or increase these, but does not come up with plans for new innovative product designs, technologies or business models.
- 5: There is disruptive innovation. The initiative plans to explore a new product design, technology, business model or a fundamentally new application for existing product designs, technologies or business models. The project/research is a first.

Expectations are shared

It is important that within the network the expectations about the project and the end result are shared in order to come to a specific focus. When actors do not share the same vision, the strategy may become unclear(Rotmans & van den Bosch, 2008; Mourik & Raven, 2006). At least a shared perspective on a possible future should be developed, which makes joint activities towards that future possible and meaningful (CCT, 2008; Kemp & van den Bosch, 2006). The extremes of this indicator are:
- 1: The actors within the network have different expectations, and there is no consensus.
- 5: Within the network, expectations are shared by all parties.

The expectation of circularity

The Circular Economy is the end point of the transition. To get there, steps will have to be taken. In order to play a meaningful role, niches will need to draw up a clear expectation or vision about the circular economy and how innovation can contribute to circularity. There must be a long-term vision amongst the actors involved. To do this, the niche must contribute to circularity by producing at least one of the R10 strategies. The extreme values are:
-1: The initiative does not contribute to circularity
-5: With its projects the initiative contributes to a circular form of economy.

Working with a specific end goal

Within the niche, a clear and concrete final goal must be formulated with regard to the innovation and what the project should deliver after its completion. A balance must also be struck between the ambition and the realism of the expectations. Drawing up intermediate goals ensures that the project is structured and that guidance can take place (Rotmans & van den Bosch, 2008; CCT, 2008; Kemp & van den Bosch, 2006). The extremes of value are:
- 1: No concrete final goal has been set. The result is without obligation.
- 5: A clear final goal has been formulated with concrete intermediate goals for a structured operation.

Table 4: Indicators for formation and stabilization expectations

The formation and stabilisation of strategies and expectations		1				5
A	Expectations are innovative					
B	Expectations match / shared problem definition					
C	Expectations focus on circularity					
D	There is a specific vision with concrete intermediate objectives					

4.1.3 Learning processes

Learning goals
Within a niche there must be room for learning. Learning is the most important process for achieving stable innovation and offers opportunities for further development. It is important that such learning goals are set that emphasize the intention to learn. Steering for results to learn is important in a niche. The extreme values of this indicator are:- 1: No concrete learning goals have been set. - 5: Concrete learning goals have been set and the network wants to achieve these by steering these towards results.

There must be room for learning. Learning is the most important process to achieve stable innovation and offers opportunities for further development. There should be testing done and results must be achieved. It is important that learning goals are set that emphasize the intention to learn. Focusing on results in order to learn is important in a niche. The extreme values of this indicator are:
- 1: No concrete learning objectives have been formulated.
- 5: Concrete learning objectives have been formulated, and the network wants to achieve these by focusing on results.

Broad learning /Second Order learning
Learning processes can contribute more to the development of niches if they are not solely focused on collecting facts and data, i.e. first-order learning, but if these also enable changes in cognitive frameworks and assumptions, i.e. second-order learning (Schot & Geels, 2008). Existing frameworks of thought and action are constantly under discussion and alternatives are being proposed (CCT, 2008; Kemp & van den Bosch, 2006).
Actors not only learn about the significance of an innovation for the specific context in which the initiative takes place, but they also learn about the possible contribution of the experiment to the broader social task (CCT, 2008). Learning processes that are relevant for the transition to circularity are generated. Participants not only learn about local feasibility and desirability, but also generate learning processes relevant for the transition to circularity. In practice, this involves learning about problems and solutions for integration into an existing infrastructure or legal frameworks, the way in which routine behaviour counteracts the spread of an innovation or better insight into what circularity actually means for various parties, for example. The extreme values for this indicator are:
- 1: Involved actors only learn about the processes/innovations within their own context.
- 5: Involved actors learn about circularity in general and how the projects can be applied outside their own context.

Social learning
Social learning is collective and group learning and giving meaning. Learning takes place in heterogeneous networks in a social context (CCT, 2008; Kemp & van den Bosch, 2006). This is learning from each other together or learning different ways of looking through collective meaning. Social learning is a mechanism for the faster rethinking of routines and assumptions, because people in debate and discussions with others are more likely to question these. The extreme values are:
- 1: The different parties do not gain knowledge of each other.
- 5: Knowledge is shared and taken over by the parties involved.

Targeted experimentation
Experiments play an important role in the niche. By experimenting the network can further develop an innovation, and learns about its usability and application possibilities. Within the niche, the results of an experiment can contribute to the adjustment or the stabilization of strategies and expectations inthe social network (Rotmans & Van den Bosch, 2008; Van Lindt & Van den Bosch, 2007; Geels & Kemp, 2000). The extremes of this indicator are:
- 1: There is no experimentation and the project is not carried out in different practical situations.
- 5: There is active experimentation to explore different applications of the project.

Evaluation & Adjustment
In order to be able to learn concretely, the results obtained must be analysed. Evaluation is carried out in a uniform and structured manner, so that learning objectives can be achieved. Based on the learning experiences, expectations and innovation are adjusted and further developed, so that new opportunities are exploited (Rotmans & Van den Bosch, 2008; Van Lindt & Van den Bosch, 2007). The extremes of value are:

- 1: No evaluation takes place and projects are not improved or further developed.
- 5: An evaluation is carried out, in a clear and structured manner, so that expectations / learning objectives can be adjusted and projects are further developed and improved.

Table 5: Indicators of learning processes

The formation and stabilisation of learning processes	1				5
A	Learning goals					
B	Broad learning					
C	Social learning					
D	Targeted experimentation					
E	Evaluation and adjustment					

4.2 Social and Economic Barriers

On the basis of the four general barriers discussed, and on a literature review that has been done, a list of specific aspects can be created where barriers and opportunities arise. Interviews can then be used to see whether these barriers are experienced in the circular initiatives examined.

Table 6: Types of barriers

Financial		Explanation:
Investment	Lack of private investment or lack of clarity about the cost-sharing of project/initiative.	(Bastein et al, 2013; Rizos et al, 2015; Webster, 2015; Wijkman & Skånberg, 2016; Jesus & Medonca, 2018)
Dependency partners/investors	These may be focused on short-term profitability. This can clash with the circular long-term vision.	(Rizos et al, 2015; EMF, 2012)
Parts products	Used parts of products are more expensive than the sales margin.	(Bastein et al, 2013; Kirchherr et al, 2017b)
Institutional		
Product prices	Subsidy for non-renewable processes/products can hinder the development of circular projects.	(EMF, 2012; Lacy & Rutqvist, 2015; Jaeger & Upadhyay, 2020; Webster, 2015; Jesus & Medonca, 2018)
Incentives	Whether being able to obtain incentives in the form of subsidies/tax cuts/licences, or not.	(Geng & Doberstein, 2008; Rizos et al, 2015; Kirchherr et al, 2017b; Mathews & Tan, 2011; EMF, 2012; Bastein et al, 2013)
Regulation	Negative consequences due to inconsistent or inefficient regulations.	(Jesus & Medonca, 2018; Kirchher et al, 2017; Mathews & Tan, 2011; Bastein et al, 2013; Rizos et al, 2015)
Civil		

Resistance within organisations/partners	There is fear of risk and of extra effort. Partners in the cycle do not operate circularly.	EMF, 2012; Bastein et al, 2013; Kirchherr et al,2017; Tukker, 2015)
Training	Still too little knowledge of the (benefits of the) circular economy. People are not consciously engaged in change.	(EMF, 2012; Bastein et al, 2013; Jaeger & Updadhyay, 2020; Rizos et al, 2015 ; Jesus & Medonca, 2018)
Lack of cooperation	Motivation for change in organisations can be limited. Building up joint cooperation can take longer than the urgency for it.	EMF, 2012; Bastein et al, 2013; Jaeger & Upadhyay, 2020)
Technological		
Current conditions materials	Due to the complexity and costs involved, many materials remain fixed under existing operating conditions. Current processes are difficult to adapt.	(EMF, 2012; Rizos et al, 2015; Kirchherr et al, 2017b; Bastein et al, 2013; Jaeger & Upadhyay, 2020; Matthies, et al., 2016)
Suppliers/competition	Suppliers of new materials have advantages/are more attractive than the suppliers of second-hand materials are. Required partners/suppliers do not work circular.	Bastein et al, 2013; Kirchherr et al 2017b; Rizos et al, 2015 ; Jesus & Medonca, 2018)

4.3 Deepen, broaden, scaling-up

As indicated in the conceptual model, a link is made between the quality of the internal processes of a grassroot initiative and the extent to which it contributes to the transition. This considers the contribution to the transition, in the form of deepening, broadening and scaling-up, as a dependent variable. The indicators for internal management processes need to be tested, and the indicators for deepening, broadening and scaling-up should be tested, in order to investigate whether there actually is a connection. For this purpose, indicators for deepening, broadening and scaling-up have been drawn up that can be seen in the table below. In this case, there is no testing described on a scale of 1 to 5 as, was done in the internal processes, but only the presence of it. This is the same way as is done with the barriers.

In case of deepening, as much as possible is learned from a particular project in its own context. The work is not only result-oriented, but the research and learning processes are important as well. Based on this, not only incremental innovations are being made, but also new ways of thinking and execution are being developed, after which the projects are adjusted and improved (Rotmans & van den Bosch, 2008).

In the case of broadening, projects are replicated and linked to other contexts and functions. Links are not only made by chance, but are also targeted. In addition to context-specific results, the projects can also be applied in other contexts (Rotmans & van den Bosch, 2008).

In case of scaling-up, the new ways of thinking and doing are anchored at a higher level. It becomes part of a major process of change. There is support amongst leading actors from society and the economy (Rotmans & Van den Bosch, 2008). These factors are represented in the table below.

Table 7: Indicators of deepening, broadening and scaling-up

Deepen		Broaden		Scale-up		
There is learning about new ways of thinking and doing this in one given context.	Projects are improved and adapted within the given context.	There are (targeted) links with other innovations/ initiatives.	Projects are repeated within other contexts and domains.	The new structures and ways of thinking that have been learned are anchored on a larger level.	There is support amongst the frontrunners and key figures in the regime.	The initiative will be part of a major process change or a strategic program
Yes/no						

5. Methods

In this chapter it first will be explained on what research philosophy this study is based, in line with that the research strategy is accounted for. Also, the case criteria are formed here. Lastly it will be explained what methods will be necessary to research these cases.

5.1 Research philosophy

Post-positivism is the main paradigm on which this research is based. The ontology of this philosophy of science is critical realism. A reality is believed to exist but is only incompletely comprehensible due to the inherent flawed human intellectual mechanisms and the fundamentally persistent nature of the phenomena (Guba & Licoln, 1994). It is critically realistic because post-positivist researchers must subject their claims about reality to the widest possible scrutiny, in order to perceive/understand reality as well as possible (even if this can never be done optimally) (Cook & Campbell, 1979).

The epistemology has been modified dualistically or objectivistically. Dualism is largely left out because it is not possible to enforce this, but objectivity remains a regulatory ideal. Special emphasis is placed on external guardians of objectivity, such as critical traditions and the critical community (Guba & Licoln, 1994). Replicated findings are considered to be the truthfull, but are always subject to falsification (ibid.).

The methodology is modified to be experimental/manipulative. There is a renovated form of triangulation and critical multiplism. This is used to falsify hypotheses/theories (Guba & Licoln, 1994). Although quantitative research is more likely to be associated with postpositivism, qualitative research in the social sciences is also possible. There is emic field research from the perspective of the studied group. Research is done in a natural setting. Situational information is collected and discovery is again used as an element of research. Meanings and goals, that people attribute to their actions, are thus determined and can contribute to the grounded theory (Strauss & Corbin, 1990).

In this study, quantitative research was considered but ultimately the choice was made for a case study, due to a lack ~~in amount~~ of possible research units in the region and the exploratory nature required by the desired research (see 5.2 research strategy). According to Yin (2013), a case study

can serve from a realistic perspective. In addition to a statistical generalization, an analytical generalization is possible (Yin, 1994). How Yin defines his approach as empiric research can be considered to be post-positivistic (Harrison et al, 2017). Objectivity should be preserved, and the emphasis is put on the use of multiple methods and triangulation to avoid as many errors as possible and to get as close as possible to reality (ibid.). Yin's research design (2013) reflects important features of post-positivism. Competing explanations are sought here and hypotheses must be falsified. There should be the possibility of replication with the use of multiple cases. Generalisation is pursued when it is necessary/applicable, and subjectivity is minimized by the use of multiple methods for collecting and analysing qualitative and quantitative data. Precision, process and usability are characteristic of this approach (Harrison et al, 2017). The axiology of postpositivism comes back here. Maintaining intellectual honesty, controlling bias and recognizing limitations is combined with accurate data collection and reporting (Harrison et al, 2017; Killam, 2013; Yin, 2013).

5.2 Research strategy
The choice of research strategy is a core decision that must be taken within a study (Verschuren & Doorewaard, 2015). It is also important that the strategy chosen is suitable in order to answer the research questions and achieve the research objectives. The research strategy also depends on the amount of existing knowledge in this area and the amount of time and resources available (Saunders, Lewil & Thornhill, 2009). There are three questions to be taken into account: the choice of breadth or depth, a quantitative or qualitative research and an empirical or desk study (Verschuren & Doorewaard, 2003 p.148). In the run-up to this study, a number of strategies, that could serve as a potential research method to investigate the contribution of grassroots initiatives to a transition, have been explored.

First, we need to see whether a broad or in-depth study is the most applicable. The difference in this case is in the number of research units. A wide-ranging investigation can only examine a limited amount of information on a large number of research units. In-depth research examines a smaller number of research units but collects much more detailed information about them (Verschuren & Doorewaard, 2003). The aim of the research is to analyse which internal niche strategies stimulate deepening, broadening and scaling-up, and which external social barriers influence this process. Little is known about these internal strategies, for which a deeper/exploratory approach could be useful. Since the concept of the circular economy is still relatively new, and because these are specifically circular initiatives in Overijssel, there are but a few research units available. A broad survey is thus not sufficient to investigate grassroots initiatives in Overijssel. Therefore, more detailed and in-depth information will be needed about the cases and the stakeholders involved.

Secondly, it is necessary to choose whether the research needs to be qualitative or quantitative. As the choice for an in-depth study has already been made, a qualitative study fits in best. While qualitative research focuses on the nature, context and causes and consequences of phenomena, quantitative research focuses more on explaining phenomena, through numerical data, and it's size and frequency (Verschuren & Doorewaard, 2007). The scope for a quantitative investigation is not possible. In addition, it is useful for determining the list of barriers and the internal processes if open questions, where respondents can answer the questions extensively are possible, and where further questions can be asked if necessary. This allows for depicting a more complete and nuanced picture. More closed questions predominantly apply to a quantitative survey.

Thirdly, it is necessary to examine whether the research will be carried out empirically or non-empirically. In empirical research, the researcher himself goes into the field to actively collect personal data about the research units. Non-empirical research uses data collected by other scientists, or is shared by the researched parties itself to be investigated. Due to the descriptive and exploratory nature of this research, it has been decided to do empirical research. Desk research is therefore excluded from this study.

Ultimately, due to this limited number of cases/research units, and the limited knowledge about the barriers and transition segment, a case study was chosen. Survey research has been considered, but this is a quantitative form of research, in which a large number of research units must be investigated in order to arrive at reliable statements (Verschuren & Doorewaard, 2007). A case study can be described as a research strategy that empirically examines a particular phenomenon in the context of daily practice, using different sources (Saunders, Lewis & Thornhill, 2008). A case study usually deals with a small number of so-called cases. This involves relying on a qualitative way of research, in which the results are assessed and compared with each other, before statements are made. The niches can thus be explored in depth, making it possible to analyse specific factors. In contrast to survey research, less pre-structuring is required and flexible action can be taken in case of small changes happening. This is done holding personal interviews, face to face or over the phone, so that data can be more directly and more specifically collected.

5.3 Case criteria

Within the case study, the selection of the cases to be investigated plays a crucial role, whereby the cases differ either minimally or maximally from each other. With limited knowledge of the subject, minimal variation is advisable, otherwise it will be difficult to make connections between phenomena (Saunders, Lewis & Thornhill, 2008). However, to control for certain conditions that may influence the process and the outcome, it is useful to use maximum variation (Flyvbjerg, 2006). The cases are then very different on one dimension.

The cases will therefore have to be as similar as possible. For this purpose, the case criteria will be drawn up on the basis of the indicators established in the operationalisation section of this study. The only dimension where the cases differ is the scale. This too can affect the widening and scaling of the cases. This has been the result of applying the following conditions:
1. The main motivation of the cases is to contribute to sustainability/circularity.
2. The cases are grassroots initiatives: The niches provide alternative processes beyond the dominant economic system/culture, and involve several (local) parties.
3. The cases are mainly concerned with the same kind of activities/cycles. Materials, energy, biodiversity/food or sharing economy.
4. Cases deal with similar r-strategies that are close together on Lansink's Ladder.
5. The cases found stem from Overijssel. In this way, the cases experience equivalent social and institutional circumstances.
6. The cases are at a stage where tangible results can be seen. They have been active for at least a year.
7. To compare possible different causes for broadening and scaling-up, cases with different geographical scales are chosen. Local, regional, provincial/rural. For this, the materials cycles must be of a similar potential.

Chapter six further describes which case selection the above criteria resulted in.

5.4 Data collection methods

The initiatives compiled in the overview list (see Chapter 6) have been assessed on the criteria set. This has been done by carrying out a document analysis. The information on the websites of the initiatives has been reviewed to assess whether these met the criteria. After the selection of the cases, these were further examined through in-depth interviews and researched documents. First, the most important people in the initiatives, who have a broad overview of the work, have been interviewed, such as the founders or the treasurers. By means of the snowball method, questions were subsequently asked about other persons who could be interviewed. These were, for example, cooperative parties, and other employees / members or participating citizens. This was necessary to obtain a broader perspective per initiative. The aim was to interview at least three different people

per case. Within the interviews all strategies and barriers from the operationalization have been discussed. An example of the interview set-up can be seen in the appendix.

For the Groen Gebogen initiative, interviews were held with Gerard Brakkee (chairman), Marjel Das (circular team member) and Martijn Oosting (student counsellor), and the project design of Windesheim was looked into as well as the website of Groen Gebogen.
For WaardeRing, interviews were held with Wilma Voortman (founder of Kringloopwinkel Zwolle and co-founder of WaardeRing), Marjolein Mann (employee Rova), Wouter Bos (Trajectory counsellor VSO) and Marco Kruizinga (Municipality of Zwolle). Also the project plan was analysed aa well as the website of WaardeRing.
For Goede Buren, interviews were held with Martha Beeker (founder), Paul Hendriksen (founder) and Rita Smits (treasurer). Their year report was also analysed
Jan Wullink (founder) was interviewed for Eerlijk Vakwerk, and an interview was conducted with Jan Prins, the founder of Repaircafé Losser.

Because for the last two only one interview could be held and no documents could to be analysed, these shall serve as extra cases that shall not be taken into account in the conclusion of this study.

5.5 Data Analysis methods

It was chosen to conduct the interviews in a semi-structured format. No standard questionnaire was therefore used. A set-up with a few main questions was used to come to the important talking points. These are based on the indicators from the operationalisation (see the interview set-up in the appendix). In this case, respondents can talk freely and can answer the questions themselves. If the respondent deviates too much from the original question, the conversation can be adjusted. If certain topics from the main questions were not addressed, more specific sub-questions were subsequently asked. The interviews were then transcribed and encoded using the Atlas.ti programme. A code for each indicator was assigned from the operationalization. When coding was done, labels have been added to passages in the interviews, in order to be able to perform a clear analysis. This coding is deductive. In the answers of the respondents, an attempt was made to find the Strategic Niche Management and Transition Management indicators and Barriers that have been drawn up in the operationalization.

5.6 Validity and reliability

An important point of criticism for using a case study as a research strategy is the delimitation of what does and what does not belong to the system under study (Vennix, 2011). Choices will have to be made, which means that, although too few research units are chosen, very in-depth research can be carried out, for example. Too many research units can also be chosen, which will actually be to the detriment of the depth of the research, because too much time is spent on researching several systems. However, there are guidelines for delineating cases (Vennix, 2011). For an exploratory research such as this one, for which the combination of the theory and the model is still relatively new, it is necessary to have a minimal variation between the cases (Verschuren & Doorewaard, 2007). This minimal variation makes it more reliableto make general statements about the research object (Verschuren & Doorewaard, 2007). Despite the multiple-case study opted for, there will be criticism of the generalizability of the research. However, the difference has been made as small as possible by means of the selection methods. Also, by interviewing several people per case and by analysing documents, the reliability of this method has been increased.

6 Case selection

6.1 Cases Overijssel

In collaboration with Natuur & Milieu Overijssel, an overview of circular grassroots initiatives in Overijssel has been compiled. Based on the case criteria from chapter 5.3 the selection process is explained.

Table 8: All considered cases (selected cases highlighted)

Cases:	Motivation	Grassroots	Type of cycle/activities	r-strategy	Place	Duration of existence	Size
WaardeRing	circularity	Alternative local/regional circular material cycles. Works with several parties.	Mainly materials/ Products	Reuse Refurbish Repair Recycling Education	Zwolle	1 year	Regional/local (also nation wide)
Goede Buren	Local Sustainable Economy	Alternative local sustainable shop/activities Consisting of volunteers.	Repair café for materials. Network focused on energy advice and food waste	Reuse Repair Reduce Recycle	Olst	2 years	Local
Groen Gebogen	Improving the quality of living	Local sustainable alternatives for raw materials, energy, environment, care and well-being.	Reuse of plastic, Biodiversity (garden), Big role energy	Reduce Reuse Recycle	Dalfsen	6 years	Local
Duurzaam Hellendoorn	The goal is sustainability	Foundation that works independently from other companies	Energy, nature, biodiversity, food. Besides energy, focus on education.	Reduce	Hellendoorn	2 years	Local
Kringloop Steenwijk	Circularity, mono flows	New (mono)flowing materials, Cooperation with foundations and companies.	Materials, products	Reuse Repair Recycle	Steenwijk	30 years	Local/regional
Landgoed Algoed	Sustainable society, social gatherings	Local sustainable cooperation with volunteers	Food, circular building, Share	Rethink	Enschede	14 years	Local
Nieuwsleusen Synergy	Helping each other, self-sufficiency	Citizens initiative and network for alternative dual services	Mainly focused on energy but also thrift store	Recycle Repair Reuse Reduce Remanufacture	Nieuwsleusen	8 years	Local
Duurzaam Holten	Sustainability	Provides renewable energy. Network with municipality and province	Repair cafe, energy, green management	Reduce Repair	Rijssen-Holten	6 years	Regional/local

Name	Values	Description	Activities	R-strategies	Location	Age	Scope
Duurzaam Heino	Sustainability	Alternative sustainable services and cycles. Network of several parties.	energy, repair cafe, biodiversity, food and mobility	Repair Reduce Refuse	Heino	9 years	Local/Regional
Lutte Leeft	quality of life, sustainability	Locally oriented projects. With a network of citizens' associations, entrepreneurs, municipality	Energy, construction, (materials)	Reduce Refuse Rethink	Lutten	6 years	Local, regional
Beien	Safe and sustainable living	Organisation for alternative local activities	Meeting, organic food, workshop (partly circular)	Reduce Repair	Enschede	?	Local
Duurzaam Hoornhorst	ecological, economic & socially sustainable life	Network organisation for alternative sharing economy and energy.	Car sharing Compost Energy	Reduce (Refuse)	Hoornhorst	11 years	Local
50 tinten groen	Sustainability	Alternative energy supplier and sharing economy	mobility, energy, greening	Reduce	Assendorp	3 years	Local, regional
Gilde Haaksbergen	Helping community	Repair	Repaircafé, diy service	Repair	Haaksbergen	?	Local
Repaircafé Lossser	Sharing knowledge/experience	Repair café breaking linear material cycles. Works with the elderly.	Repairing and recycling. Organizing activities	Repair Recycling	Losser	25 years	
Eerlijk vakwerk	Sustainable and inclusive work	Creating alternative working methods and material flows. Networking with companies	Use bicycle tires, wood and fabrics to make new products	Reuse Upcycling Remanufacture repurpose	Kloosterhof	4 years	Regional/Nation Wide
Binthout	Optimize product life, circularity	Alternative circular cycle. Network with companies, foundations and municipalities	New products made of old wood	Re-use, recycle, Remanufacture Reduce	Zwolle	7 years	Rural, regional
Strobox	People, planet, profit	Alternative sustainable way of building houses. Social enterprise.	Building houses from sustainable reeds	Reduce Refuse Rethink	Deventer	4 years	Regional, rural

From all cases, a selection must be made of the initiatives that correspond in terms of circumstances and which are therefore comparable. All initiatives that have been considered come from Overijssel and are equal in economic and institutional conditions. Another requirement is that the motive of the initiative is circularity or, in a broader sense, sustainability. In addition to this, it must be a grassroots initiative. The initiative works on alternative methods / cycles compared to the predominant economic culture and collaborates with more than just market based parties. The latter was the case for the vast majority of the initiatives. However, for a fairer comparison, the types of activities and r-strategies should also be of the same level.

Initiatives, such as Duurzaam Hoornhorst, 50tinten Groen, Nieuwsleusen Synergy and Duurzaam Heino are all concerned with sharing economy in the field of mobility, and all apply the same r-strategies of reduce/refuse. However, many of these sharing-projects are still in a very early phase, or are on such a small scale that they share only one vehicle for instance, and which are therefore unsuitable for this research. In addition, these initiatives mainly focus on energy, whereas this research does not. There are also initiatives such as Groen Gebogen, Duurzaam Hellendoorn, Duurzaam Holten, Beien and Landgoed Algoed that focus on biodiversity and green conservation and that use the same r-strategy, which is reduction. However, this is more focused on the environment than on circularity. In addition, most of these initiatives also mainly focused on energy, and other ancillary activities, that are not comparable to each other. Also Goede Buren, Groen Gebogen, Duurzaam Hellendoorn, Landgoed Algoed, Duurzaam Heino and Beien are focused on projects with regard to food. However, these projects are quite different in nature. Goede Buren focuses on a 'packaging free' shop selling regional vegetables, Duurzaam Hellendoorn and Groen Gebogen have established an orchard and Beien has established a vegetable garden.

The initiatives that deal with the products/materials cycle seem to be the best suited for this research. WaardeRing, Groen Gebogen, Kringloop Steenwijk, Eerlijk Vakwerk, Repaircafé Losser and Binthout are all involved in the collection and reuse of certain materials. All use the r-strategy re-use and most also use repair and recycling. All these initiatives have a network that involves more than just companies and they all create alternative cycles. There are some differences in geographical size. Eerlijk Vakwerk and Waardering work with a larger regional and sometimes even national network, Binthout has a network at a national level and Groen Gebogen, Kringloop Steenwijk and Repaircafé Losser have a network at a local level.

6.2 Selected Cases

Ultimately, five cases were investigated. Binthout and Kringloop Steenwijk were not available for interviews . At Groen Gebogen, WaardeRing and Goede Buren, the necessary minimum of three interviews were conducted and documents were reviewed. However, only one interview was conducted at Eerlijk Vakwerk and at Repaircafé Losser, where also no documents were available. That is why the first three cases referred to will be leading in this research and the statements will be based on these cases. The last two cases will serve as additional information.

7   Introduction Cases

Groen Gebogen
Groen Gebogen is an association located in the village of Dalfsen that aims to make the village aware of sustainability and has as a goal to let the villagers act more sustainable themselves, according to Marjel Das. Several projects have been set up to contribute to this goal. For example, there are

projects to make different neighbourhoods in Dalfsen more energy efficient, by isolating residential buildings in new ways and by installing solar panels. Solar panels were also installed on the roof of a local industrial company to supply green energy to households in Dalfsen (Groen Gebogen, n.d.). Another project to generate energy through the local river has also been started. All this aims to make energy consumption in Dalfsen more sustainable and will contribute to circularity by preventing the use of non-reusable resources, such as natural gas, coal and oil. In addition to this, the association deals with biodiversity and ecology by the planting of an orchard, amongst other things (Groen Gebogen, n.d.).

Furthermore, it contributes to the circular economy by supporting a repair café and has recently started a circular project specifically focused on the raw materials/materials flow. This particular project focuses on plastic. For this purpose, Groen Gebogen has partnered with other parties to collect, recycle, and make new plastic bins that can be used by the people who collected the plastic bottles themselves (Dedalfsermarskramer, 2020). In this way, not only is a circular cycle created, but awareness is also created amongst the inhabitants. This was done by teaching about circularity in schools and by having children collect plastic shampoo bottles there, and this should be carried out by putting a recycle bin in the centre for further plastic refuse collection in the town. However this could not continue because of the Covid-19 outbreak.

WaardeRing
On an initiative by Stichting Kringloop Zwolle, WaardeRing was set up last year in Zwolle, in collaboration with thirteen other parties from the region. By using the already available infrastructure, a circular craft centre has been formed with the various parties in the network. The vision is that more and more discarded goods and materials in the Zwolle region must be used as highly as possible on Lansink's Ladder, in order to extend the life span of goods and achieve a higher-quality product- and material reuse. In addition to this, the initiative is used to provide vocational training and work for students from practical and VSO schools, and for young people who leave education without a basic qualification (WaardeRing, 2019). A growth model is used here, where the whole chain, and all the components that are possible in such a craft centre, are being considered. The craft centre now focuses on things that can be successful in the short term in order to further build the system (WaardeRing, 2019).

Important projects that are being carried out are the recycling of CD covers into new plastic materials, the processing of discarded wooden furniture and bed slats into new wooden products, and the reuse and recycling of discarded down duvets. In each of these projects, at least there is an involvement of a processing/recycling company, (social) training places and a collection place, such as the thrift store or the Rova (regional waste disposal service). There are also smaller projects, such as the reuse of candles, and the repurposing of leather coming from leather benches into purses.

Goede Buren
Goede Buren is a foundation, located in the municipality of Olst-Wijhe, that gives space to all kinds of social initiatives and companies that promote a sustainable economy (Goede Buren, n.d.). It was founded with the help of Olst in Transitie. The 'mission' of Stichting Goede Buren is to promote a vital, local economy in Olst and in the surrounding area, in which social value is improved and achieved with respect for people and the environment. Efforts are being made to make the inhabitants of Olst-Wijhe aware of a more ecological and sustainable life. The foundation also contributes to the social sustainability and solidarity of the municipality of Olst-Wijhe (Goede Buren, 2020).

They do this by renting a retail space in Olst and by housing ecologically and socially sustainable initiatives there. The Goede Buren Foundation, and all its participants, only work with volunteers and provide services to each other and the shop is open for three days a week.

The one and a half annual report shows that the foundation sees itself as contributing to circularity in four ways. They help reduce waste by organizing a monthly Soup Cafe serving soup to 40 to 60 people using good, over the due date, vegetables donated by a local supermarket, vegetables that would otherwise be thrown away. There is also a point of sale where packaging-free dry goods such as nuts, raisins and pasta are sold ~~without packaging~~. Recycling, by collecting and selling second-hand toys and clothes, also takes place there. In addition, the repair café helps residents every month with repairing appliances. Finally, they remanufacture clothing and fabrics that cannot be sold into shopping bags and bags (Goede Buren, 2020).

Eerlijk Vakwerk

Eerlijk Vakwerk was founded by Jan Wullink and works more like a company. Circular products are made, such as wooden medals from shredded wood, bags from used textile and old bicycle tires, and clothing made from recycled PET bottles. This is made in a special workshop by people who have a labour disadvantage. They also collaborate with textile factories. Eerlijk Vakwerk works in a business-to-business way. A company may give an order to make a product and hand over the materials/substances that need to be reused to make said product.

Repaircafé Losser

Repaircafé Losser helps locally by repairing goods that people hand in. It also separates metals from devices so that this can be delivered to the ironmonger. Appliances are also collected from the `milieustraat´ that can still be reused. It is collaborating with a care institution that offers day care to elderly people. The elderly carry out the repairs in the repair café. Workshops on reuse and repair are also being held in schools.

8 Analysis

In this chapter, the formation and stabilization of the network, expectations and learning processes of each case will be examined. It is also analysed which barriers the cases encounter and to what extent they contribute to the deepening, broadening and scaling-up. This analysis is based on the interviews conducted and on documents obtained.

For Groen Gebogen, interviews were conducted with its chairman Gerard Brakkee, the team member circularity Marjel Das and with student supervisor Martijn Oosting. Also the project design of Windesheim school, and the website of Groen Gebogen, were used. For WaardeRing, interviews were conducted with the founder/chairman of Kringloop Zwolle and the co-founder of WaardeRing, Wilma Voortman, an employee of the ROVA, Marjolein Mann, and Wouter Bos from VSO De Twijn. The project plan and the website of WaardeRing have also been looked at. For Goede Buren, interviews were conducted with Martha Beeker, Paul Hendriksen and Rita Smits; the two founders and the treasurer. The one-and-a-half year report was also looked at. For Eerlijk Vakwerk, an interview was held with the founder, Jan Wullink and for Repaircafé Losser an interview with founder Jan Prins was conducted.

8.1 Network Analysis

Under this headline, the indicators for the network of each case are analysed and assessed.

8.1.1 Broad network analysis

Groen Gebogen

Groen Gebogen has a diverse network with parties of different levels. Groen Gebogen first made contact with the Windesheim University of Applied Sciences in Zwolle for the circular project it is carrying out. These two parties and Duurzaame Dorpen Dalfsen, led by Martijn Oosting, then created a project assignment for the students of the university, who completed the project. They worked with several schools in the municipality to collect shampoo bottles or alternative plastics. The regional waste management company Rova supplies the waste bins for collecting the bottles. The plastic recycling company RPP processes the plastic into a separation bin that will be located in the city centre. The Municipality helps to collect and transport the plastic bottles/products (See Appendix 3). Within the association itself, another association, an educational institution, the regional waste management company, recycling plant, the municipality, schools and inhabitants it represents a very diverse network with parties of different levels. It has an governmental party, business party, knowledge institution, and Groen Gebogen itself as civil society organisation associated to it. Therefore we can categorize the Groen Gebogen network as a 'broad network'.

For the projects to make Dalfsen energy-efficient, there is a collaboration with other associations, Buurkracht, a solar panel supplier, an insulation company, an estate and the residents themselves, which is supported by the municipality (Groen Gebogen, n.d.). There is therefore a fairly wide network of parties involved in other projects, albeit slightly less varied than in the plastic recycling project. Therefore Groen Gebogen gets a score of 4 for this.

WaardeRing
WaardeRing has broad set of partners with different sets of specializations. WaardeRing looks at the entire chain and all parts that belong to a Craft Centre: a Logistics, Sorting and Dismantling Centre, Repair Department, Refurbish Department, Sales, Maintenance Team and renovations, Restaurant, Administration, and Finance and PR (See Appendix 4). For all projects combined, some eighteen organisations are involved in the craft centre:
• Municipality of Zwolle (scheme, money, advice)
• Stichting Kringloop Zwolle (Kringloopbedrijf, initiator)
• Noggus & Noggus Foundation (Dalfsen, Ommen, Staphorst, Hasselt)
• Cibap Design Factory (MBO)
• Thorbecke College (PrO/VMBO)
• Windesheim (HBO)
• ICT Kringloop (recycling company)
• Binthout Zwolle (Social and circular company)
• Eco Impact (start-up in the field of waste processing)
• Tiem (Labour development company)
• CAVOI (coaching target group of young people)
• ROVA (Waste Collection/Commodity Broker)
• De Twijn (VSO)
• Nature & Milieu Overijssel (social organisation/NGO)
• Blossom architecture (construction/raw materials)
• Ducky Dons
• Van Werven (infra and recycling)
• Frion (helps intellectually impaired people)

There are governmental parties, business parties, knowledge institutions, civil society organisations and intermediaries involved here. All of these parties are involved in at least one of the initiatives, to a large or to a smaller extent. For each project a waste collection organisation, a processing company and/or educational organisation are involved, at least. Many projects also get guidance and assistance from the NMO and the Municipality of Zwolle. The entire network is very broad. This

differs from project to project, but there generally is a fairly broad cooperation available for each project. Therefore WaardeRing has a broad network that is rated as having a maximum score of 5.

Goede Buren

Goede Buren has a small scale network consisting of a few suppliers of goods and of volunteers. Several foundations / initiatives consisting of volunteers work in the building of Goede Buren. Many projects arise from the network of Olst in Transitie (See appendix 2, Interview 11). Goede Buren mainly works with suppliers and volunteers, per project. In the case of the Soup Café, the local supermarket supplies the vegetables, and volunteers subsequently prepare the dishes. Residents hand in clothes themselves, or hand these in trough the Stichting Theater aan de Ijssel, for reuse or remanufacture (interview 4, interview 8). A fundraising campaign is often announced in the local newspaper and on social media. For the repair café, residents hand in items that will be repaired by volunteers. In the case of packaging-free dry goods, Goede Buren also collaborates with a local farm as supplier, and the volunteers the farmer's wares this in the shop (See appendix 2, Interview 4, Interview 8). But despite the reasonably large network, composed of volunteers, suppliers and residents, it is not broad in terms of domains or/and in scale like other cases studied. Government agencies, education/knowledge institutions and social enterprises are not, or are hardly, involved. The foundation acts independently and on its own. Therefor it scores a rate of 2 on this subject.

Eerlijk Vakwerk

Eerlijk Vakwerk has a large but not very broad network. It collaborates with various suppliers and processors in order to attain an end product. Wood chipping companies supply wood for the medals. Bicycle shops supply bicycle tires (Eerlijk Vakwerk, 2020). These materials are processed at the social workshop. Also for the label Goan! Eerlijk Vakwerk collaborated with companies/factories that process PET bottles into textiles. In general, Wullink says he works in a business to business way. A company supplies discarded clothing or other materials, and Eerlijk Vakwerk turns this into a new products for that same company. Wullink indicates that a few years ago he had been in contact with organisations, such as the municipality or province, but a collaboration was not possible then, according to him (See appendix 2, Interview 2). The available network of Eerlijk Vakwerk is therefore quite large, but not very broad. There is no collaboration with government agencies, civil society organisations, intermediaries or knowledge institutions. Therefore it scores a 2 on the broadness of its network.

Repaircafé Losser

Repaircafé Losser has a small network. It works together with the elderly care organisation that offers daytime activities to elderly people, including the activities in the repair café. People themselves can hand in equipment for repair, but waste is also collected from the municipal recycling centre. Metals are delivered to an ironmonger and workshops are also given at schools (See appendix 2, Interview 5). The network is therefore not very large or broad. Cooperation between social organisations and an ironmonger exists here. There is no active involvement of knowledge institutions, intermediaries, government agencies or multiple companies. Therefore it scores a 2 for the broadness of its network.

8.1.2 Depth of Network Analysis

Groen Gebogen

At Groen Gebogen the parties seem to be willing and able to mobilize their necessary resources, though for energy projects this can be hard sometimes. In the circular project of Groen Gebogen, Windesheim, RPP, Rova and the municipality are "very enthusiastic" according to Marjel Das (See appendix 2, Interview 3). The parties are happy to collaborate and, according to Das and Oosting, are also able to make the resources available that are necessary for the project (See appendix 2,

Interview 3, Interview 9). Groen Gebogen has sufficient manpower to set up the network, Windesheim provides enough students to set up the project, Rova provides a sufficient amount of wheelie bins, the municipality provides regular transport, and RPP makes its factory available to recycle the plastic. Each party has the will to and is able to provide sufficient resources for the implementation of the project. The resources have been made available, but collection has not yet been possible due to the Covid-19 outbreak. Otherwise, "more effort would have been made to bring it to the attention of residents," as Das stated (See appendix 2, Interview 3). For other projects, Das says it "takes a lot of effort before any steps are taken, and ensuring that each party can provide enough resources and services before the project is implemented" (See appendix 2, Interview 3). Brakkee also says that, for energy projects in particular, "other parties involved are only brought in if there surely is a need for it" (Interview 6) . According to him, the volunteers of Groen Gebogen and the Municipality show a lot of commitment. For the companies it differs per company, according to him: "We got full cooperation with that solar park. Sometimes the commitment or cooperation from local entrepreneurs is somewhat disappointing. It depends a bit on how well it goes and when you approach them, and how interesting your proposal is and things like that " (See appendix 2, Interview 6). For the recycle project available resources are mobilized. Sufficient resources are also made available for the Energy projects, but the commitment of the parties involved is variable. So Groen Gebogen scores a 4 for the depth of its network.

WaardeRing
At WaardeRing each party has the will to mobilize their resources or knowledge, however the effectiveness of some parties could be improved. Wilma Voortman believes that each party is able to make its resources available for the cooperative projects (See appendix 2, Interview 1). Kringloop Zwolle and Rova have access to a sufficient amount of raw materials. Processing and recycling parties have access to both machines and craftmanship, and the other parties have knowledge or workplaces available. According to Voortman and Bos (See appendix 2, Interview 1, Interview 10), these parties demonstrate a willingness to use and share these resources as optimally as possible. No project has had many problems, partly because the involved parties have been carefully selected.

Mann feels that they could even do better. "Part of this is down to things that we ourselves or the network can do differently, but it als has to do with legislative frameworks", she says (See appendix 2, Interview 7). According to her, some people are somewhat insecure because they still have to get used to the cooperation. Also, Rova sometimes can't quite handle the speed at which something is requested, and other smaller parties sometimes don't have the capacity to work with circularity available (See appendix 2, Interview 7). Bos said about this: "Getting something optimal, I think that's utopian, but you can see that everyone is on the same page. Everyone is involved, everyone has the same idea and everyone does their best to realise the ideal" (See appendix 2, Interview 10). So parties are willing and able to mobilize their resources but they are not always fully effective. Therefore WaardeRing scores a 4 on this subject.

Goede Buren
At Goede Buren there is a will by the involved parties to mobilize their resources but, mainly due to a lack of time and capacity by Goede Buren itself, this cannot be completely optimized. In the current ongoing projects, resources are sufficiently being made available by the various parties. There are no parties who cannot or who do not want to provide certain resources. The inhabitants of the municipality are also very involved and collect enough resources. Part of this is reflected in the figures of the one-and-a-half year report. For example, 9000 kilogrammes of clothing has been processed for reuse, 209 successful repairs have been carried out, organic vegetables have been sold on for 72 days and the waste of about 600 litres worth of vegetables has been prevented (See appendix 5). Also, through the sales of products from several initiatives, and the rent paid by them,

the foundation was (barely) able to be self-sufficient and pay for the building costs, said Beeker (See appendix 2, Interview 4).

Still, Beeker feels that the collaboration is not always fully utilized. She thinks "that more could be done in the collaboration in order to allow each party to use its strength" (See appendix 2, Interview 4). Especially with the local supermarket, she indicates that she sees more possibilities than those that are currently made available. According to her, this is due to a lack of time. About this she says: "I think the biggest factor is time. We all work with volunteers and most volunteers also work a job alongside Goede Buren " (Interview 4). Smits and Hendriksen agree with this (See Appendix 2, Interview 8, Interview 11). Beeker also finds the "cooperation between a commercial party and a non-commercial party quite difficult". Resources could therefore be used even better (See appendix 2, Interview 4), especially if Goede Buren themselves have more time and knowledge at their disposal. Therefore it scores a 3 on the depth of it's network.

Eerlijk Vakwerk
At Eerlijk Vakwerk all involved parties are able to mobilize their resources, though this is never optimal. Eerlijk Vakwerk used to have problems finding partners but now has no problems with mobilizing resources. A few years ago, Wullink wanted to set up another project in order to enter into a permanent partnership with several parties. However, he noticed that "people, companies and also municipalities and the province were still a bit wary of this". They didn't seem to understand what was possible. With the parties he now works with for the various projects, each party is able to provide the services or products that are required. However, Wullink does state that it is "never optimal". It can always be improved. But in the current operation, each party is able to provide the resources that are required (See appendix 2, Interview 2). Therefore it scores a 4 on this subject.

Repaircafé Losser
Prins (See appendix 2, Interview 5) indicates that the cooperation with the elderly care organisation in particular is unclear from time to time. It may be unclear when the repair café will receive compensation because they themselves are not part of a care organisation but are more a part of a social cultural work. Nevertheless, he has the impression that this has no further influence on the exchange of resources and the implementation of projects. Prince indicates that volunteers always aim to do their job optimally, although it sometimes can be seen as being too slow. The parties with which they work also make sufficient time and resources available. It therefore scores a 4.

8.1.3 Division of roles Analysis

Groen Gebogen
At Groen Gebogen the roles were well arranged for the plastic recycling project but in general Groen Gebogen has had some trouble making every party to put in sufficient effort equally to its projects. Das argues that in many projects it is ultimately the case that "Groen Gebogen wants something, and that it is sometimes very complicated to get it done" (See appendix 2, Interview 3). This is in line with Brakkee's statements that the efforts of some companies are sometimes disappointing (Interview 6). Groen Gebogen therefore has to pull the wagon sometimes. However, both Das and Brakkee indicate that the parties will only get involved when it is clear what they have to do (See appendix 2, Interview 3, interview 6). Oosting indicates that, for the recycling project, they "just had a number of consultations with everyone and that out of this the conclusion quite logically came what everyone's task was " (See appendix 2, Interview 9). Furthermore, the students were "given the responsibility to arrange it themselves above all" (See appendix 2, Interview 9). In the recycling project, the roles were clearly divided between the parties. Das thinks there were fewer obstacles for the recycling project because all resources were already available and there was enthusiasm amongst all the organisations involved. So the division of roles are clear for the recycling project but for other projects the roles

sometimes are somewhat more unequal. Therefore Groen Gebogen scores a 4 on the division of roles.

WaardeRing

At WaardeRing tasks are clearly divided based on the parties' competences. According to all interviewees, there is a clear division of roles within WaardeRing, in which a certain core team has been established. "Some parties are involved because they actively think along and cooperate, because they are also part of the core team or are really part of activities, whereas others are only involved because they are one of the buyers of our raw materials," says Voortman (See appendix 2, Interview 1). So there is a core team that does brainstorm and also does the organisation of the activities. "Everyone is involved in their own organisation and understands what their role is within their own organisation," says Mann (See appendix 2, Interview 7).

According to Voortman, the projects are initially not based on a division of roles/composition. 'There is a potential flow of raw materials and then we look at how that could be marketed and which parties can be involved' (See appendix 2, Interview 1). WaardeRing lobbies for parties, who can help and contribute to WaardeRing. The involved parties have already been selected on their possible contributions. The project plan (See appendix 4) and the website of WaardeRing (2020) show that the capacities per party are clear and based on this selection process. Tasks seem therefore to be clearly divided and every party contributes to the project according to their competences. So WaardeRing scores a 5 on the division of roles.

Goede Buren

At Goede Buren there are not predefined set-up roles, but there are also no problems with the divisions of tasks. According to Beeker, it is not necessary to set up a clear division of roles between the various parties in advance, but she says that everyone's own task is clear once they are working on the projects (See appendix 2, Interview 4) . Hendriksen says that for every project it is clear 'who does what, and who needs what' (See appendix 2, Interview 11). Smits also states this, and explains that within the organisation itself there is also a certain division of roles between the overarching board and the participants (Interview 8). Hendriksen calls a project a collective project, where Goede Buren acts as the management foundation, but "everyone who is a co-user of the building is also partly responsible for the functioning as a whole" (See appendix 2, Interview 11). Beeker also claims that there is an inner circle of volunteers/parties who are always involved in activities in the store, and a kind of outer circle that is not (See appendix 2, Interview 1). So for parties their tasks are clear and they contribute accordingly. Goede Buren therefore scores a 5 on the division of roles.

Eerlijk Vakwerk

The division of roles at Eerlijk Vakwerk is clear. This is mainly because Eerlijk Vakwerk functions more like a company (See appendix 2, Interview 2) . Every party that cooperates knows what it needs to do. Projects where this was not possible have been cancelled. The competencies are used well. Eerlijk Vakwerk thus scores a 5 on the division of roles in its projects.

Repaircafé Losser

At Repaircafé Losser the roles are clear, but sometimes the repair café itself needs to push its partners a bit to get active. Prins indicates that the cooperation with the elderly care organisation is sometimes still relatively unclear. The cooperation with the schools and the ironmonger is clear according to him. Parties also seem to take the initiative themselves, but sometimes, 'they need to be pushed a little bit´, before they start working on it (See appendix 2, Interview 5). So the tasks are mostly clear and effort is put in equally, but only after some stimulation. So it scores a 4 on its division of roles.

Table 9: Scores on formation and stabilization of network

The Formation and Stabilisation of a Social Network						
Groen gebogen 12		1	2	3	4	5
A	The composition of the network is broad (insiders, outsiders)				X	
B	The composition of the network is in-depth (mobilisation means)				X	
C	There is a clear division of roles				x	
WaardeRing 14		1	2	3	4	5
A	The composition of the network is broad (insiders, outsiders)					X
B	The composition of the network is in-depth (mobilisation means)				X	
C	There is a clear division of roles					X
Goede Buren 10		1	2	3	4	5
A	The composition of the network is broad (insiders, outsiders)		x			
B	The composition of the network is in-depth (mobilisation means)			X		
C	There is a clear division of roles					X
Eerlijk vakwerk 11		1	2	3	4	5
A	The composition of the network is broad (insiders, outsiders)		x			
B	The composition of the network is in-depth (mobilisation means)				X	
C	There is a clear division of roles					X
Repaircafé Losser 10		1	2	3	4	5
A	The composition of the network is broad (insiders, outsiders)		x			
B	The composition of the network is in-depth (mobilisation means)				X	
C	There is a clear division of roles				x	

8.2 Analysis of goals and expectations

In this section the indicators for the goals and expectations of each case are analysed and assessed.

8.2.1 Innovation analysis

Groen Gebogen
At Groen Gebogen only incremental innovation can be seen. It builds on existing developments. Existing technologies and business models are being used for its circular projects but there are no clear plans to create new technologies, product designs or business models. There are also no expectations to do so here. The plans are mainly to further apply and improve existing technologies of circularity. So for innovation goals Groen Gebogen scores a 1 here.

WaardeRing
At WaardeRing the goal is not only incremental innovation but also some form of disruptive innovations. There are some innovative applications of technology at WaardeRing. In addition to the normal expectations to reduce the share of residual waste and to expand (high-quality) recycling processes, WaardeRing also has deeper expectations. It gives upcycling special attention for instance. Refurbishment and remanufacture are used to teach young people a craft whilst increasing the supply of reused goods (See appendix 4). In addition, the project plan expresses the ambition to

conduct research into promising waste volume flows. Students of Windesheim have to research suitable new goods and material flows in Zwolle. Knowledge of Windersheim's Greenpac/i-lab can help to look specifically at the processing and disposal possibilities of goods that (mainly) consist of plastic in the field of plastics. New pilots can be based on this. Students of the Cibap design factory are also used to come up with new refurbishment designs and possibly apply these in new projects (See appendix 4). Although there are no ambitions to design new innovative (first-hand) product designs or technologies, there are ambitions to discover new usable materials and new types of reuse and refurbishments. The initiative explores how to apply new product flows. Therefore it scores a 3 on innovation goals.

Goede Buren
The projects of Goede Buren are circular but not innovative. No innovative product designs, technologies or business models are being designed. In general, their expectations speak of making Olst more sustainable, but not about researching new ways to do so. There are no specific expectations related to exploring new ways of designing or producing . So Goede Buren scores a 1 on innovation.

Eerlijk Vakwerk
Eerlijk Vakwerk only has incremental innovation. It does not really come up with new product designs, technologies or business models, although wood, bicycle tires and textiles are remanufactured or recycled in an original way. In general, the initiative mainly builds on existing developments. However, according to Wullink, it is always examined whether substances can be used in a different way to create new products. But they do not investigate new technologies by themselves (See appendix 2, Interview 2). Therefore Eerlijk Vakwerk scores a 2 on innovation.

Repaircafé Losser
At Repaircafé Losser there is only incremental innovation. According to Prins, the concept of a repair café was quite innovative when it started, but there are now many repair cafés on the market (See appendix 2, interview 5). Here repair, metal separation and workshops are given. However, there are no innovative product designs, technologies or business models or new applications of existing technologies being pursued here. Repaircafé Losser scores a 1 on innovation.

8.2.2 Shared Expectations analysis

Groen Gebogen
At Groen Gebogen the involved parties have different personal expectations, but they overlap each other. For some projects clear expectations are set up in advance. For the recycling project both Brakkee and Oosting say that the parties involved have different interests. However, they do think that these all overlap with the goal of the Groen Gebogen working group to increase awareness (See appendix 2, Interview 6, Interview 9). According to Oosting, the recycling company and the municipality mainly wanted to show that they could make a product from the plastic material, while for Groen Gebogen it was mainly about raising awareness (See appendix 2, Interview 9). For Windesheim it was important that the students were to learn to organize something like this. "So it is overlapping. One will place more emphasis on communication and the other a little more on the physical result, "says Oosting (Interview 9). Brakkee also says that they often "bring together the different views and interests in such a way that everyone is satisfied and that you still achieve what you want to achieve" (Interview 6).

According to Das it does differ per project, however. She also explains that for the project to install solar panels on the roof of a company a clear business model has been used because "a corporation

is behind it and the board will be held accountable to the members". Clearer expectations have therefore been set in advance with all parties involved (See Appendix 2, Interview 3). Even though expectations are not always exactly the same for the involved parties at Groen Gebogen, they overlap. So it scores a 4 for shared expectations.

WaardeRing

At WaardeRing there are shared expectations. Parties have different interests but they are committed to the same goal. Voortman tells that she thinks that the parties within WaardeRing have the same expectations (See appendix 2, Interview 1). The core parties set up the craft centre and submitted the project plan for its subsidy application to the national ministry. They therefore jointly share aan established goal and problem definition. Mann thinks that this startup process will at least ensure that the core team has the same expectations (See appendix 2, Interview 7). In the collaboration Voortman says that despite different interests, there are few contradictions in expectations: "I can imagine that an entrepreneur has a different motivation. Look, I have my motivation to resell as much stuff as possible, for the lowest possible cost and the highest possible price. And another party naturally wants to have as many raw materials as possible for the lowest possible price. That is logical, of course, but I do not feel that it pinches anything. I do have the feeling that everyone understands that we can only work together if there is a reward for everyone. Not that one overrules the other. I think that is going very well " (See appendix 2, Interview 1). Bos also indicates that the idea is to only involve those parties that are committed to the same interests for people and the environment (See appendix 2, Interview, 10). At WaardeRing different expectations also overlap enough with each other to serve the common goal. Therefore WaardeRing scores a 4 on this subject.

Goede Buren

Even though there are no clearly stated expectations at Goede Buren it is ensured that involved parties and people have similar expectations. Beeker explains that certain (social/sustainable) target groups that get a place in the foundation have been defined, so that they contribute to the goal of a socially ecological and sustainable Olst. It is therefore ensured that, within the foundation, people have the same expectations (See appendix 2, Interview 4). However, Smits does feel that some members may do this more as an activity than for a sustainable goal (See appendix 2, Interview 8). However, it seems clear for each project what each party wants to achieve with the cooperation. But collectively, no particular expectation or problem definition has been drawn up. However, Hendriksen does explain that the purpose of awareness has been clearly discussed with the supermarket prior totheir collaboration (See appendix 2, Interview 11). Not at every project expectations are clearly discussed, but these are basically aligned. Therefore Goede Buren scores a 4 on shared expectations.

Eerlijk Vakwerk

At Eerlijk Vakwerk the parties involved share the same expectation as Eerlijk Vakwerk itself does. Wullink said that the parties whom he works with, and for whom he carries out projects, have a 'common expectation in promoting sustainability'. He indicates that this is also the reason why parties usually discoverEerlijk Vakwerk. They are not so much interested in the product per se, but more in the sustainable message. One may find one factor more important than the other, but this expectation is shared (See appendix 2, Interview 2). Therefore it scores a 5 on shared expectations.

Repaircafé Losser

It is jointly discussed what will need to be done. It is agreed not only between the volunteers themselves, but also with the care providers, as to what kind of work the elderly will do (See

appendix 2, Interview 5) . Expectations about the way of working are therefore shared. Repaircafé Losser scores a 5 on shared expectations.

8.2.3 Circular goals/expectations analysis

Groen Gebogen
At Groen Gebogen the goal to contribute to circularity exists. According to Das, there was 'an intrinsic motivation to do something with circularity' (See Appendix 2, Interview 3). The expectation, to remanufacture the recycled bottles into another product that the same people can use, is circular. The project design also states that 'the aim of the project is to make Dalfsen more circular' (See appendix 3). Groen Gebogen wants to make circularity as viable as possible for people in the village. There is plenty of evidence that their expectations were circular. However, the broader approach of the organisation is to create more sustainability in general. With its projects the initiative contributes to a circular form of economy. It therefore scores a 5 on circular expectations.

WaardeRing
WaardeRing's goals are circular. Voortman says that the goal varies from project to project but that the organisation always tries to reuse raw materials, as highly as possible on Lansink's Ladder (Interview 1). The project plan aims to ensure that "more and more discarded goods and materials in the Zwolle region get the highest possible application on the Lansink Ladder (r-Ladder)" (See appendix 4). Mann says that the objectives are circular in a broad sense, "but that there are also objectives in a more social field. For me, this is also part of a circular economy, but it is not about the raw materials" (See appendix 2, Interview 7). The project plan also aims to "provide vocational training and work to pupils from practical and VSO schools, as well as to young people who are now leaving education without a starting qualification. The project will allow MBO/HBO students to gain work and business experience in a circular economy" (See appendix 3). So WaardeRing aims to work circular. It scores a 5 on this subject.

Goede Buren
Goede Buren's goals are circular. In the report, Goede Buren states that their mission is to promote a vital, local economy of Olst and its surroundings, in which they work towards social added value with respect for people and the environment (Goede Buren, 2020). Beeker argues that what they do should always 'contribute to a greater social and ecological sustainability of Olst' (Interview 4). The report describes this as consuming differently or less, using energy more efficiently, reducing waste and reusing goods. It also states that Goede Buren wants to support and stimulate a circular economy in Olst-Wijhe (Goede Buren, 2020). The projects are then linked to Lansink's Ladder. The expectations can therefore be considered circular. Goede Buren scores a 5 on this.

Eerlijk Vakwerk
At Eerlijk Vakwerk circular expectations also exist. Materials are reused to make new products. Wullink also expresses the goal that people can return their products to Eerlijk Vakwerk after use so that these can be reused again, in order to make the process completely circular. The expectation is ultimately to promote sustainability/circularity through the recycling or refurbishing of products (See appendix 2, Interview 2). So also Eerlijk Vakwerk scores a 5 on circularity.

Repaircafé Losser
According to Jan Prins, Repaircafé Losser does not express specific goals about circularity. But the work itself, repair and recycling, does contribute significantly to circularity (See appendix 2, Interview 5). The aim of the workshops held in the school, however, is to raise some awareness about circularity. He further says that the goal of separating the different metals is mainly 'money driven',

because they can get more money from the ironmonger. Therefore Repaircafé Losser scores a 4 on circular expectations.

8.2.4 Specific end goal with intermediate goals

Groen Gebogen
At Groen Gebogen it differs per project whether there is a specific end goal. There are no intermediate goals. In the case of circularity, there is a specific vision on this. Das and Brakkee say that a "dot on the horizon" has been set where they only want a certain amount of (residual) waste per person in a certain year (See appendix 2, Interview 3, Interview 6). This is in line with the objective of the municipality. This is also mentioned in the project design: "The amount of residual waste per person is 56 litres per person per year and the goal is to reduce the amount to 30 litres by 2020" (See appendix 3). That is why Dalfsen needs additional projects and ways to tackle the reduction of residual waste, such as this project proposes. For the recycle project, there were plans to make usable products from recyclable material as well as to increase awareness amongst the residents of the municipality. However, there were no specific goals expressed in numbers or other concretizations. There were also no intermediate goals set. As said before, there are differences between projects. Because the solar panel project on the industry terrain has a clearer business model the goals are more precise there, according to Das (See appendix 2, Interview 3). So Groen Gebogen has a specific end goal for waste management in general. For the recycle project there is an end goal but this is not expressed very specifically and has no intermediate goals. For other projects this differs, where sometimes specific goals. And sometimes no specific goals have been set. So Groen Gebogen scores a 3 on this subject.

WaardeRing
WaardeRing as a whole has formulated specific end goals. Per project this differs however. There are no clear intermediate goals set but here there are trial phases. WaardeRing has two general goals. One is to apply discarded goods as high as possible on the Lansink Ladder and the second one is to create workplaces and experiences for students and for young people without a formal start qualification. In the project plan this is further divided into three more specific goals. The first one of those is better and more dismantling and separation of goods and materials that arrive at the thrift shops whereby the recycling centre must ensure a more and higher-quality application. Secondly, the use of repair and refurbishment as a means to teach young people a craft as well as to increase the supply of reused goods. And thirdly to create more demand for re-used goods by reaching new target groups. As a result, the sales and donation of recycled goods will increase and there will be more work and training places coming from this as a consequence. This must include a new 'lifestyle shop' in the town's centre. Specific figures are also given for these three goals. For example, the share of residual waste, that is released at the thrift stores, must decrease from 15% currently to 8% (approximately 90,000 kilogrammes less residual waste). Through upcycling and sales in the lifestyle shop, the share of goods sold must increase by 4% (70,000 kilogramme) (See appendix 4).

However, the goals differ per project and are therefore often less specific, according to Voortman (See appendix 2, Interview 1). The basis for this remains the vision of the Ladder of Lansink, however. The possibilities for each product/raw material flow are examined. The project plan has overarching goals, but "of course we do not know on which raw material flow this will work and that is why the project was set up" (Interview 1). An interim evaluation will take place within the core team. There do not appear to be any intermediate goals that have been set for the projects themselves. However, according to Mann and Bos, a kind of trial phase is set up for each project before it

becomes fully operational (See appendix 2, Interview 6, interview 9). So WaardeRing has specific end goals which it wants to attain trough its projects. However, the projects themselves have less specific end goals. There are no intermediate objectives, but there are trials phases. Therefore WaardeRing scores a 3 on end goals and intermediate goals.

Goede Buren
Certain project objectives are set at Goede Buren. Some are stricter than others, according to Hendriksen, who states that the possibilities are often thoroughly researched in advance (Interview 11). Smits and Beeker do indicate that no specific or measurable objectives have been set for the projects (See appendix 2, Interview 8, Interview 4). This is also evident from the report (See appendix 5), which does set a general ambition to further develop and expand activities, but which names no specific end goal. Beeker states that there is an "overall idea" on where they want to go. But there are no specific final goals or intermediate goals set. Goede Buren scores a 2 on this subject.

Eerlijk Vakwerk
Wullink states that at Eerlijk Vakwerk there is a general expectation/objective to promote sustainability. There are no specific end goals in which it is expressed what needs to be achieved, because everything is still fairly new (See appendix 2, Interview 2) . No intermediate targets have been set. So there a vision exists but no specific goals have been set. Eerlijk Vakwerk scores a 2 on end goals.

Repaircafé Losser
According to Prins, there is talk of what will be done but no specific goals have been set. Since Repaircafé Losser works with the elderly, Prince says that they take an open approach, and when things get too complicated they will alert people (See appendix 2, Interview 5). There is no end goal set and intermediate targets are also not used. Repaircafé Losser thus scores a 1 on end goals and on intermediate goals.

Table 10: Scores on formation and stabilisation of strategies and expectations

The formation and stabilisation of strategies and expectations						
Groen Gebogen 13		1	2	3	4	5
A	Innovation	X				
B	Expectations match / shared problem definition				X	
C	Expectations focus on circularity					X
D	There is a specific vision with concrete intermediate objectives			X		
WaardeRing 15		1	2	3	4	5
A	Innovation			X		
B	Expectations match / shared problem definition				X	
C	Expectations focus on circularity					X
D	There is a specific vision with concrete intermediate objectives			X		
Goede Buren 12		1	2	3	4	5
A	Innovation	X				
B	Expectations match / shared problem definition				X	
C	Expectations focus on circularity					X

		1	2	3	4	5
D	There is a specific vision with concrete intermediate objectives		X			
Eerlijk Vakwerk 13		**1**	**2**	**3**	**4**	**5**
A	Innovation		X			
B	Expectations match / shared problem definition				X	
C	Expectations focus on circularity					X
D	There is a specific vision with concrete intermediate objectives		X			
Repaircafé Losser 10		**1**	**2**	**3**	**4**	**5**
A	Innovation	X				
B	Expectations match / shared problem definition				X	
C	Expectations focus on circularity				X	
D	There is a specific vision with concrete intermediate objectives	X				

8.3 Analysis of learning processes

8.3.1 Learning Goals Analysis

Groen Gebogen
At Groen Gebogen there are no specific predetermined learning goals. According to Das and Oosting, they had the goal of designing the plastic recycle project in such a way that it could be repeated several times and possibly improved (See appendix 2, Interview 6, Interview 9). But they do not indicate specific learning goals, nor are they involved in the project design. However, there was a goal for the students to learn new organisational skills, but no concrete learning objectives have been formulated. Groen Gebogen scores a 1 on this subject.

WaardeRing
At WaardeRing clear learning goals have been set. The project plan of WaardeRing (See appendix 4) aims to explore new promising volume flows, and possibly apply these immediately in new pilots or collaborations . Students of Windesheim need to investigate which flows of goods and materials are suitable for attaining high-quality sales opportunities within the context of Zwolle. WaardeRing wants to use the knowledge of Greenpac/i-lab and Polymer Science Park in the field of plastics to look specifically at the processing and disposal possibilities of plastic goods. They also wish to test that in pilots. In addition, WaardeRing wants to use students from the Cibap design programme to come up with new designs for the refurbishment and the reuse materials (See appendix 4). Certain goals have thus been set to learn which new product flows can be applied and how to apply these. The interviewees have confirmed this information (See appendix 2, Interview 1, Interview 5, interview 10). However there is no hard focus on specific results. WaardeRing therefore scores a 4 on learning goals.

Goede Buren
Within Goede Buren it is evaluated what can be done better but no goals are set in advance as to what they want to learn from the projects. Smits says that they learn from the projects but that there are no learning goals as such (See appendix 2, Interview 7). The one and a half year overview (See appendix 5) does not mention learning objectives either. However, Goede Buren keeps exploring new possibilities. Hendriksen says that this is "not the main approach in the first place". It's about

being able to accommodate all these different initiatives that we want to be an inspiration for. But that's more so that 'others' can learn from it" (See appendix 2, Interview 11). Thus Goede Buren has no concrete learning objectives and therefore scores a 1 on this subject.

Eerlijk Vakwerk
According to Wullink, at Eerlijk Vakwerk, they always look for another product to make in a different way (See appendix 2, Interview 2). But he does not mention goals that are set in advance pertaining to about what needs to be learned from the projects. The possibilities are explored but there are no concrete learning objectives. Eerlijk Vakwerk scores a 1 on this subject.

Repaircafé Losser
Within Repaircafé Losser it is taught how to repair certain devices, but no specific learning goals have been set in advance, according to Jan Prins (See appendix 2, Interview 5). Repaircafé Losser scores a 1 on learning goals.

8.3.2 Broad Learning Analysis

Groen Gebogen
At Groen Gebogen there is some knowledge on how to apply projects outside their own context. For the circular plastic recycle project, according to Das, they started to think about what circularity was, and how they could implement it (See appendix 2, Interview 3). Brakkee thinks that the people who work on the projects learn new things from it (See appendix 2, Interview 6). Oosting had the idea, at the plastic recycling project, that everyone already knew a lot about circularity and didn't necessarily learn many new things about circularity (See appendix 2, Interview 9). Through the schools the recycling project also tried to involve as many people from the village as possible in order to educate residents. Brakkee says: "The common thread is always: you have to let people do as much as possible themselves and you have to celebrate success. That celebration of success creates consciousness" (See appendix 2, Interview 6). Residents are therefore involved, or are being kept informed as much as possible, in order to raise awareness about circularity/sustainability.

Brakkee thinks that the projects of Groen Gebogen are generally applicable outside Dalfsen itself. That is not a first objective, he says, but evolves during the process (See appendix 2, Interview 6). Oosting explains that, "as an association we are focused on our own municipality. That's where our focus is. Anyway, if you have a good idea on what is easy to apply elsewhere, then you should not fail to share it" (See appendix 2, Interview 9).
About the circular recycling project, Das has less of an idea of how this could be applied in situations other than in Dalfsen, partly because it is still quite new (See appendix 2, Interview 3). However, Oosting explains that it has been prepared in advance in order to be applied more broadly. "We actually said, make a plan to execute it but make it a generic plan, so that it could be applied elsewhere too. So I think you can copy the idea and the concept to other municipalities" (See appendix 2, Interview 9) . Even after implementation, it remains to be seen whether a project can actually be used on a larger scale or elsewhere. So involved parties learn about circularity and projects could possibly be applied in other places, but on the recycling project some different opinions exist. Groen Gebogen scores a 4 on broad learning.

WaardeRing
At WaardeRing knowledge is shared with other regions, and some of their projects can be applied outside their own context. Within WaardeRing they learn about circular applications in general, and several people/companies are confronted with circular thinking, where they may not have done so

previously. Changes in cognitive frameworks and assumptions are therefore possible for the parties that previously have not been much concerned about circularity. Voortman believes that the municipality and the province also see the value of the thrift stores and the network through the cooperation (See appendix 2, Interview 1). However, the learning in WaardeRing is mainly focused on the development of existing ideas and on initiatives (in circularity) (See appendix 4). The intended final evaluations look at the organisational form and applications though, where each party can learn from these.

The interviewees have the idea that knowledge gained within WaardeRing is not only applicable within their own context but also on a broader level (See appendix 2, Interview 1, Interview 7, Interview 10) . Bos indicates that what is done with WaardeRing is shared with other regions. Schools share knowledge with other schools, and other institutions also share information amongst each other. According to Bos, what these parties share can also be done in other municipalities. He said that it also helps that the Rova region is transcendent (See appendix 2, Interview 10). Voortman also explained that they already shared knowledge about certain projects at a national level within the branch association of thrift shops. There tips are given and it is explained how a project worked and how others can apply it in the same way. She also indicates that the projects provide lessons on how regulations generally affect circular projects (See appendix 2, Interview 1). Learning experiences are therefore linked back to the social task. Involved actors thus learn about circularity in general and how projects can be applied outside their own context. WaardeRing scores a 5 on broad learning.

Goede Buren
At Goede Buren they are willing to share knowledge with others. Since the creation of Goede Buren, Beeker noticed that they attract different kinds of volunteers than before when she was only the president of Stichting Bij de Buren. Volunteers, but also regular visitors, seem to learn not only about the projects and the activities themselves, but also seem to really learn about circularity in the broader sense (See appendix 2, Interview 4). Also Hendriksen indicates that volunteers are now drawn by the new total concept of circularity. "This mix does raise awareness about the different aspects of sustainability and how to promote it" (See appendix 2, Interview 11). Beeker also notes that certain interested parties, such as the local supermarket, are now more open to sustainable cooperation (See appendix 2, Interview 4). Thoughts and assumptions are adapted by those involved in the projects.

Beeker believes that the experiences and knowledge gained can also be applied outside of Olst and their own organisation (See appendix 2, Interview 4). Hendriksen says that inspiration is passed on and that there is also interest from neighbourhood villages, but whether something can be applied elsewhere depends on many different factors, such as the availability of a suitable building and enough initiatives that can carry it. He says that they are willing to share knowledge, at least (See appendix 2, Interview 11). Involved actors learn about circularity in general, and the projects could be applied outside their own context. So Goede Buren scores a 5 on broad learning

Eerlijk Vakwerk
Wullink indicates that every project is a learning process. "We always try to change and improve the process" (See appendix 2, Interview 2). He says he does not fully know whether the projects of Eerlijk Vakwerk can be applied in a broader context. However, Wullink says that they try their best to propagate that what they do, which other organisations could do as well (See appendix 2, Interview 2). Thus involved parties learn about circularity, but there is uncertainty whether their projects can be applied in other contexts. Eerlijk Vakwerk scores a 3 on broad learning.

Repaircafé Losser
Jan Prins explains that what Repaircafé Losser does could be applied in a different context practically, but this does not happen. Repairing is taught to people in the region who are interested in it, but it

does not reach any further than the business association perhaps. Other organisations couldn't really take this over. It may be possible to do so, but, according to Prins, those other organisations should put more effort into it. So it has not been consciously considered whether the concept of Repaircafé Losser can be applied elsewhere. Nor do they think much about circularity in general, Prins says (See appendix 2, Interview 5). Therefore Repaircafé Losser scores a 2 on broad learning.

8.3.3 Social learning Analysis

Groen Gebogen
At Groen Gebogen involved parties share knowledge and, in some cases, it is also possible to apply this. Both Das and Brakkee have the idea that parties in the different projects learn from each other and that they possibly apply that what they learn. But to what extent that happens is hard to say (See appendix 2, Interview 3, Interview 6). Oosting thinks that, in the case of the circular recycling project, the parties involved have learned how to carry out the project together, but that they have not learned new things that they can apply themselves. He thinks that the students in particular have learned a lot from it (See appendix 2, Interview 9). Residents seem to learn a lot from the energy projects and how to apply these to their own homes (See appendix 2, Interview 3, Interview 6). Knowledge is shared and taken over by parties, but not by every party in the recycle project, however. Hence, Groen Gebogen scores a 4 on social learning.

WaardeRing
At Waardering knowledge is shared amongst partners and is taken over by them for use by themselves. According to the project plan (See appendix 4), there are evaluations at the end of projects where cooperation is 'anchored'. Bos says that they meet regularly in order to share knowledge with each other (See appendix 2, Interview 10). According to Voortman, the parties involved also try to incorporate the knowledge gained in the WaardeRing projects within their own organisations, especially at the municipality. Knowledge is shared with each other and, where possible, also with parties outside of the network (See appendix 2, Interview 1).

Mann says, "I certainly think that a lot is being learned, if only so that the parties in the network understand much better of each other how they work, what they need and what they encounter. But also in a very practical sense, of what can be done with materials or with certain product flows. And how you can arrange things and how you set up and maintain such a collaboration. I think we're all really learning a lot from that. To what extent this is also applied by all parties, I find the latter very difficult to assess" (See appendix 2, Interview 7). So knowledge and practical information is shared and taken over by the parties involved. WaardeRing thus scores a 5 on social learning.

Goede Buren
At Goede Buren knowledge is shared amongst partners but in a limited way. Hendriksen says that the mix of initiatives at Goede Buren brings people, who are not in each other's bubble, into contact with each other. "In particular, mixing social sustainability with ecological sustainability brings really different people together who are involved in this" (See appendix 2, Interview 11). Although the parties involved seem to learn from their collaboration for each project, Beeker thinks that this could be done better between the different project groups. There are a few people who walk from project to project, but the people who work on different initiatives see each other very little, in general. "The transfer of what you do and what you learn from it to another group is quite difficult. You don't often meet each other, so that knowledge is contained in a limited group of people, and we always try to pass it on. Only a few people walk back and forth between all the groups, " (See appendix 2, Interview 4). The transfer of knowledge from one group of volunteers to another is difficult, she says.

Beeker and Smits also feel that the parties they collaborate with generally become more aware of circularity (See appendix 2, Interview 4, Interview 8). Beeker cites the local supermarket as an example that is increasingly open to new things, in particular. Hendriksen adds that this is limited. For suppliers, such as suppliers of organic vegetables, not much new is learned in terms of applications (See appendix 2, Interview 11). Involved parties share and learn new knowledge depending on how much prior knowledge they had. Some parties learn new things, and others don't. Between volunteers sometimes the transfer of knowledge is also not possible. Goede Buren scores a 3 on Social learning.

Eerlijk Vakwerk

At Eerlijk Vakwerk knowledge is shared and learned. Whether it is taken over and applied is unsure. In general, Eerlijk Vakwerk works on behalf of parties that are already focused on sustainability. Still, Wullink thinks he can give them something. A certain awareness amongst the people of the company. According to him, every project is also something new, where the people within Eerlijk Vakwerk themselves gain new knowledge (See appendix 2, Interview 2). So knowledge is shared but it is unlikely that besides creating awareness it is taken over and applied by parties themselves. So Eerlijk Vakwerk scores a 3 on social learning.

Repaircafé Losser

Repaircafé Losser shares knowledge that can be applied by/to other repair cafés, but the involved parties do not do so .Jan Prins indicates that the parties with which they cooperate do not learn much because they are commercial companies. There is more contact about what they want than taking over circular things themselves. Within the repair café itself, the volunteers/elderly learn from each other. Also, on online platforms and meetings knowledge about repairing is shared with other repair cafés and knowledge is therefore also acquired and applied (See appendix 2, Interview 5). Most parties involved do not use any of the knowledge gained about circularity. But the elderly themselves learn much, and a lot of specific knowledge on repairing is shared with similar repair cafés. Repaircafé Losser gets a 3 for Social learning.

8.3.4 Targeted experimentation analysis

Groen Gebogen

At Groen Gebogen there is no targeted experimentation. Brakkee says about Groen Gebogen's projects that he doesnvt really see this as an experiment: "I don't think that we say, this is the standard method, so let's try it differently to see if it works better. That's also because in most cases it's just another quest for everyone. Look, we do innovative things, but we don't necessarily do that because we think, let's do it differently to see what goes better " (See appendix 2, Interview 6). So there is no targeted experimentation. "You are looking for a solution to an issue you encounter" (See appendix 2, Interview 6). According to Das, the recycle project is designed to be able to be carried out over several years. Opportunities to experiment with new versions exist, but there are no plans to do so for the time being (See appendix 2, Interview 3). However, according to Oosting, the type of plastic that was recycled was new to the factory in Nieuwsluijsen, which was therefore an experiment for them. But besides this new material there is no active experimentation at Groen Gebogen, and there is no purposely done comparison of different practical situations. So Groen Gebogen scores a 2 on targeted experimentation.

WaardeRing

At WaardeRing targeted experimentation takes place but this is not always possible. WaardeRing experiments by researching new promising volume flows and by testing these in pilots and in collaborations (See appendix 4). The knowledge gained is also tested here. The interviewees also see

it that way (See appendix 2, Interview 1, Interview 7, Interview 10). However, Voortman states that it is not possible for each project to experiment with the way in which it is set up or implemented. Each project is different because projects depend on many factors. "We depend on the manual labour that a school can supply and we also depend on the way in which the buyers want the raw materials or the way in which we want to have it ourselves and whether it is a large or small scale project. You can't really say, we´ll do it differently. You do it every time in the way that suits that particular raw material " (See appendix 2, Interview 1). The projects themselves can be regarded as experiments, but within these targeted experiments with the design/implementation cannot be done. Ultimately it can be said that deliberate experimentation is taking place at WaardeRing where possible. New circular applications of materials are being tested, but within those project there is no room for experimenting with different executions of the plan. Hence WaardeRing scores a 3 on targeted experimentation.

Goede Buren
At Goede Buren there is not a lot of room experimenting within the various projects. Beeker states that "there is experimenting with small things... but not on a large scale," (See appendix 2, Interview 4). Smits sees projects, such as the project with the dry goods, as a kind of try-out in the beginning (Interview 8). Hendriksen indicates that experimentation is done to a limited extent but is not done radically. "You can't really afford that, I think if you really want to run a shop you can´t do things completely differently and see how it turns out, because there is also the need for money to be made" (See appendix 2, Interview 11). So at Goede Buren there is no active experimentation as to explore different applications of the project, however different applications on small subjects. It scores a 2 on targeted experimentation.

Eerlijk Vakwerk
At Eerlijk Vakwerk they purposely experiment with different materials. According to Wullink, at Eerlijk Vakwerk they always look at whether they can make another product in a different way. Now, for example, they are experimenting whether they can do something with bamboo or rice waste instead of plywood. 'So we always consciously look at whether materials can be processed in other ways' (See appendix 2, Interview 2). However, once materials are applied the application of the project is not changed. At Eerlijk Vakwerk targeted experimentation with materials exists but the concept of how the projects are carried out is not changed . Eerlijk Vakwerk scores a 3 on targeted experimentation.

Repaircafé Losser
Within Repaircafé Losser there is no experimentation, Prins explains. This is because they work with the elderly and they don't like many changes in the region either. If something goes a certain way, then they keep it that way. The way of approach is not changed. Only if it fails, adjustments are made (See appendix 2, Interview 5). Repaircafé Losser scores a 1 on targeted experimentation.

8.3.5 Evaluation & Adjustment analysis

Groen Gebogen
At Groen Gebogen projects are evaluated afterwards, and are thus sometimes adjusted and improved upon. It depends on the project if this happens in a structured way. However, according to Brakkee, this does is not done in a structured way and everyone does it in their own way instead (See appendix 2, Interview 6). Every year the project to make a neighbourhood energy efficient also evaluates what has been learned and what can be done differently. This has not really been possible with the recycle project, because the latter has not yet been practically implemented far enough. It has been set up in such a way that it can be carried over for several years with the intention of evaluating it and making the necessary adjustments. Because the project for solar panels for the business park involved a corporation and a corporate business model, Das has the idea that an

evaluation had to be done in a structured manner (See appendix 2, Interview 3). In other projects it is not structured similarly. The energy projects that are being repeated have been adjusted and developed further on the basis of an evaluation made. This has not yet been done for the recycling project, but for the coming years this has been planned. At Groen Gebogen evaluation takes place and projects are further developed and improved upon. However, this does not always goes in a structured manner for every project. Groen Gebogen scores a 4 on evaluation and adjustment.

WaardeRing

At WaardeRing evaluation and adjustment takes place, but this is not yet done in a fully structured manner. According to the project design, evaluation takes place mid-term. Once every six weeks, the core team meets to discuss overarching themes and bottlenecks. There is also a moment planned for where the final result of all projects as a whole should be evaluated according to their respective designs. A report containing an analysis of the success and failure factors of the implementation, in which a number of fixed questions are answered, must be drawn up (See appendix 4).

However, Voortman argues that they have not progressed that far. No project has reached the stage yet where it is considered to be completed. In the meantime, they evaluate the progress made on smaller pieces, which basically entails what the provisional successes are and how to build on these (See appendix 2, Interview 1). Voortman also explains that, with five students from the Windesheim, they put the first output next to the sustainable development goals set, and have created a measuring instrument to do this. They want to start with this, but so far they haven't measured much (See appendix 2, Interview 1).

Mann says there is not really a set format per project evaluation. They go through a number of points of interest. Amongst other things, they look at how much material has been processed in a different way, the business case and the social aspect associated with the project. They also look at what the project contributed socially or how many work in man hours it has created. "So there are a number of criteria on which to judge, but it's not a very tight schedule," says Mann (See appendix 2, Interview 7). However, the needed adjustments are being made according to all interviewees. At WaardeRing there is an evaluation and adjustment process in place. During the final evaluation of all projects this is done in a clearly structured way. Per individual project this goes in less structured way, however. Thus, WaardeRing scores a 4 on evaluation and adjustment.

Goede Buren

Evaluation takes place at Goede Buren and small adjustments are being made. According to Smits, the Goede Buren board regularly meets and discusses the current agenda items then. Per project it is also evaluated how it is carried out and what can be improved (See appendix 2, Interview 8). However, according to Hendriksen, this is usually not tackled on a project basis. "If I really did it from a project-based approach, you could then pick up your project plan, where you have your goals and based on those goals you would have evaluation questions and everything is smartly formulated and so on. However it is generally not done that way " (See appendix 2, Interview 11). Meetings are therefore held, but projects are mostly not evaluated according to a fixed structure.

Adjustment after evaluation is done "very gradually", according to Hendriksen (See appendix 2, Interview 11). Small adjustments seem to be made per project, but there are no plans for major adjustments. However, in the one and half year review (See appendix 5) it is stated that certain projects, such as the neighbour market (sale of homemade products) should be further developed, but no adjustment statements have been made. So evaluation and adjustment does take place, but not much and this is not done in a structured way. Goede Buren scores a 3 on evaluation and adjustment.

Eerlijk Vakwerk

At Eerlijk Vakwerk there is some form of evaluation and adjustment. Wullink indicates that they simply start on certain projects and then continuously adjust things and do these better in consultation. He says that Eerlijk Vakwerk is always "trying to change and improve the process" (See appendix 2, Interview 2). This does not go according to a fixed structure, but in the course of the implementation it will be checked upon on how things are going. So evaluation and adjustment does take place, but in an unstructured way. Hence Eerlijk Vakwerk scores a 3 on evaluation and adjustment.

Repaircafé Losser

Prins indicates that there are not many meetings being held at Repaircafé Losser, but they do happen. However, during these meetings there is no fixed structure in place to evaluate what could be improved. During the process they look at what can be improved or what is needed or needs to be adjusted (See appendix 2, Interview 5). Evaluation and adjustment takes place, but not so much and is done in a non-structured way. Thus Repaircafé Losser scores a 2 on evaluation and adjustment.

Table 11: Scores learning processes

Learning processes						
Groen Gebogen 14		1	2	3	4	5
A	Learning goals	X				
B	Broad learning				X	
C	Social learning				X	
D	Targeted experiments		x			
E	Evaluation and adjustment			X		
WaardeRing 21		1	2	3	4	5
A	Learning goals				X	
B	Broad learning					X
C	Social learning					X
D	Targeted experiments			X		
E	Evaluation and adjustment				X	
Goede Buren 14		1	2	3	4	5
A	Learning goals	X				
B	Broad learning					X
C	Social learning			X		
D	Targeted experiments		X			
E	Evaluation and adjustment			X		
Eerlijk Vakwerk 13		1	2	3	4	5
A	Learning goals	X				
B	Broad learning			X		
C	Social learning			X		
D	Targeted experiments			X		
E	Evaluation and adjustment			X		
Repaircafé Losser 9		1	2	3	4	5
A	Learning goals	X				
B	Broad learning		X			
C	Social learning			X		
D	Targeted experiments	X				
E	Evaluation and adjustment		X			

8.4 Analysis Barriers

Groen Gebogen
All three interviewees indicated that there are no real noteworthy barriers to the circular recycle project. However Das and Brakkee say that there are some barriers with regard to the energy projects (See appendix 2, Interview 3, Interview 6). Das especially mentions the project with water energy as being an example of restrictive regulations. Brakkee also explains that the network capacity in Overijssel is too small for sustainable energy generation. Due to the fall in energy prices, grey electricity is also cheaper than green electricity is (See appendix 2, Interview 6).

WaardeRing
An important barrier that all interviewees identified was on a legal level. Namely the ´afvalstoffenverordening´. When the Rova supplies raw materials to the thrift store, it is basically still household waste. However, there is no permit to collect household waste for a craft centre such as WaardeRing. Rates for taxes levied on household waste and industrial waste also differ, where waste from the thrift store counts as industrial waste. In addition, Mann indicates that work is done at the locations of the parties, involving themselves as much as possible, because they already posses certain permits. If one new location is added, there will be more problems with getting the needed permits (See appendix 2, Interview 7).

Another barrier is the problem that second-hand materials/raw materials are seen as less attractive than first-hand materials/raw materials are, based on how the materials are composed. From second-hand materials it is more uncertain what exactly the material definitions are and what the quality is. Voortman names wood as an example. When virgin material is supplied consisting of 100% of a certain type of wood, it is easier for a company to know what quality this has, and it is thus easier to get certain permits or certificates for it. In the case of second-hand materials, the material can be mixed or the quality of the material is not certain, and there is therefore more uncertainty as to whether it can be processed. Virgin materials are therefore preferred. This is the same for synthetic duvets, where the procurer doesn't know what kind of fabric these are composed of. This should make it for producers clearer for reuse (See appendix 2, Interview 1).

Also, according to the interviewees, it is a problem that new materials, or products, are often cheaper. Especially because making products from recycled materials require many steps which makes the raw material more expensive. "For example, if down duvets are collected at WaardeRing, it is necessary to first assess whether it is composed of down, or not. Then we have to collect these until we have about 100 kilos worth of material which we can then asses to ensure that this is indeed down. After that, the duvets go to the down manufacturer who has to cut these open and cleanse the contents, and who also has to determine what is useful for manufacturing new duvets, and what is not. And, in the case of WaardeRing this no longer costs that much because there are many inexpensive hands available, partly because of the participation places. "But if you value it, it is not economically feasible, in fact. That actually means that reusing stuff is often more expensive than just burning the old material and making new ones" says Voortman (See appendix 2, Interview 1). The willingness of companies that cooperate with WaardeRing is more intrinsic than that it is financially responsible for them. In general, there is more resistance towards reuse. Voortman and Bos mention more taxes on virgin materials or subsidies for the reuse of raw materials as a possible solution (See appendix 2, Interview 1, Interview 10). Mann indicates that the use of social work and school work from VSO´s prevents incurring these costs. "But if you had to do that with, in quotation marks "normal labour", then the products would be much more expensive" (See appendix 2, Interview 7). Voortman also mentions that the cooperation with so many schools also entails risks

at WaardeRing. "There's actually no continuous processing process, because they're also on vacations and things like that" (See appendix 2, Interview 1).

With obtaining subsidies or getting the needed investments, WaardeRing has no problems, but Bos thinks they are reasonably dependent on these. According to him, the parties involved do not necessarily need funding, "but to connect them and continue to carry it out and to scale-up and also expand, even further in the Netherlands, funding and support resources will then still be needed" (See appendix 2, Interview 10). Bos also says that there have been parties that for a while participated did this more to gain profit than having an intrinsic sustainable motivation, but WaardeRing has managed to fend these off.

Goede Buren
Beeker and Smits say that at Goede Buren they have problems with certain taxes. For example, advertising tax has to be paid because Goede Buren is located in the city centre. While the foundation does not have a lot of money and, as a social cause, often donates to low-income households (See appendix 2, Interview 4, Interview 8). Vat had to be paid on clothing, a tax which has already been paid before, "because as a foundation you do not get into the small business scheme", explained Beeker (See appendix 2, Interview 4). Tax cuts were difficult to arrange, but this has now been done. As a foundation. that operates as an enterprise, they fall outside all regulations in most cases. As a result, there are no structural subsidies that they get, but that same independence is what Beeker says she likes. Additional arrangements are circumvented by not asking for money for coffee and soup, for example. As much as possible any payment for this is done on a voluntary basis (See appendix 2, Interview 4).

Beeker also says that entrepreneurs from the village do not always see the added value of cooperation, and are often mainly focused on their own trade. But getting investors to invest in Goede Buren is not very difficult. There are always parties willing to do so. Beeker does indicate that in their situation it is the case that first-hand products are preferred over second-hand products, but that there are plenty of people who do want to purchase the former (Interview 4). According to Smits, the prices at Goede Buren are purposely kept very low in order to make their productaffordable for everyone (See appendix 2, Interview 8). Hendriksen says that there are a few problems in this area because they offer products or services that are complementary to what is already available elsewhere in the village (See appendix 2, Interview 11). Beeker also states: "I am not aware that with the entrepreneurs here, that there would be competition. We are clearly a completely different party and offer something completely different with a completely different mind than they do. So yes, we complement each other" (See appendix 2, Interview 4). In the case of Goede Buren, people consciously opt to purchase sustainable products, even though these can sometimes be more expensive, as is the case with organic vegetables. Furthermore, Beeker says there is no resistance amongst people, but it pertains more to a lack of knowledge, but as long as you make it small people will understand it (See appendix 2, Interview 4).

Eerlijk Vakwerk
Wullink says that he has experienced resistance, or a lack of knowledge with regard to Eerlijk Vakwerk. A few years ago, they wanted to start a project to make clothing from natural waste. For this he went to several parties, including the municipality and province, that already had existing arrangements for circular initiatives. Some (potential) partners did not posses enough knowledge for Eerlijk Vakwerk to collaborate with these. Wullink also felt that the province did not fully understand what he wanted, and that it was difficult to get subsidies or investments because the financial feasibility of the project was difficult to prove because no similar initiatives in the province had already been implemented there (See appendix 2, Interview 2). He also says that companies that wish to engage in sustainability projects, or are already engaged in circularity, often find it too

difficult, too expensive or too difficult to buy Eerlijk Vakwerk's sustainable products (See appendix 2, Interview 2).

Repaircafé Losser
Jan Prins says he doesn't experience any regulations that stand in the way of the repair café. They also deliberately try to avoid regulatory collisions. To do so this, they are operating as a non-profit organisation and they therefore do not have to add and pay VAT on products sold. There are also no costs incurred for manual labour. Also for the collection of the waste at the 'milieustraat' a permit is not required, as there already is a pre-existing agreement for doing this (See appendix 2, Interview 5).

Table 12: Detected barriers

Financial	Explanation	Case:
Investment	Lack of private investment or lack of clarity about the cost-sharing of project/initiative.	
Dependency partners/investors	These may be focused on short-term profitability. This can clash with the circular long-term vision.	Eerlijk Vakwerk
Parts products	Used parts of products are more expensive than the sales margin.	WaardeRing
Institutional		
Product prices	Subsidies for non-renewable processes/products can hinder the development of circular projects.	WaardeRing
Incentives	Whether or not to obtain incentives in the form of subsidies/tax cuts/licences.	Goede Buren (tax cut) Eerlijk Vakwerk
Regulation	Negative consequences due to inconsistent or inefficient regulations. Or regulations in general.	WaardeRing Groen Gebogen Goede Buren
Civil		
Resistance within organisations/partners	There is fear of risk and extra effort. Partners in the cycle do not operate circularly.	WaardeRing Eerlijk Vakwerk
Training	Still too little knowledge of the (benefits of the) circular economy. People are not consciously engaged in change.	WaardeRing Eerlijk Vakwerk
Lack of cooperation	Motivation for change in organisations can be limited. Building common cooperation may take longer than the the urgency warrants.	Goede Buren (sometimes) Groen Gebogen (sometimes) Eerlijk Vakwerk
Technological		
Current conditions materials	Due to complexity and costs, many materials remain fixed under existing operating conditions. Current processes are difficult to adapt.	WaardeRing Groen Gebogen (energy network)
Suppliers/competition	Suppliers of new materials have advantages/are more attractive than suppliers of second-hand materials.	Goede Buren (sometimes) WaardeRing Eerlijk vakwerk

Required partners/suppliers do not work circularly.	

8.5 Analysis Deepening, Broadening & Scaling-UP

Groen Gebogen
Within Groen Gebogen, the circular recycle project teaches the organisation about new ways to apply the circular economy locally. Awareness is also created by that project. The project is designed in such a way that it can be repeated and improved upon. The other projects are also adjusted every year. So here deepening is clearly demonstrated. According to Das, knowledge is sometimes shared with other initiatives in the form of pitches (See appendix 2, Interview 3). This has not yet happened with the plastic recycling project, but it is done using the knowledge gained in their other projects. Brakkee indicates that regular contact is made with the Dalfsen Stroomt cooperation (an energy cooperative that falls under Groen Gebogen) and that they "then will come over to explain what we have done. And in some cases parties then ask if we can support them " (See appendix 2, Interview 6). This is done in Hoornhorst and Ommen, where they helped these villages to set up comparable energy projects. Knowledge was shared In other cases with other villages/organisations, too, where it was explained how the project was carried out in Dalfsen (interview 6). So there has been broadening in the field of energy. De Rova is a large regional party, that participated in the recycling project, but that is not actively involved in the development of the project, except for the delivery of bins (See appendix 2, Interview 9). Other leaders, or key figures in the regime, are not involved. The province has adopted the asbestos programme and has increased it in terms of scale, but this programme was not a circular project (See appendix 2, interview 3). So it cannot be said that there is any scaling-up here.

WaardeRing
WaardeRing learns and teaches through several projects as to how circularity can be applied within the context of Zwolle. Also, these projects are adapted as soon as they are evaluated. So deepening takes place. Knowledge is shared with other initiatives. Knowledge is regularly shared with other craft centres, says Mann. Links are also deliberately made with other thrift shops that are already affiliated, or via the national trade association (See appendix 2, Interview 7). Voortman also says that they consciously lobby to involve new parties. The project to recycle CDs has been expanded, by involving thrift shops and other parties at national level (See appendix 2, Interview 1). This can be seen as scaling-up the project itself. It is somewhat anchored on a larger level. It can also be seen as broadening, as thrift stores from other areas of the country join. However, they do not apply it entirely separately. The duvet project has also been expanded to a larger level, says Bos (See appendix 2, Interview 10) . Although important frontrunners, within the network, provide support, there are no key figures from the "regime" who support any of their projects. The projects are therefore not part of a major change process or strategic programme.

Goede Buren
Within the foundation, many people learn about how circularity can be applied in the municipality of Olst. Based on evaluation, small improvements are applied within this context, but no specific evaluation or larger changes have been done yet. Within the foundation, circularity becomes increasingly entrenched in the thinking and vision of its members. So deepening takes place here. Knowledge has sometimes been shared in a meeting with other initiatives. The soup café concept has also been adopted by similar organisations in Diepveen, Heino, Assen and Castricum (See appendix 2, Interview 4, interview 11). However, there is still no support base amongst large regime parties. No projects have been taken over at a greater or higher level, and Goede Buren is not part of a major

change process or strategic programme. So it has deepened and broadened to a certain extent, but it has not scaled-up.

Eerlijk Vakwerk
Eerlijk Vakwerk learns how materials can be processed circularly. These applications are also being adapted and improved where possible. So there is deepening here. Knowledge is shared with the companies for which the products are made, in order to create awareness. However, knowledge is not shared with other comparable organisations/entrepreneurs, neither at meetings nor through a network. Nor is there any other circular initiative that has adopted any of the projects. Broadening has not taken place. There are also no parties from the regime that have supported or taken over projects. The projects are also not anchored on a larger level, and these are not part of a major change process or strategic programme. So it has not scaled-up.

Repaircafé Losser
Repaircafé Losser learns how repairs can be applied locally as a service. They look at what needs to be changed and that is adjusted, even if this is happening (slightly) less than with the other initiatives. So it can be said that deepening takes place. It is shared with other repair cafés via an online network as to how repairs can be carried out. Knowledge about repairs is also shared at meetings with companies and with other repair cafés. However, Prins does not know to what extent their knowledge is taken over by these parties. Knowledge about the project design itself is not shared, and has not been adopted by other circular initiatives (See appendix 2, Interview 5). So even though some knowledge is shared a full broadening did not happen. Also, none of the projects support key players from the regime, or are part of a major change process. So no scaling-up has taken place.

Table 13: results deepening, broadening and scaling-up

Case	Deepen		Broaden		Scale-up		
	Learning about new ways of thinking and doing in one given context.	Projects are improved and adapted within the given context.	There are (targeted) links with other innovations/ initiatives.	Projects are repeated within other contexts and domains.	The new structures and ways of thinking/working that have been learned are anchored on a larger level.	There is support amongst the frontrunners and key figures in the regime.	The initiative will be part of a major change process or a strategic programme.
Groen Gebogen	X	X	X	X**			
WaareRing	X	X	X		X		
Goede Buren	X	X	X*	X			
Eerlijk Vakwerk	X	X					
Repaircafé Losser	X	X	X				

*Only once
**Not a circular project

9 Comparison

WaardeRing scores highest in the formation and stabilization of the network. It scores as high as possible on the width of the network and the division of roles, because it has a varied and large network with many different types of partners, who all contribute according to their roles and competences. However, it scores slightly lower on the depth of the network, because although the involved parties are willing and able to mobilize their resources, they do not always do so in a fully effective way. Next is Groen Gebogen, which scores slightly lower on the width of the network, because the network for its energy projects is slightly less varied than it is for its recycle project or then those of WaardeRing . Goede Buren follows next because this organisation scores even lower on the broadness of its network. Its network is not broad in terms of domains and scale like those in other cases studied, and it also scores lower on the depth of its network, because Goede Buren does not have not enough time and knowledge at their disposal. Repaircafé Losser and Eerlijk Vakwerk both score slightly higher than Goede Buren does. They score equally high on the broadness of their network because there the variation of involved parties is low, but they score slightly higher on the depth of their network because they have less issues with providing each party with the right resources.

WaardeRing also scores highest at the formation of expectations/goals levels. Expectations are shared between the parties and these are focused on circularity. Specific goals have been set for the initiative in general, but no intermediate goals have been set here. It distinguishes itself mainly by setting the innovative expectations of new applications of remanufacturing and recycling (and research into them), whereas the other initiatives mainly build on existing applications. Groen Gebogen and Eerlijk Vakwerk follow next. Groen Gebogen scores the same in every area except for innovation because no new innovative product designs, technologies or business models are being designed, or newly applied here. Just like WaardeRing, Eerlijk Vakwerk has a clear division of roles. It also scores a little on innovation, as they always examined whether the substances can be used in a different way to create new products, but this is still not as high as WaardeRing because Groen Gebogen does not investigate these new options by themselves. It also has no specific end goal with intermediate goals on which it scores lower. Goede Buren follows next. They score as low as is possible on innovation because here no research or application of new product designs, technologies or business models takes place, and the organisation has no specific end- or intermediate goals set. Finally there is Repaircafé Losser, which scores high on shared expectations, but whose expectations are not fully circular and who are not innovative and who have no set specific goals with intermediate goals.

At the learning processes end WaardeRing is once again the initiative that has the highest overall score. It scores as high as possible on broad and social learning. Knowledge is shared amongst its involved parties and this is linked back to a broader social context. Unlike the other cases WaardeRing scores high on learning goals, because their project plan states clear goals about exploring new possible volume flows trough the use of its educational and scientific partners. It also scores the highest on evaluation and adjustment, since WaardeRing evaluates in the most structured way. It also scores higher on targeted experimentation that most other cases do, as its projects can be seen as pilots, where new circular applications of materials are being tested. Groen Gebogen follows. Unlike Waardering this organisation has no learning objectives, but it only scores one point lower on every other criteria. Its projects can be applied outside their own context, and parties learn from each other. but when it comes to the plastic recycling project there is uncertainty about this. So it scores slightly lower on broad and social learning. It also scores lower on targeted experimentation because the involved factory testing a new plastic for recycling is the only targeted experimentation taking place within its projects. It also scores slightly lower on evaluation and adjustment because it does not always happen in a structured manner here. Goede Buren has the same overall score but scores slightly higher on broad learning, where it has no problems, but slightly lower on social learning because sharing knowledge amongst parties and volunteers is not very prevalent. This is followed by Eerlijk Vakwerk, who score higher on targeted experimentation but lower on broad learning because it is less sure of how the projects could be applied in a different context. Repaircafé Losser scores the lowest overall as it scores very low on almost every part.

All cases have gained new knowledge and, on this basis, some have made adjustments to their way of working. So deepening has taken place at all initiatives. Even if this takes place at one a little better than the other. WaardeRing scores highest on the network, expectations and learning processes, and is the only one that has some form of upscaling, because the project to recycle CDs has expanded to a larger national level. This could be related to each other. However, this also has to do with the availability of the national network of thrift shops which is comparable to the thrift shops involved in WaardeRing. (See appendix 2, Interview 1).

Since the WaardeRing projects have been extended to other thrift stores that have joined, but have not been taken over separately, this has been classified as scaling-up but not as a broadening

(although it might also be considered that way). At Groen Gebogen and Goede Buren broadening took place. This while WaardeRing does not score lower on broad or social learning. The barriers can therefore be taken into account. At Goede Buren, only the Soup Café has been taken over, and at Groen Gebogen the project to make neighbourhoods more energy-conscious and economical. Neither of these projects are complicated and do not experience the same barriers as the projects at WaardeRing do.

Eerlijk Vakwerk, Groen Gebogen, Goede Buren and WaardeRing all experience problems with regulations, incentives or a lack of knowledge or cooperation from other parties. (Only Repaircafé Losser does not experience this). Problems with regulation were the most common and therefore the most varied. Groen Gebogen had problems with certain energy projects, WaardeRing with the use of waste and Goede Buren with advertising tax. The official form of an organisation can also determine what kind of regulations may work against it.

However, WaardeRing, and to a certain extent Eerlijk Vakwerk, experience more problems than the other initiatives, because of the complexity and costs of circular products in market forces. This is mainly due to the circumstances that make recycled products/materials more expensive. The product design, or the process of sorting and delivering, can generate additional costs that make these products more expensive than the ones produced using first-hand materials. For the time being, WaardeRing, and also Eerlijk Vakwerk, can make the process cheaper by making use of education and social craft places, but this does become difficult at a larger level. There is also resistance from the same parties that buy/process their wares because there is more uncertainty about the quality and usability of the materials for second-hand products, especially for certification and permits purposes. There is also partly a lack of knowledge about the possibilities. Ultimately, these multiple barriers seem to have a common cause. Second-hand materials are too expensive or too unknown. Producers are more familiar with new raw materials than with secondary (second-hand / recycled) materials. Risk avoidance (fear of the unknown) is an additional reason to choose better known primary materials. All of these barriers may affect the potential to broaden or scale-up. Groen Gebogen does not experience this in the plastic recycle project because it is not yet geared to the market. However, Goede Buren does experience the disadvantages of the more expensive prices of circular products but to a lesser extent.

10 Conclusions

As the goals have been set for a circular economy in 2050, it has become clear that all bodies of government need to structurally change the way in which industries work in the country. By adopting several goals and strategies the province of Overijssel aims to make a change towards a circular economy. Although research into circularity has increased over the years, this study has pointed out that research on circular grassroot initiatives has been limited. That is why this research has been carried out as to examine what can influence a grassroot initiative to professionalize and scale-up, and also to identify barriers that may hinder this process, partly done on behalf of Natuur & Milieu Overijssel,. Based on the analyses, this chapter can finally provide an answer to the research questions.

10.1 The effects of internal niche management and social barriers

The main question of this research was:

How do internal niche management and external social barriers affect the *deepening, broadening and scaling-up of local circular grassroots initiatives in Overijssel?*

As shown in the analysis and comparison, WaardeRing has the highest overall score on the internal niche and transition management strategies. They follow the internal management indicators most strictly. WaardeRing is also the only case in this research that has shown a form of scaling-up. This indicates that there might be a relation between stricter internal niche management and scaling-up. At Groen Gebogen en Goede Buren no scaling-up takes place. However, broadening has taken place there. At the extra cases, Eerlijk Vakwerk en Repaircafé Losser, no broadening has taken place. Repaircafé Losser has an evidently lower overall score on the internal management strategies than the other cases do, but Eerlijk Vakwerk scores around the same overall score as Groen Gebogen en Goede Buren do. So it could be argued that stricter internal niche management contributes to broadening and scaling-up, but the connection does not seem to be very strong.

Therefore, it could be argued that certain management strategies are more influential than others. In order to be able to broaden or scale-up, it seems to be necessary to have a broad and in-depth network and to have a lot of broad and social learning taking place. This means there is a large variety of partners that provide their services, and that there is more knowledge on how to apply projects outside their own contexts. Also, having a more varied network of companies, workshops and knowledge institutions offers more possibilities. In particular, WaardeRing and Groen Gebogen can increase their innovation and implementation efforts by taking advantage of the educational institutions and workplaces in their network. Overall, WaardeRing and Groen Gebogen have the most broad and in depth network, whereas Eerlijk Vakwerk and Repaircafé Losser have a less varied network with less possibilities. Goede Buren scores very low on the broadness of its network, because it has a small network with little variety in the type of parties in the network, yet still some broadening has taken place. It therefore should be taken into account that the Soup Café of Goede Buren, and the energy project of Groen Gebogen, are less complex projects to implement and thus easier to take over. This research also shows that projects where products or materials are reused experience more barriers. This explains why projects from a circular initiative with a small network can still be applied elsewhere, while some projects from an initiative with a broad network cannot do so, because of the complexity and costs of putting circular products in the marketplace.

It is also noticeable that those initiatives that broaden or scale-up, besides having a broad and in-depth network or having a relatively less complex project, also seem to have better connections outside of the involved partners. The broadened projects stem, amongst other things, from meetings with other initiatives. A project can have a broad network of partners and know how to apply this project elsewhere, but, in all cases of broadening, the initiatives used direct connections with similar circular grassroot organisations. It can also be deduced from this study that subsidized projects with certain requirements often stimulate organisations to draw up projects in a more systematic way. WaardeRing acted in a more structured manner because there was a subsidy attached to it. Due to the availability of external funding, needed for the use of a coordinator and communications expert, they acted in a more structured manner, which led to an approach more in line with the internal management strategies set out in this research. This also applies to the solar panel project of Groen Gebogen, where requirements set by investors have resulted in a more strictly planned approach.

So, there are several factors that influence deepening, broadening and scaling-up. Both management strategies and external barriers appear to have an impact on the initiatives investigated in this study. The stricter monitoring of the management strategies examined seems to contribute to a certain professionalization, and thus also easier broadening and/or scaling-up. In addition, broadening and ~~also~~ scaling-up seems to take place especially when a project is easily applicable. Concrete results are needed and a project on which an easy connection is possible. Therefore, less complex projects are more likely to be taken over. Socioeconomic barriers play a role in how 'complex' projects are.

Projects that recycle, or remanufacture materials, experience more problems than the other initiatives do because of the complexity and costs of circular production in the marketplace. Besides the management strategies and barriers connections with similar circular initiatives are also of influence.

The first sub question of this research was:

What influences the professionalization, scaling-up and building up of continuity of local circular initiatives?

This research shows that strictly following the management strategies studied can lead to more professionalisation, continuity and possibly to scaling-up. With its stricter approach, WaardeRing seems to work the most professionally and experiences a form of scaling-up. Groen Gebogen, for example, also seems to be working more professionally and is expanding more than the initiatives that score lower. As pointed out before, investments also play a role in this. With more investment, there are stricter demands for the outcomes of projects, and the grassroot initiatives tend to follow the internal niche management strategies more strictly. The size of the network and the number of contacts also plays a role in this. Partly because of their connections with other organisations, projects of WaardeRing, Groen Gebogen and Goede Buren can be extended to other organisations. The execution of projects itself can also depend on finding a larger variety of parties. WaardeRing and Groen Gebogen, in particular, can innovate and implement more by using the educational institutions and workplaces in their network. So, all this can help with professionalisation and building up continuity by testing out more projects. There are still the previously mentioned barriers that can prevent scaling-up the projects to a greater level.

The second sub question of this study was:

What can Natuur en Milieu Overijssel and the Province of Overijssel mean for the professionalisation and upscaling of local circular initiatives?

Based on this research, Natuur & Milieu Overijssel, and the Province of Overijssel, can best allow local circular initiatives to professionalize, build up continuity and scale-up. by setting up a network so that the initiatives can share knowledge more easily and also come more into contact with knowledge institutions and workplaces, as to facilitate experiments with new circular applications. In addition to this, it is recommended to make use of grants, in which certain management requirements (comparable to niche and transition management) are drawn up so that initiatives work more goal oriented. An example of this can be seen in the support that is currently given to local energy initiatives from the NEO program of the province of Overijssel. To this end a service point, to bring the initiatives into regular contact with each other has been established, which can lead to the exchange of more knowledge. As with energy Initiatives, experts can be used to help circular Initiatives start up certain projects and to set clearer goals and processes.

10.2 Policy recommendations

The province can create a new plan for grassroots initiatives in their implementation programme for a circular economy. Under the regional agenda for the manufacturing industry, grassroots initiatives can be included, where the focus for now is on businesses and entrepreneurs. A part of the budget, that is currently used to support the online platform ´Futureproof Community´ and the network ´Boost Smart Industry´ (Province Overijssel, 2020) for entrepreneurs and companies, can be set aside to support local grassroots initiatives or create a separate and similar platform and network for such

grassroots initiatives. This will help the spread of projects created outside of the market oriented parties, and will thus help to create new solutions. Grants for projects can include a mandatory requirement of using a management model based on the Strategic Niche Management and Transition Management theories as discussed in this study. Natuur & Milieu Overijssel could establish this platform and network.

10.3 Theoretical Reflection

As stated before in chapter .. a number of studies, like this research, have structured themselves around the principles of grassroots innovations as analysed through the Strategic Niche Management or Transition Management theories (Seyfang & Loghurst 2013b; Seyfang & Haxeltaine, 2012; Hoppe et al, 2015; Seyfang et al, 2014; Seyfang & Longhurst, 2016; Hargreaves et al, 2013; Raven, 2010; Wolfram, 2018; Kirwan et al, 2013; Hatzl et al, 2016; Pellicer-Sifres et al, 2018). Most of these studies focused on energy, community currency, agriculture, organic food and cohousing (Hossain, 2018). No further research specifically focused on circularity has been identified. However, since this study is based on the same theories, comparisons can be made to see how the conclusions to this study place itself in the field of research.

One of the most similar studies is the one of Hoppe et al. (2015), where it was researched which Strategic Niche Management strategies proved to be successful for local energy grassroot initiatives. The study by Hoppe et al drew a somewhat similar conclusion that is backed up by this study. Its results show that three key factors from SNM (building networks, managing expectations, and facilitation of learning) are of importance. However, they conclude that to a great degree it were local networks and processes by public officials that spurred the success of expanding. They also, in line with this research's conclusion, stressed the same need for organized networks and funding. According to the research it was necessary to use wider professional networks to acquire (government) funding and to use successful results in order to attract attention and generate even more resources trough networks. Hoppe et al (2015) further state other conclusions important for diffusion and scaling-up, such as responsive and reflexive leadership, that this case-study has not done. Also Hatzl et al (2016), who studied the relationship between SNM and grassroots participation initiatives, concluded that there is lack of intermediary actors which may institutionalize knowledge and resources to support the grassroots initiatives.

Seyfang & Longhurst (2016), who investigated currency community grassroots initiatives, also found some evidence of a correlation between grassroots initiatives, conducting niche-development strategies, and successful broadening/diffusion , which supports SNM. However, they conclude that these activities are not equally important, and just like this research does, they conclude that networking is the most strongly linked to forms of diffusion like broadening and scaling-up. They conclude that expectation management and shared learning is of less importance. Just like this study did they concluded that certain projects are easier to transfer elsewhere because of the blow complexity of the projects and the nature of grassroots initiatives to be accessible to other civil society groups. They concluded for this reason that broadening/diffusion takes place more amongst grassroots initiatives than scaling-up does. They also found that geography and the socio-political context play a defining role. Also Kirwan et al (2013), who investigated SNM within local food grassroot initiatives, stress the importance of forming alliances between grassroot initiatives and funding.

However, not all studies have drawn the same conclusions as this study did. Seyfang (2014), who investigated grassroots energy initiatives, founded the conclusion that, while networking and intermediary organisations can effectively spread some types of learning necessary for diffusion, this is not sufficient. Projects tend to learn from each other rather than learning from dedicated networking organisations. This is in contrast with this study's recommendation to create a new

network facilitation. Seyfang and Haxeltine (2012) suggest that the management of expectations should be formulated more realistically and would need to focus more on approaching significant regime actors. This contradicts the conclusion of this study that a broad network is necessary and that grassroots initiatives can replace or infiltrate the regime actors instead of involving them immediately. Moreover Pellicer-Sifres et al. (2018), suggest there is a need for an empowering strategy to transform values overall, while this study takes the assumption there already is a deeper incentive by grassroots initiatives.

Overall, the findings and recommendations of this research confirm a lot of the findings and conclusions of other, similar, studies that investigated Strategic Niche Management and Transition Management in relation to grassroots initiatives. This research has confirmed conclusions drawn by earlier studies that the SNM factors of a social network, strategic expectations and learning processes are of importance to grassroots initiatives, with a broad organised network being the most important for diffusion. It has also confirmed earlier conclusions that broadening takes place more than scaling-up does. It has further proven that these conclusions do not only apply to the types of grassroots initiatives in the earlier researches that have been conducted, but also to the circular initiatives from this study. This research also added new valuable information on which specific barriers circular grassroots initiatives face in their general work and in their efforts to diffuse or scale-up projects.

10.4 Limitations of research

The first limitation of this study was the number of available cases that suited the profile. The number of cases studied is limited, and the generalisabilityof the results is therefore low. However, a case study like this one provides a more in-depth explanation of the processes within the grassroots initiatives.

The second limitation in this research concerns the application of a societal-wide transition theory to a specific micro-level niche context. It must be taken into account that the principles of the Transition Management theory assume that the system level exceeds the scale levels. In this Strategic Niche Management study, the latter has been applied at the micro level of niches.

A third limitation is applying an originally market orientated theory onto grassroots initiatives that have a different shape and effect than the traditional market niches do. Adapting a regime and niche concept to the non-market and value driven concept of grassroots initiatives demands careful attention. It provides some insights on functionality but perhaps other conceptual frameworks are better suited to understand how grassroots initiatives can influence transitional change.

A fourth limitation of this study is the scoring system used. The scoring system has been developed using criteria based on the transition management literature, but these are filled in at one's own estimations, based on the interviews conducted and the documents read. Therefore there is a possibility that this study has been influenced by personal limitations or prejudices. However, this concerns a qualitative study, where the scores are substantiated using quotes from the interviews.

10.5 Suggestions for Further Research

Until now, circular projects arising from civil society, and community initiatives, have been mainly promoted by researchers and policy makers, but the scientific literature in general has paid limited attention to the functioning and barriers of such projects. The cases in this study have provided an 'overall' exploratory picture of the work of grassroot circular initiatives in the province of Overijssel. The interviews conducted and the files studied have provided in-depth knowledge about the specific strategies circular grassroots initiatives work with, and what barriers these face. Although this

research contributes to the scientific literature, especially on the strategies of grassroots initiatives to grow and diffuse and the associated barriers, the subject remains relatively underexposed and further research is necessary in order to achieve a better view about the potential of grassroots initiatives in the transition towards a circular economy. A recommendation for further research would therefore be to further investigate successful cases, and more particularly how these create their networks. Another recommendation could be to conduct a deeper investigation into the most common barriers found in this study.

Crendentials:

Credentials

Barton, D., & Wiseman, M. (2014). Focusing capital on the long term. Harvard Business Review, 92, 44-51.

Barton, D. (2011). Capitalism for the Long Term. Harvard Business Review, 89, 84 91.

Bastein, T., Roelofs, E., Rietveld, E., & Hoogendoorn, A. (2013). Opportunities for a circular economy in the Netherlands - Report - Government.nl (report). Ministry of General Affairs. Retrieved from http://www.government.nl/documents-and-publications/reports/2013/10/04/opportunities-for-acircular-economy-in-the-netherlands.html.

Bastein & Rietveld (2016). *Circular Potential for Utrecht.* TNO: Utrecht.

Blanchet, T. (2015). Struggle over energy transition in Berlin: How do grassroots initiatives affect local energy policy-making? *Energy Policy*, *78*, 246–254.

Boon, W. P., Moors, E. H., & Meijer, A. J. (2014). Exploring dynamics and strategies of niche protection. Research Policy, 43(4), 792-803.

Bomberg, E., & McEwen, N. (2012). Mobilizing community energy. *Energy Policy*, *51*, 435–444.

Boulding, K. E. (1966). The Economics of the Coming Spaceship Earth. In H. Jarret (Ed.), Environmental Quality in a Growing Economy, Resources for the Future (pp. 3–14).

Boyer, R. (2014). Sociotechnical Transitions and Urban Planning. *Journal of Planning Education and Research*, *34*(4), 451–464.

Brown, H. S., & Vergragt, P. J. (2008). Bounded socio-technical experiments as agents of systemic change: The case of a zero-energy residential building. *Technological Forecasting and Social Change*, *75*(1), 107–130.

Buitendijk, D., Hanemaayer, D., Ververs, J. & Voerman, J. (1996) Network analysis passenger transport: Final report Annex 1: Literature and practical research of network approaches. B&A group Policy Research & Advice BV: The Hague.

CCT. (2008, April 1). Competency kit experimenting in healthcare. Retrieved March 11, 2020, from https://transitiepraktijk.nl/files/Competentiekit%20Experimenten%20in%20de%20zorg.pdf.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-Experimentation: Design and Analysis Issues for Field Settings*. Houghton Mifflin.

Cramer, J. (2015). Strategische Verkenning: 'Op weg naar Cirkelregio Utrecht'. Retrieved from Utrecht Sustainability Institute: https://www.usi.nl/nl/circulaire-economie/cirkelregio-utrecht.

Chanan, G. (2004) Community Sector Anatomy (London: Community Development Foundation).

Dirven, J., Rotmans, J. & Verkaik, A.P. (2002). Society in transition: an innovative point of view, Ministry LNV: The Hague.

Eerlijk Vakwerk. (2020). *Home*. Eerlijkvakwerk.nl. https://www.eerlijkvakwerk.nlEmf. (2013). 2: opportunities for the consumer goods sector. Ellen MacArthur Foundation.

Emerson, K. & Nabatchi, S. & Balogh, S (2012). An Integrative Framework for Collaborative Governance, *Journal of Public Administration Research and Theory*,22.1, pp.1–29.

Feola, G., & Butt, A. (2015). The diffusion of grassroots innovations for sustainability in Italy and Great Britain: an exploratory spatial data analysis. *The Geographical Journal*, *183*(1), 16–33.

Feola, G., & Nunes, R. (2014). Success and failure of grassroots innovations for addressing climate change: The case of the Transition Movement. *Global Environmental Change*, *24*, 232–250.

Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, *12*(2), 219–245.

Geels, F. W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental Innovation and Societal Transitions*, *1*(1), 24–40.

Geels, F. W., & Kemp, R. P.M. (2000). Transitions from a sociotechnical perspective. The Hague: Ministry of Housing and Housing.

Geissdoerfer, Martin; Savaget, Paulo; Bocken, Nancy M. P.; Hultink, Erik Jan (2017). "The Circular Economy – A new sustainability paradigm?".

Geng, Y., & Doberstein, B. (2008). Developing the circular economy in China: Challenges and opportunities for achieving "leapfrog development." *International Journal of Sustainable Development & World Ecology*, *15*(3), 231–239.

Glass, C., Cook, A., & Ingersoll, A. R. (2015). Do Women Leaders Promote Sustainability? Analyzing the Effect of Corporate Governance Composition on Environmental Performance. *Business Strategy and the Environment*, *25*(7), 495–511.

Goede Buren. (2020). Anderhalf jaarverslag Stichting Goede Buren, verzamelplaats voor duurzame initiatieven.

Groen Gebogen. (n.d.). Groen Gebogen. Retrieved January 28, 2020, from https://www.groengebogen.nl/

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105–117). Sage Publications, Inc.

Gupta, A. K. (2012). Innovations for the poor by the poor. *International Journal of Technological Learning, Innovation and Development*, *5*(1/2), 28.

De Dalfsermarskramer. (2020). *Dalfser scholen zamelen shampooflessen in*. dedalfsermarskramer.nl. https://www.dedalfsermarskramer.nl/dalfser-scholen-zamelen-shampooflessen-in.

De Haan, J. and Rotmans, J. (2008). Patterns in Transitions: Understanding Complex Chains of Chains. Submitted to Research Policy.

Haan, J. & Rotmans, Jan. (2011). Patterns in transitions: Understanding complex chains of change. Technological Forecasting and Social Change. 78. 90-102.

Hargreaves, T., Hielscher, S., Seyfang, G., & Smith, A. (2013). Grassroots innovations in community energy: The role of intermediaries in niche development. *Global Environmental Change*, *23*(5), 868–880.

Harrison, H., Birks, M., Franklin, R., & Mills, J. (2017). Case Study Research: Foundations and Methodological Orientations. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *18*(1).

Hermans, F., Roep, D., & Klerkx, L. (2016). Scale dynamics of grassroots innovations through parallel pathways of transformative change. *Ecological Economics*, *130*, 285–295.

Hess, D. J. (2013). Industrial fields and countervailing power: The transformation of distributed solar energy in the United States. *Global Environmental Change*, *23*(5), 847–855.

Heurter, M. (2007). From project management to process management. The interaction between context and project: a case study of the Achterom/Bagijn project in the municipality of Dordrecht. Graduation thesis Eramus University: Rotterdam.

Hoogma, R., Kemp, R. Schot, J. and Truffer, B. (2002). Experimenting for sustainable transport. The approach of strategic niche management. London, E&FN Spon.

Hoppe, T., Graf, A., Warbroek, B., Lammers, I., & Lepping, I. (2015). Local Governments Supporting Local Energy Initiatives: Lessons from the Best Practices of Saerbeck (Germany) and Lochem (The Netherlands). *Sustainability*, *7*(2), 1900–1931.

Hatzl, S., Seebauer, S., Fleiß, E., & Posch, A. (2016). Market-based vs. grassroots citizen participation initiatives in photovoltaics: A qualitative comparison of niche development. *Futures*, *78–79*, 57–70.

Hossain, M. (2016). Grassroots innovation: A systematic review of two decades of research. *Journal of Cleaner Production*, *137*, 973–981.

Jaeger, B., & Upadhyay, A. (2020). Understanding barriers to circular economy: cases from the manufacturing industry. *Journal of Enterprise Information Management*, *33*(4), 729–745.

Jesus, A., & Mendonça, S. (2018). Lost in Transition? Drivers and Barriers in the Eco-innovation Road to the Circular Economy. *Ecological Economics*, *145*, 75–89.

Jeston, J., & Nelis, J. (2014). *Business Process Management.* Abingdon, United Kingdom: Taylor & Francis.

Kemp, R. & Bosch, S. van den (2006). Transition experiments: practical experiments with the potential to contribute to transitions. Printing company NIVO: Delft.

Killam, L. (2013). *Research terminology simplified: Paradigms, axiology, ontology, epistemology and methodology* (1st ed.). Sudbury, ON; author.

Kirchherr, J., Reike, D., & Hekkert, M. (2017a). Conceptualizing the Circular Economy: An Analysis of 114 Definitions. *SSRN Electronic Journal*, 221–232.

Kirchherr, J.W.; Hekkert, M.P.; Bour, Ruben; Huijbrechtse-Truijens, Anne; Kostense-Smit, Erica; Muller, Jennifer. (2017b). *Breaking the bariers to the Circular* Economy. Utrecht: Utrecht University Repository.

Kirwan, J., Ilbery, B., Maye, D., & Carey, J. (2013). Grassroots social innovations and food localisation: An investigation of the Local Food programme in England. *Global Environmental Change*, *23*(5), 830–837.

Klijn, E.H., and G.R. Teisman (1992), 'Decision-making in policy networks: A theoretical consideration on the analysis and improvement of policy processes in complex policy systems'. In: Policy Science, jrg. 6, no. 1: 32-51.

Korjonen-Kuusipuro, K., Hujala, M., Pätäri, S., Bergman, J. P., & Olkkonen, L. (2017). The emergence and diffusion of grassroots energy innovations: Building an interdisciplinary approach. *Journal of Cleaner Production*, *140*, 1156–1164.

Lacy, P., & Rutqvist, J. (2015). *Waste to Wealth: The Circular Economy Advantage* (1st ed. 2015 ed.). Springer.

Loorbach, D. (2007). Transition Management: new mode of governance for sutainable development. Erasmus University: Rotterdam.

Martin, C. J., Upham, P., & Budd, L. (2015). Commercial orientation in grassroots social innovation: Insights from the sharing economy. *Ecological Economics*, *118*, 240–251.

Mathews, J. A., & Tan, H. (2011). Progress Toward a Circular Economy in China. *Journal of Industrial Ecology*, *15*(3), 435–457.

Monaghan, A. (2009). Conceptual niche management of grassroots innovation for sustainability: The case of body disposal practices in the UK. *Technological Forecasting and Social Change*, *76*(8), 1026–1043.

Mourik, R.M., & Raven, R. P. J.M. (2006). A practioner's view on strategic niche management. Amsterdam: ECN.

Nicolosi, E., Medina, R., & Feola, G. (2018). Grassroots innovations for sustainability in the United States: A spatial analysis. *Applied Geography*, *91*, 55–69.

Ornetzeder, M., & Rohracher, H. (2013). Of solar collectors, wind power, and car sharing: Comparing and understanding successful cases of grassroots innovations. *Global Environmental Change*, *23*(5), 856–867.

Pellicer-Sifres, V., Belda-Miquel, S., Cuesta-Fernandez, I., & Boni, A. (2018). Learning, transformative action, and grassroots innovation: Insights from the Spanish energy cooperative Som Energia. *Energy Research & Social Science*, *42*, 100–111.

Phelps, E. (2013). *Mass Flourishing*. Princeton: Princeton University Press.

Planbureau voor de Leefomgeving (2019), Circulaire economie in kaart, Den Haag: Planbureau voor de Leefomgeving.

Platform CB'23. (2019, July). *Framework Circulair Bouwen Raamwerk voor eenduidig taalgebruik en heldere kaders*. Https://Platformcb23.Nl. https://platformcb23.nl/images/downloads/20190704_PlatformCB23_Framework_Circulair_Bouwen_Versie_1.0.pdf

Province of Overijssel (2018). Overijssel Circular in 2050, found 7 January 2020, file:///C:/Users/s4625528/Downloads/16301827540636.pdf.

Province of Overijssel. (2020). *State proposal No 2020/1100634 Circular Economy 2020-2023* (2020/0070824). Retrieved from https://overijssel.notubiz.nl/document/8559953/3/Statenvoorstel%20Circulaire%20Economie%202020-2023%20%28gecomb%29.

Rijksoverheid (2016). *Netherlands circular in 2050*, found 7 January 2020: file:///C:/Users/s4625528/Downloads/bijlage-1-nederland-circulair-in-2050.pdf.

Raven, R., Bosch, S. V. D., & Weterings, R. (2010). Transitions and strategic niche management: towards a competence kit for practitioners. *International Journal of Technology Management*, *51*(1), 57.

Rizos, Vasileios and Behrens, Arno and Kafyeke, Terri and Hirschnitz-Garbers, Martin and Ioannou, Anastasia. (2017). *The Circular Economy: Barriers and Opportunities for SMEs*. CEPS Working Documents.

Rogers, E.M. (1995). *Diffusion of* innovations. Amsterdam, Netherlands: Amsterdam University Press.

Rotmans, J. (2003). Transitiemanagement: Sleutel voor een duurzame samenleving. Assen, Netherlands: Koninklijke Van Gorcum.

Rotmans, J. (2006). Transitiemanagment: key to a sustainable society. (2). Royal Van Gorcum: Assen.

Rotmans, J. & Van den Bosch, S.J.M. (2008). Deepening, Broadening and Scaling up: a Framework for Steering Transition Experiments. Knowledge Centre for Sustainable System Innovations and Transitions (KCT):Delft.

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students (5th Edition)* (5th ed.). Pearson.

Schot, J., & Geels, F. W. (2008). Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. *Technology Analysis & Strategic Management*, *20*(5), 537–554.

Schumpeter, J. 1961. The Theory of Economic Development, Oxford: Oxford University Press.

Seyfang, G., & Haxeltine, A. (2012). Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions. *Environment and Planning C: Government and Policy*, *30*(3), 381–400.

Seyfang, G., Hielscher, S., Hargreaves, T., Martiskainen, M., & Smith, A. (2014). A grassroots sustainable energy niche? Reflections on community energy in the UK. *Environmental Innovation and Societal Transitions*, *13*, 21–44.

Seyfang, G., & Longhurst, N. (2013a). Desperately seeking niches: Grassroots innovations and niche development in the community currency field. *Global Environmental Change*, *23*(5), 881–891.

Seyfang, G., & Longhurst, N. (2013b). Growing green money? Mapping community currencies for sustainable development. *Ecological Economics*, *86*, 65–77.

Seyfang, G., & Longhurst, N. (2015). What influences the diffusion of grassroots innovations for sustainability? Investigating community currency niches. *Technology Analysis & Strategic Management*, *28*(1), 1–23.

Seyfang, G., Park, J. J., & Smith, A. (2013). A thousand flowers blooming? An examination of community energy in the UK. *Energy Policy*, *61*, 977–989.

Seyfang, G. & Smith,A. (2007). Grassroots innovations for sustainable development: Towards a new research and policy agenda, *Environmental Politics*, 16:4, 584-603.

Smith, A., Fressoli, M., & Thomas, H. (2014). Grassroots innovation movements: challenges and contributions. *Journal of Cleaner Production*, *63*, 114–124.

Smith, A., Hargreaves, T., Hielscher, S., Martiskainen, M., & Seyfang, G. (2015). Making the most of community energies: Three perspectives on grassroots innovation. *Environment and Planning A: Economy and Space*, *48*(2), 407–432.

Stahel, W.R. & Reday-Mulvey, G. (1981). Jobs for Tomorrow, the Potential for Substituting Manpower for Energy, New York: Vantage Press.

State Country People's Republic of China (2006). China National Environmental Protection Plan in the Eleventh Five-Years (2006-2010), Bejing.

Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques* (Second ed.). SAGE Publications, Inc.

Tartiu V.E., Morone P. (2017) Grassroots Innovations and the Transition Towards Sustainability: Tackling the Food Waste Challenge. In: Morone P., Papendiek F., Tartiu V. (eds) Food Waste Reduction and Valorisation. Springer, Cham. https://doi.org/10.1007/978-3-319-50088-1_15

Thomke, S. Experimentation Matters: Unlocking the Potential of New Technologies for Innovation. Boston, MA: Harvard Business School Press, 2003.

Tukker, A. (2015). Product services for a resource-efficient and circular economy – a review. *Journal of Cleaner Production*, *97*, 76–91.

Van de Lindt, M. and Van den Bosch, S. (2007). Framework Transitioning. Annex to working session transition European Networks, d.d. 21 November 2007, Nijmegen. Delft, TNO / DRIFT.

Vennix, J. A. M. (2011). *Theorie en praktijk van empirisch onderzoek*. Van Haren Publishing.

Vergragt, P. J., & Brown, H. S. (2012). The challenge of energy retrofitting the residential housing stock: grassroots innovations and socio-technical system change in Worcester, MA. *Technology Analysis & Strategic Management*, *24*(4), 407–420.

Verschuren, P., & Doorewaard, H. (2003). *Het ontwerpen van een onderzoek*. Boom Lemma: Utrecht.

Verschuren, P., & Doorewaard, H. (2007). *Het ontwerpen van een onderzoek*. Boom Lemma: Utrecht.

de Vries, G. W., Boon, W. P., & Peine, A. (2016). User-led innovation in civic energy communities. *Environmental Innovation and Societal Transitions*, *19*, 51–65.

Waardering. (2019). *Het Zwols model Projectplan voor een Circulair Ambachtscentrum in Zwolle*.

Walker, G. (2008). What are the barriers and incentives for community owned means of energy production and use? Energy Policy, 36, 4401-4405.

Webster, K. (2015). The Circular Economy: A wealth of flows. Cowes: Ellen MacArthur Foundation Publishing.

White, R., & Stirling, A. (2013). Sustaining trajectories towards Sustainability: Dynamics and diversity in UK communal growing activities. *Global Environmental Change*, *23*(5), 838–846.

Wijkman, A., & Skånberg, K. (2016). The Circular Economy and Benefits for Society - A study pertaining to the Norwegian economy. Club of Rome.

Willekes, E., Jonker, J. & Wagenveld, K. (2019). Accounting concepts in the circular economy.

Windesheim Honours College. (2020, March). *Project Vision: Let's make Dalfsen Circular!*

Wolfram, M. (2018). Cities shaping grassroots niches for sustainability transitions: Conceptual reflections and an exploratory case study. *Journal of Cleaner Production*, *173*, 11–23.

World Commission on Environment and Development (1987). Report of the World Commission on Environment and Development: Our Common Future (The Brundtland Report), New York.

Yin, R. K. (1994). *Case Study Research: Design and Methods (Applied Social Research Methods)* (1st ed.). SAGE Publications, Inc.

Yin, R. K. (2013). *Case Study Research: Design and Methods (Applied Social Research Methods)* (Fifth ed.). SAGE Publications, Inc.