

Community repair as a space for emerging circular economy imaginaries

An exploratory study of sociotechnical
imaginaries in the repair cafe community in
Amsterdam

by

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Silke Jonk
Amsterdam, October 2023

Executive summary

The circular economy is becoming an increasingly popular framework, guiding policymakers and practitioners toward sustainable resource management and economic development. While the concept is promising in providing guidelines toward the efficient use of resources and waste minimalization, circular economy implementation is criticized for its focus on technological implementation and economic prosperity, overlooking the social aspects of sustainable change. This research investigates circular economy imaginaries through the analysis of community repair. The study provides insight in the visions and practices of a bottom-up citizen initiative that go beyond economical and technological prosperity. Through the sociotechnical imaginary concept, this research assesses how citizen initiatives engage with the circular economy at a local level.

Through an embedded case study of the repair cafe community in Amsterdam (the Netherlands) the research focuses on answering the following research question : *"How does the repair cafe community in Amsterdam imagine and engage with product repair in the circular economy?"*. The study combines multiple data collection methods including: interviews, observation, and document analysis. Analysis of the repair cafe community in Amsterdam revealed that the community currently consists of twenty-eight active repair cafes at the local level, plus the Repair Cafe International Foundation, which operates at a national and international level. Eleven repair cafes and the Repair Cafe International Foundation were visited and representative volunteers were interviewed during data collection between April and June 2023.

By exploring the sociotechnical imaginaries in the repair cafe community in Amsterdam, this research shows that the community showcases features of alternative circular imaginaries going beyond the techno-economical focus that currently dominates circular economy thinking and implementation. The results reveal a shared vision of a repair society wherein product repair is normalised and involves a diverse and accessible repairing infrastructure. Additionally, the results show alternative circular performances, such as community-based, socially inspired, and neighbourhood-oriented activities. Besides the features of alternative imaginaries, the results also reveal several tensions between the present-day performances and future aspirations: such as disparities between the goal to collect data and an unwillingness to do so at the local level, a vision for collaboration with other parties, and limited networking at the local level in practise. The study proposes that these tensions point towards the fact that repair cafes provide spaces where future visions are confronted with present realities, leading to a plurality of initiatives at the local level. As such, the repair cafe community's aspirations and performances reveal aspects of both the dominant techno-economic circular economy imaginary and an alternative imaginary centred around social interactions and local engagement.

In conclusion, this research highlights the significance of considering social dimensions within the circular economy framework. While technological and economic aspects are pivotal, they must be balanced with a focus on community engagement, inclusivity, and citizen empowerment. The repair cafe community in Amsterdam serves as a noteworthy example of how bottom-up initiatives can contribute to a more sustainable and resilient future. However, the diversity of motivations and goals among local repair cafes, coupled with the varying degrees of alignment with the Repair Cafe International Foundation, may pose a challenge to the realisation of a unified vision. Stakeholders and

policymakers therefore must foster collaboration and facilitate a shared understanding of the repair society's objectives.

Furthermore, this research shows the importance of acknowledging and supporting circular citizen initiatives as valuable drivers of sustainable change. Their role in promoting community engagement and empowerment should not be underestimated in the broader context of achieving a circular economy. The study aims to raise attention for circular citizen initiatives and their potential to add to a more holistic understanding of a circular transition. Additionally, the study contributes to the limited literature on exploring and understanding sociotechnical imaginaries at the local level.

Keywords: Circular Economy, community repair, repair cafe, sociotechnical imaginary, Amsterdam, bottom-up initiatives.

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List of abbreviations

Abbreviation	Definition
CE	Circular Economy
IE	Industrial Ecology
RCIF	Repair Cafe International Foundation
STI	Sociotechnical imaginary

1

Introduction

As global waste generation rates continue to grow, the urgency of adopting sustainable practices in resource management and consumption becomes increasingly pressing (Kaza et al., 2018). One of the most frequently adopted approaches is offered by the Circular Economy (CE) framework (Kirchherr, 2021). This framework proposes pathways towards waste minimalisation and more sustainable resource use at all levels of a product life cycle. The CE offers a visionary and technologically promising concept. It proposes various strategies, ranging from product reuse to recycling and from product repurpose to repair.

However, the CE concept also has its limitations. As the CE becomes increasingly embedded, the CE creates an implicit understanding of what a circular future might look like. This future is often framed along technological innovation and economic prosperity. Subsequently, visions of desirable circular futures, so-called "imaginaries", are generally constructed along a techno-economic CE perspective. This is shown through CE policies, academic and practitioner literature, which have been increasingly criticised for their focus on technological innovation and economic prosperity (Kirchherr et al., 2017).

These mainstream techno-economic CE visions may overlook the social aspect of the CE and fail to represent conceptions of the future in which the economic and technological aspects are secondary to an inherently sustainable and inclusive future (Schmid et al., 2022; Jaeger-Erben et al., 2021; Spekkink et al., 2022). In essence, the CE thus presents both a driver and a challenge towards an inherently sustainable future; depending on how the CE is interpreted, CE thinking carries both the potential to expand and constrain our imaginative capacity, influencing the range of actions we consider.

Therefore, in pursuit of an inherently sustainable and inclusive CE transition, it is important that CE thinking transcends this techno-economic focus. Fortunately, alternative futures are proposed by a variety of actors (Celermajor & Sturman, 2021). For example, current literature suggests that bottom-up citizen initiatives hold the capacity to envision and enact alternative CE futures; their activities contribute to social innovation at the level of the citizen, while envisioned futures contribute to structural change on a society level (Quist et al., 2021). Nevertheless, the specific visions that bring these communities together and the implications of these visions on their current practices remain a somewhat under-explored area of study. Overlooking these alternative futures could lead to the misrepresentation of crucial transformative aspects of the circular economy.

In acknowledgement of the necessity to envision alternative understandings of the CE, the urgency

of a transition towards sustainability, and the imaginative power of bottom-up initiatives, this research argues that investigating the imaginaries present in citizen-driven initiatives can be crucial in shaping and diversifying the pathway to more sustainable, inclusive, and circular futures. Thereupon, this study proposes to explore CE imaginaries in analysis of community repair. Community repair has emerged over the last decades as an alternative to commercial repair. It represents a form of repair where people gather to repair broken objects together. Community repair takes the shape of several citizen-driven initiatives, such as neighbours helping neighbours, online networks to share repair knowledge, and public events where volunteers gather to help visitors repair their broken items. Various community repair initiatives have sprouted over the last decade and a half. In 2009, the first repair cafe was organised in Amsterdam, The Netherlands (Repair Cafe, n.d.-a), while at the same time the Fixers Collective and Fixit Clinics held their first public events in the United States (van der Velden, 2021). In the United Kingdom, the Restart Project has been organising Restart Parties since 2013 (The Restart Project, n.d.). These events have laid the foundation of an increasingly wide-spread movement in which people help and teach each other how to repair their broken objects and slow devices (Repair Cafe, n.d.-a; The Restart Project, n.d.).

The collaborative and non-profit approach of community repair offers new perspectives on the CE. First, the repair of objects directly contributes to the CE by preventing and reusing waste material. Second, the community and learning aspects support social innovation, cohesion, and knowledge and skill development (Moalem & Mosgaard, 2021; van der Velden, 2021). As such, community repair initiatives are part of a broader movement of circular citizen initiatives, which offer ideas towards creating a more regional and participatory CE through bottom-up social innovation and consumer movements (Spekkink et al., 2022; Hobson & Lynch, 2016).

This research brings together community repair and the concept of sociotechnical imaginaries (STI). This concept captures the connection between desirable visions of the future, beliefs about the role of science and technology in society, and the production of power and social order (Jasanoff & Kim, 2015). Specifically, the study explores sociotechnical imaginaries in the repair cafe community in Amsterdam (The Netherlands), investigating the interlinkages of future visions and everyday practices that enact these visions. Amsterdam provides an interesting setting for empirical work because the city has placed itself on the forefront of the circular transition by setting the goal to become fully circular by 2050 (Gemeente Amsterdam, 2015; Fratini et al., 2019). Moreover, the first repair cafe was organised in Amsterdam in 2009 (Repair Cafe, 2023a).

1.1. Research questions

This study aims to explore circular economy imaginaries in analysis of community repair. Subsequently, the study asks how the future of product repair in a circular economy is imagined within repair cafes in Amsterdam by addressing the following research question:

How does the repair cafe community in Amsterdam imagine and engage with product repair in the circular economy?

1.2. Research outline

The research question is answered through four sub-research questions:

1. What is the academic state of the art on imaginaries and how can they be conceptualised regarding the

- circular economy and bottom-up citizen initiatives?*
2. *How is the repair cafe community in Amsterdam organised?*
 3. *What visions do active members of the repair cafe community in Amsterdam hold of the future of product repair practices in Amsterdam? What are the current practices in repair cafes, and how do these enact the visions?*
 4. *Which imaginaries are revealed through these visions and practices?*

The answers to these research questions provide the theoretical and empirical background necessary to answer the main research question. Figure 1.1 shows how the research questions are answered. First, the "sociotechnical imaginary" is conceptualised (research question 1). Second, the organisational structure of repair cafe community in Amsterdam is analysed (research question 2). Third, the research draws on an embedded case study approach using ethnographic methodologies, including participant observation, semi-structured interviews, and document analysis (research question 3). Fourth, the conceptualisation of sociotechnical imaginaries is applied to the area of community repair to create an understanding of how the community makes sense of the circular economy, repairing activities, and construct/resist future visions of circular transition (research question 4).

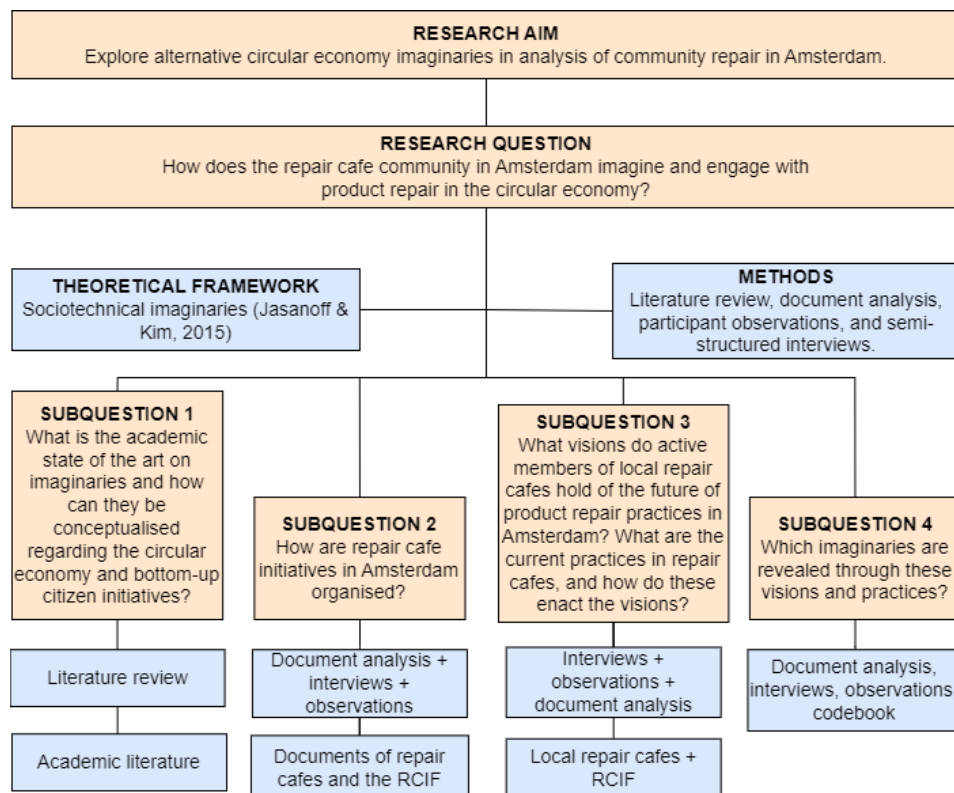


Figure 1.1: Research flow diagram

1.3. Scientific and societal relevance

This section elucidates the relevance and added value to society and scientific literature. Additionally, the relevance to the Industrial Ecology (IE) field is explained.

1.3.1. Alternative circular economy imaginaries

Driven by the belief in a desirable future, policies driving sustainable change are implemented, technologies facilitating the energy transition are invented, and communities arise to work towards local growth (Wiek & Iwaniec, 2014). Their visions describe desirable futures, empowering and creating networks of people working towards the same goal. At the same time, visions for possible futures function as an approach to make the future more tangible and facilitate alternative forms of governing transitions (Hopkins, 2019). This study acknowledges that enabling the CE as a sustainable transition requires new ways of interpretation, problem definition, and solutions (Ampe & Bachus, 2022). Moreover, how futures are represented determines how certain initiatives are supported by policy and science (Schmid et al., 2022). Thus, by exploring the sociotechnical imaginaries in Amsterdam's repair cafe community, this research answers the need to investigate emerging future CE imaginaries to provide an understanding of developments of circular community initiatives and lead the way to a sustainable CE transition.

The study adds to the growing body of literature on sociotechnical imaginaries, with a specific focus on local communities and empirical research. Moreover, the research contributes to a more in-depth understanding of the role and visions of circular citizen initiatives. It creates a perspective on alternative CE imaginaries in the CE research field. Insights from this research may therefore function as a source of inspiration and input for policymakers, scientists, and citizens alike; helping to understand the social aspect of a CE. Additionally, the findings open the floor to discussion and more inclusive CE thinking. The study thereby highlights the importance of recognising alternative and diverse imaginaries, including those that have yet to gain stability.

1.3.2. Relevance to the Industrial Ecology field

Inherent to the IE field is system science: approaching problems and solutions from a system thinking approach. With its origin in the industrial field, the CE concept implies that its implementation will benefit both the economy and society as a whole (Jaeger-Erben et al., 2021; Hobson & Lynch, 2016). The fact that some have adopted the CE as a fundamentally technological concept calls for research in which the CE is approached from its holistic, interdisciplinary nature fundamental to IE, considering the CE as a concept comprehending all dimensions (Saavedra et al., 2018). Moreover, Blomsma and Brennan (2017), in their discussion on research opportunities for the IE community related to the CE's theoretical development and implementation, point out that further engagement with the social science aspects of IE is required for the development and implementation of the CE. Lastly, this research addresses forward-looking practices and ideas, characterising a core element of IE practices.

In sum, the results of this study fill a knowledge gap and are relevant to a multitude of actors in scientific as well as societal sectors. The research recognises the importance of bottom-up climate governance and aims to support the acknowledgement of alternative imaginaries in bottom-up citizen initiatives. The proposed research addresses the main aims of IE by recognising the interdisciplinarity of the CE concept and addressing future-focused visions and practices. It combines knowledge of social science, as well as economics, politics, transitions, and the sustainability field.

1.4. Thesis outline

The thesis comprises several chapters. In chapter 2, an overview is provided of the literature on the circular economy, product repair, community repair, and repair cafes. Then, in chapter 3, the theoretical and conceptual background is introduced, providing an overview of the sociotechnical imaginary

literature connected to the CE and bottom-up initiatives, ending with a framework conceptualising the sociotechnical imaginary. In chapter 4, the contextual setting of this research is presented, followed by the methodological framework for data collection and analysis. The results are presented in chapter 5. The results are discussed in light of the conceptual framework in chapter 6, followed by a discussion on the implications of the findings. Last, chapter 7 presents an overview of how the research questions are answered, followed by limitations of the study and recommendations for future research.

2

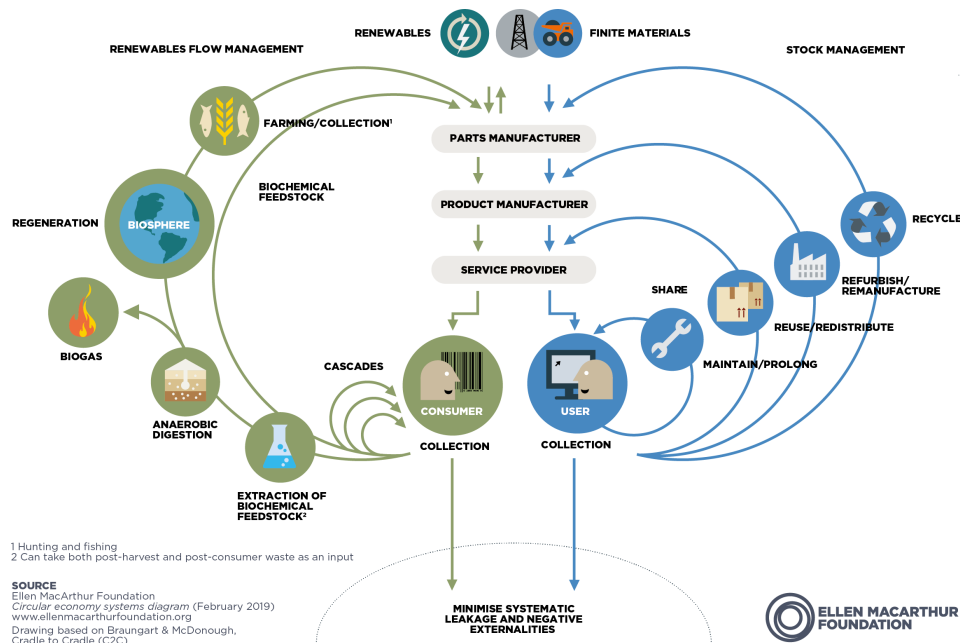
Background

The next sections start with an overview of the literature on product repair and the circular economy. Specific attention is paid to the Netherlands and Amsterdam, providing the geographic boundary of this research. Following, an overview of the literature on community repair and repair cafes is provided.

2.1. The circular economy

The CE has been described and defined in a multitude of ways (Kirchherr et al., 2017). As a concept, the CE is most clearly explained as an alternative to the current linear take-make-dispose economy structure, providing a way to rethink our current ways of producing and consuming (Ellen Macarthur Foundation, 2019; Kristensen et al., 2016; Savini, 2019). In this research, the CE is defined as "a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling." (Geissdoerfer et al., 2017, p. 6).

A leading visualisation of the CE stems from the Ellen MacArthur Foundation, depicting the circular flows as the 'wings' of a butterfly (See figure 2.1). The wings illustrate the flow of technical and biological materials in the CE: the smaller the diameter of a flow, the more effective it is (Ellen Macarthur Foundation, 2019). The left and right wings respectively show the regenerative cycles of biological resources that can be taken up by the natural ecosystem and the finite cycles of technical resources that can be reused through circular design strategies and infinitely circulate through the production system (Ellen Macarthur Foundation, 2019).



Another framework summarising the CE is the 9R-framework, adopted by the Dutch government as the R-Ladder (Ampe & Bachus, 2022; Kishna et al., 2019). The framework, shown in figure 2.2, distinguishes amongst different circular strategies, ranked on a ladder (Kishna et al., 2019). The ladder visualises a cascading system, providing an overview of strategies and how much they contribute to decreasing the use of primary abiotic resources (Kishna et al., 2019). Similar to the increasing size of the butterfly wings in the butterfly diagram, strategies higher on the ladder are considered more effective than strategies lower on the ladder.

Refuse
Rethink
Reduce
Reuse
Repair
Refurbish
Remanufacture
Repurpose
Recycle
Recover

Figure 2.2: The R-ladder of circularity. Adapted from Rijksdienst voor Ondernemend Nederland (2020)

The CE framework provides a visionary and technologically promising concept for policymakers. It has inspired various European governmental institutions and is often presented in discourses surrounding sustainable development (Savini, 2019; Moalem & Mosgaard, 2021). For example, the CE is mentioned in the European Green Deal (European Commission, 2019), has inspired the European

Union's New Circular Action Plan (European Commission, 2020), Netherlands Circular 2050 (Ministerie van Infrastructuur en Milieu & Ministerie van Economische Zaken, 2016), and the Amsterdam Circulair Strategie (Gemeente Amsterdam, 2015). The widely spread use of the framework shows the extent to which the CE framework influences policies and daily life. The idea that the recovery and reuse of secondary materials can reduce the use of primary materials is widespread.

Nevertheless, the CE has also been criticised for a number of reasons. Kirchherr et al. (2017), who analysed 114 CE definitions from scholarly and practitioner literature, identified a lack of understanding of the CE as a system transformation, considering all three economic, environmental and social domains. Instead, CE discourses have been dominated by policy sectors, which merely focus on technological and economical prosperity, often neglecting social transformation and reorganisation as part of CE practices (Kirchherr et al., 2017; Calisto Friant et al., 2020; Spekkink et al., 2022; Jaeger-Erben et al., 2021). Critics of this understanding thereupon argue that the conventional CE is merely framed as a corporate, technologically driven and economically profitable vision of continued growth, conceptualising the CE as 'an ecological modernisation project that builds on capitalist growth narratives' (Hobson & Lynch, 2016). Indeed, consumer perspectives are often neglected in the CE literature (Kirchherr, 2021; Spekkink et al., 2022). Citizens as active agents, such as in citizen communities, are rarely mentioned in the literature. Instead CE literature primarily focuses on the engagement of economic actors (Spekkink et al., 2022). Moreover, European and Dutch CE approaches have been criticised for their fixation on the outer circles of the CE, in the R-ladder addressed as Recycling and Recover (Mugge, 2023). Although these circles provide ways to keep materials in the economy, they are not the most effective in waste minimisation and optimising resource use.

2.1.1. The circular economy in the Netherlands and Amsterdam

The Netherlands and Amsterdam deserve special attention in this study not only because this research is conducted in Amsterdam, but also because the Netherlands and Amsterdam have placed themselves on the forefront of the transition to a circular economy.

The Netherlands provides a politically, culturally and geographically interesting context in terms of circularity. CE terms are increasingly used in Dutch studies, policy papers, and governmental strategies (Savini, 2019). The CE has received specific attention in the Dutch "Green Deal". This strategy report outlines the national CE strategy towards 2050, wherein the Dutch government describes the ambition to make the Netherlands a circular hotspot (Fratini et al., 2019). The Dutch Green Deal describes the circular pioneering function attributed to the city of Amsterdam (Fratini et al., 2019). In line with this, Amsterdam has purposefully chosen a circular economy vision: *Amsterdam Circulair*, which describes Amsterdam's aim to become fully circular by 2050 and the strategies designed towards this aim (Fratini et al., 2019; Gemeente Amsterdam, 2015).

In advance of the criticism toward CE policies neglecting citizen engagement, the city of Amsterdam remarks the role of bottom-up initiatives towards enabling the Circular Economy in their implementation strategy documents (Gemeente Amsterdam, 2020). In one of the main policy documents on Amsterdam's circular strategies - *Bouwstenen Voor De Nieuwe Strategie Amsterdam Circulair 2020-2025* - Koulompi et al. (2019) elaborate on the role that local initiatives may have in educating consumers about sustainable lifestyles. Additionally, the city of Amsterdam has vocalised the aim to support and expand local circular initiatives, including repair cafes. (Gemeente Amsterdam, 2020; Koulompi et al., 2019).

Nevertheless, how much of these aims are translated into practice remains questionable. In their research into the drivers and barriers towards implementing bottom-up CE initiatives in Rotterdam and Amsterdam, (Russell et al., 2020) found that multiple bottom-up circular initiatives did not yet experience

any visible and tangible impacts for practical support from governmental institutions. Subsequently, some academics warn for the "co-option of alternative discourses by neo-liberal capitalism" (Savini, 2019; D. McLaren et al., 2020). For example, activities of the repair cafe movement have, according to D. McLaren et al. (2020) "now become part of a public-private partnership narrative of a city based on urban mining, the private logistics sector and a key role for city residents as prosumers" (D. McLaren et al., 2020). Alternative discourses and visions may diffuse into the mainstream, technocratic circular economy discourses. It is consequently questionable whether the visions of citizen initiatives carry the potential to effectively transform the current economy and society into a more inherently sustainable system.

2.2. Product repair

Product repair is presented as one of the inner loops of the CE strategies (see figure 2.1). Product repair describes the act of "to put something that is damaged, broken, or not working correctly, back into good condition or make it work again" (Cambridge Dictionary, n.d.). D. McLaren et al. (2020), in their critical review of the treatment of ideas of repair in CE literature, found that product repair is mainly understood through an instrumental and technocratic lens, wherein repair ideally slows down product loops and decreases waste and the use of resources in product manufacturing (Svensson-Höglund et al., 2022; D. McLaren et al., 2020). This finding confirms the finding of other CE literature reviews, wherein the CE is framed as a technocratic intervention to sustain industrial capitalism. Indeed, in most of the CE literature, product repair is defined as a tool deployed to restore product functionality and extend the useful product lifetime in the economy (Svensson-Höglund et al., 2022; D. McLaren et al., 2020). In contrast, only a minority of papers hinted at non-instrumental motivations for repair, such as cultural and emotional considerations, creativity, or product attachment (D. P. McLaren, 2018)

On a policy level, product repair has gained increasing attention as a circular strategy (Kirchherr et al., 2017; van der Velden, 2021). In the European Union, efforts have been made to normalise product repair within the context of realising a CE (Svensson-Höglund et al., 2020): product repair is mentioned as a strategy by The European Commission in the European Green Deal in 2019 (European Commission, 2019), and the 'right to repair' received first attention in the New Circular Action Plan in 2020 (European Commission, 2020). Moreover, the European Commission introduced a new proposal in March 2023 regarding the right to repair, promoting consumer rights regarding the repair of consumer goods (European Commission, 2023). Under the proposal, products that break down within the warranty period are mandatory to repair unless it is more expensive than offering a new product. Additionally, manufacturers are obliged to offer repair as an option for some products that break outside the warranty period. Finally, all European Union countries must connect consumers with repair facilities through online platforms. Thus, the recent proposal by the European Commission marks a in safeguarding consumer rights in product repair. However, the proposal also demonstrates the prevailing techno-economic focus through its emphasis on warranty periods and only obliging companies to repair if it is the economically cheaper option.

Nevertheless, while significant strides have been taken on a policy level to integrate product repair into the circular economy framework, repair remains a largely 'niche activity' in practice (Ampe & Bachus, 2022). Repair enterprises in Europe and the United States dropped significantly over the past years (van der Velden, 2021; Moalem & Mosgaard, 2021; Svensson-Höglund et al., 2020). Additionally, consumers rarely consider the option to repair a broken product (Magnier & Mugge, 2022; Krebs & Weber, 2021). The drop in enterprises and the slow uptake of repairing activities is explained through a

variety of reasons, including the lack of established targets for repair on a country level, low consumer demand, high labour taxes, limited availability of repair manuals, and planned obsolescence¹ (Ampe & Bachus, 2022; Moalem & Mosgaard, 2021; Svensson-Höglund et al., 2020). These factors contribute to higher prices of repairing services and decreasing interest and attachment to repairing options: broken items are more often bought anew than repaired because of the high costs of repairing services compared to the low costs of buying a new item (Krebs & Weber, 2021). Moreover, repairers remain hard to find: a first version of the Dutch repairers register launched in 2023 registers only 33 repair companies². Additionally, the emergence of consumer and throwaway culture in the twentieth century has created a culture in which people feel limited attachment to their products, which makes consumers less likely to feel engaged in the repair of their products (Svensson-Höglund et al., 2022; Krebs & Weber, 2021).

2.3. Community repair

The issues that have led to the decline in commercial repair facilities have led to the rise of various alternative forms of repair (Bradley & Persson, 2022; Moalem & Mosgaard, 2021). In this research, the term community repair refers to all individuals and organisations that gather around social repair practices in the local context. These practices include repairing broken items locally in an often non-commercial way, and collaborating trans-nationally for a better organised repairing infrastructure and a change in consumers mentality towards more circular thinking. A plethora of community repair initiatives, including repair cafes, self-repair, and activist movements such as the Right-to-Repair movement, have gained ground over the last decade. These have received increasing attention from formal as well as non-formal actors. For example, activist movement Extinction Rebellion organises repairing workshops and guerrilla repair actions at fast fashion shops such as Primark and Zara (Extinction Rebellion Netherlands, n.d.). Another example of the common understanding of community repair is the book "The Repair Club" by John Antink, about a group of retired spies who start a repair cafe. And next, the right-to-repair movement, which collectively mobilises diverse actors and organisations with an interest in repair, has received attention and recognition in the latest EU policies wherein the right to repair is recognised and translated into policies (Bradley & Persson, 2022).

2.3.1. Repair cafes

Repair cafes are a specific type of community repair, wherein visitors and volunteer repairers meet to repair broken objects in local, public spaces during organised sessions on a recurring basis³.

The repair cafe concept is based on an initiative of Martine Postma, who organised the first repair cafe in an Amsterdam theatre in 2009 (Repair Cafe, 2023a). The repair cafe was mainly inspired by environmental concerns; Postma organised the repair cafe motivated by the realisation that many items were thrown away while they still had the potential of being repaired (Postma, 2015). Besides the environmental concerns, Postma recognised that repairing skills were undervalued and in decline in

¹Planned obsolescence captures the phenomenon of deliberately designing products to lose their functionality within a certain timeframe. Note that the concept of "planned obsolescence" is a topic of discussion amongst scientists and practitioners because it is hard to prove such design intentions. Rather, the design may just be unsustainable. (Poppe & Longmuss, 2017)

²Search executed on June 2, 2023 on <https://www.nationaalreparateursregister.nl/zoeken>

³According to one of the participants of this research, we should refer to "mending" rather than repairing because "repair is a legally established term to which a number of conditions are attached. A repair cafe therefore consists of a group of volunteers who attempt to restore the function of a Good or Device, for a voluntary contribution.". Originally written in Dutch "Repareren is een juridisch vastgelegde term waaraan een aantal voorwaarden zijn verbonden. Een Repair Cafe bestaat derhalve uit een groep vrijwilligers die de Functie van een Goed of Apparaat tracht te herstellen, tegen een vrijwillige bijdrage." Although repair may indeed not be the right legal term, in this research the term repair will be used for the sake of convenience and understandability.

society. The repair cafe functioned as an opportunity for people to showcase and share their skills and be put in the spotlight (Postma, 2015). Postma chose the name "Repair Cafe" because it captures the two main aims and activities: repairing a broken item and socialising over a cup of coffee or tea.

Much has happened since the organisation of the first repair cafe. After its first success in 2009, numerous repair cafes have been organised worldwide. In 2023, more than 2700 repair cafes were registered at the Repair Cafe International Foundation (RCIF), of which more than 480 repair cafes are located in the Netherlands (Stichting Repair Cafe International & Postma, 2021; Repair Cafe, 2023b)⁴. Approximately thirty repair cafes are based in Amsterdam⁵. Besides an increase in the number of repair cafes, there has been an increase in the number of visitors of repair cafes, as well as in the number of volunteers that join the cafes (Stichting Repair Cafe International & Postma, 2021).

2.3.2. Literature on community repair and repair cafes

Although community repair has existed since people have helped each other repair their items, community repair has thus far received little attention in the literature: a search on Scopus listed 53 documents⁶. Literature focuses on exploring the implications of community repair activities and discourses in community repair initiatives. Several authors have addressed the transformative intent of community repair. Drawing from ethnographic research in two Swedish case studies, Bradley and Persson (2022) show how community repair enables a more socially inclusive CE wherein all layers of society are supported to participate and live towards a low-impact future. Singh (2022) conducted a multiple case study in Switzerland and Sweden to explore activities and socio-economic activities in bicycle repair cafes. They conclude that the cafes have both a direct and indirect sustainability impact on environmental, economic, and social levels.

The literature on repair cafes is summarised by Moalem and Mosgaard (2021), who performed a critical systematic literature review on repair cafe literature to assess the role of repair cafes as a sustainability initiative. Their analysis revealed that the repair cafe concept has spread to a range of contexts, offering a variety of expectations for the future role of repair cafes and a range of possibilities for the future role of repair cafes. Additionally, their review indicates that the motivations of volunteers to join community repair events span a wide range. This range in motivations, in combination with the range of future possibilities, is argued to be a potential challenge to the repair cafe's future role (Moalem & Mosgaard, 2021).

At the global level, the aims of repair cafe participants, activities, and expectations were researched by Charter and Keiller (2014) and Spekkink et al. (2022), who both distributed a survey among repair cafes worldwide. Interestingly, while both studies found a diversity in motivations, activities, and expectations, the conclusions present a mismatch. Based on their results, Keiller and Charter (2018) suggest that repair cafes may have a rising impact on product repairability. Yet, Spekkink et al. (2022) suggest that the lack of community-wide networking and shared identity indicates that there is little transformative potential in the repair cafe movement. This shows that no agreement on the transformative potential of the repair cafe community has been found to date.

Repair cafes were researched at the local level by Madon (2022) and Vandenabeele and Decuypere

⁴On June 13, 2758 repair cafes were registered on the website repaircafe.org.

⁵At the moment of writing, thirty Amsterdam-based repair cafes are listed on the website of repair cafe International. An additional web search identified three more repair cafes, not connected to the repair cafe. Additionally, some repair cafe volunteers organise multiple across repair cafes across different locations and some repair cafes have been cancelled since the COVID-pandemic. The final number of active Amsterdam-based repair cafes was determined to be 28. They are listed in Appendix F.1. One-time-events, such as the Artistieke Repair Shop (See <https://wearewarmingup.nl/nieuws/warming-up-en-fries-museum-openen-artistieke-repair-shop> for more information) are not taken into account in this study.

⁶Using the keywords "repair cafe" OR "community repair" OR "participatory repair" OR "collective repair". Searches were performed on June 13, 2023

(2022), who paid special attention to the pedagogical aims found in repair cafes and concluded that educational strategies are implemented in variable ways and not necessarily shared by repair cafe volunteers and visitors. Furthermore, Madon (2022) and van der Velden, 2021 discuss the socio-material entanglement exercised in repair cafes through an ethnographic study in France and a mixed methods study in the Netherlands, respectively. The inseparability of material and social in community repair draws attention to alternative understandings of the CE, from a merely technological towards a sustainable and integrative way of living. Repair cafes were also researched by Visconti (2021), who explored counter perspectives on the debate of degrowth, technology and circularity, in three different bottom-up initiatives. Their study highlights how these cases represent experimental places where citizens engage with the CE beyond economic interactions.

2.4. Summary and conclusions

The chapter shows the need for a more comprehensive understanding of the CE as a system transformation that incorporates economic, environmental, and social dimensions. While a significant body of literature addresses the economic and environmental aspects of the CE, a knowledge gap exists placing the social dimension at the forefront of CE thinking and implementation.

Additionally, the chapter highlights the importance of product repair in the CE and the challenges it faces in practice. In answer to the obstacles faced by commercial repair, community repair initiatives have risen across the world, providing a non-commercial and social manner of engaging in repairing activities. Literature emphasises the role of community repair initiatives in promoting circular thinking and engaging consumers in sustainable practices. Furthermore, the literature highlights plurality in the goals, motivations and materialisation of community repair cafe initiatives. However, a knowledge gap remains regarding the coexistence and mutual influence of visions and practices within community repair initiatives. Also, the extent to which these initiatives possess the potential to drive transformation in mainstream CE thinking and implementation remains unclear.

In summary, this chapter highlights several critical knowledge gaps in circular economy literature and studies on community repair initiatives. Addressing these gaps through further research will increase theoretical understanding and offer practical insights for policy-making and implementation of sustainable practices in various communities.

3

Theoretical framework

This chapter introduces the concepts of sustainability transitions, transformative change, and social innovation in the context of societal transformation towards sustainability (section 3.1). After this, section 3.2, summarises the theoretical background of imaginaries, followed by a discussion of imaginaries research, its relevance regarding climate change, sustainable transitions, and the CE. In section 3.3, a definition of the sociotechnical imaginary (STI) as used in this research is presented. Finally, a framework conceptualising sociotechnical imaginaries is presented (section 3.4).

3.1. Sustainability transitions, transformative change, social innovation

In the context of increasing interest in large-scale sustainable transformation, the concepts of sustainability transitions and transformative change are gaining momentum (Loorbach et al., 2017). Sustainability transition research, which investigates these concepts, acknowledges that sustainable change involves systemic shifts and advocates for more holistic approaches of interacting with the environment, considering all social, economic, and environmental systems. This acknowledgement is relevant to the formalisation and imagining of CE thinking, which has been criticised for lacking holistic approaches (see section 2.1).

In this study, sustainability transitions refer to "large-scale societal changes, deemed necessary to solve grand societal challenges" (Loorbach et al., 2017). Sustainability transitions research aims to understand transitions better and anticipate and adapt to undesirable transitions, such as climate change, ecosystem collapse or economic breakdown (Loorbach et al., 2017). Subsequently, this line of research comprises a variety of approaches that draw upon the insight into possible transition pathways and transition management strategies to escape the lock-in of unsustainable societal regimes (Loorbach et al., 2017). For example, it draws upon past transitions but also alternative present-day visions and practices to enable imaginative capacities towards future pathways.

Transformative change is closely tied to the field of sustainability transitions. In this field, transformative change conceptualises the act of enabling society to evolve towards more sustainable outcomes and detaching from the perceived need for technological innovation and economic growth. Transformative change requires challenging dominant societal norms and values and imagining alternative forms of

governing. To govern transformative change, transition research argues that it is important to stay open to new ideas, be reflexive towards interdisciplinary exchange, and pay attention to sociotechnical co-evolution. Focus areas include the processes of multi-actor dynamics, problem framing, visioning, experimenting, and learning and evaluating (Loorbach et al., 2017). Examples of sustainability transitions include the transition to renewable energy sources, creating more resilient food systems, and promoting and transitioning toward a CE.

Seen through the lens of transformative change, the transition to a CE should be addressed considering multiple issues. First, the CE should be recognised as more than a technological shift focused on economic prosperity. Second, in recognition of the multi-actor dynamics, transformative change towards a CE should be considered as partly driven by mainstream actors, and greatly influenced by cooperatives, cities, companies, and social movements, such as citizen energy initiatives and community repair movements. Third, transformative change requires an understanding and analysing past, present, and future situations, which are addressed in the importance of visioning in transition studies. The thesis here includes that actors at all levels believe in a variety of possible futures, depending on choices and practices made in the present (Loorbach et al., 2017). Therein, visions are helpful in giving direction towards present-day actions (Loorbach et al., 2017). Awareness of potential futures can be enhanced by offering alternative visions and potential pathways towards these visions. Illustrating and exploring alternative visions can help develop a set of futures in order to pluralise mainstream future visions.

The recognition of these issues in transition studies illustrates the acknowledgement that transformative change can be enacted through bottom-up citizen initiatives, often addressed in literature through the concept of social innovation (Wittmayer et al., 2019). Social innovation is conceptualised as the process of "changing social relations, involving new ways of doing, knowing, framing, and organising" (Pel et al., 2020). In this context, the role of developing alternative narratives and constructing societal transformation is attributed to social innovation initiatives (Wittmayer et al., 2019). Social innovation initiatives thereby embody crystallisation points of transformative change, in which transformative social innovation is defined as "the process of challenging, altering, or replacing dominant institutions in a specific socio-material context" (Pel et al., 2020).

3.2. Theoretical background: origin and development of imaginaries

In this paper, the concept of sociotechnical imaginaries is applied to understand how local communities make sense of the CE and construct/resist future visions of circular transformations. "Imaginaries" are here understood as ways of acting in and understanding the present and how this guides and is guided by shared visions of desirable futures (Holmgren et al., 2020; Yusoff & Gabrys, 2011). The STI builds upon the imaginary concept, which has been uptaken and redefined by a number of authors, giving rise to a diffuse use of the concept in imaginary literature and beyond. The following sub-sections contextualise the STI in this field by presenting an overview of the most relevant contributions to the origin and development of the STI concept. First, the social imaginary is defined following the contributions of Castor Castoriadis, Benedict Anderson, and Charles Taylor. Second, the STI as developed by Jasanoff and Kim (2009) is defined and further explained using the STI cycle from Rudek (2022). Third, an overview of the use of imaginaries in the climate change and CE literature is provided.

3.2.1. The social imaginary

Although the imaginary as a phenomenon has been around as long as humans have existed, imagined their futures, and lived together in communities, imaginaries research is a relatively recent stream of research. This discrepancy between the existence of and research into the concept may be due to the fact that imaginaries have been researched, but under different concepts, as argued by Strauss (2006). Indeed, the theoretical background of the sociotechnical imaginaries concept runs deep into the history of anthropology, sociology and philosophy; terms from anthropological and cultural studies addressing similar concepts include culture, cultural beliefs, meanings, and models (Rudek, 2022; Strauss, 2006). It is consequently important to keep in mind that imaginaries research and writing builds upon a long line of research while reading the following overview of the origin and development of the (sociotechnical) imaginary concept.

Significant contributions to the contemporary use of the social imaginary concept developed from the works of, amongst others, Cornelius Castoriadis, Benedict Anderson, and Charles Taylor (Strauss, 2006; O'Neill, 2016). Anderson first expanded upon the imaginary as a concept to describe the phenomenon that is constructive of societies, nations, and broad issues such as the concept of modernity (Anderson, 1991; Taylor, 2004). This understanding is shared by Taylor, who, drawing upon Anderson's work, proposes the term *modern social imaginary* to describe:

"the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations" (Taylor, 2004, p.23).

Taylor thereby marks the importance of the "imagining of the surroundings" which is not expressed through theory but carried in images, stories and legends. Additionally, Taylor explains how the imaginary is shared "by large groups of people, if not the whole society" (Taylor, 2004, p.23). This notion marks how the social imaginary has been majorly used: to describe the understanding of societal challenges by large groups of people.

Greek philosopher Cornelius Castoriadis has been key to the understanding that the imaginary concept captures the imaginative capacity. In his view, imagination captures the ability key to producing systems of meanings essential to the collective interpretation of social reality (Rudek, 2022). To illustrate the imaginative capacity and the way it works, Castoriadis opposes the actual imaginary to the alternative imaginary, whereby the alternative imaginary - "the capacity to see in a thing what it is not, to see it other than it is" (Castoriadis in Strauss (2006)) - results in the actual imaginary. An overview of how Castoriadis' radical imaginary relates to the actual imaginary is provided by (Kaika, 2011) (see figure 3.1).

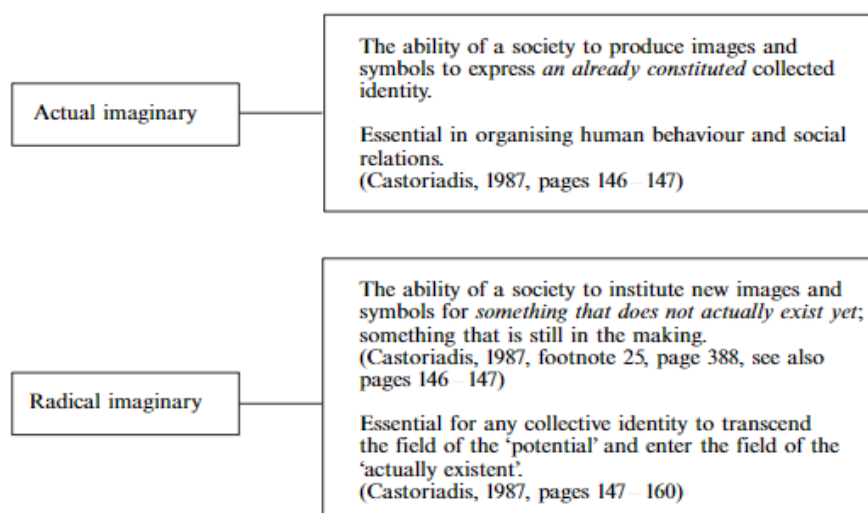


Figure 3.1: The actual and radical imaginary. Taken from Kaika (2011)

The creative, constructive aspect of the imagination, emphasised by Castoriadis, is shared by the political scientist Benedict Anderson. However, Anderson and Castoriadis differ in their way of defining by whom the imaginaries are created and held (Strauss, 2006). For Castoriadis, the imaginary is a worldview associated with a particular group, distinguishing groups from one another. For Anderson, the imaginary is carried by the society as a whole, not necessarily distinguished by means of certain groups.

In conclusion, Anderson, Taylor, and Castoriadis diverge in their application and the scale of the imaginaries they discuss. Nevertheless, their ideas are all rooted in the understanding that imagination is crucial to shaping society. Inspired by the growing acknowledgement that the ability to envision the future is a crucial aspect of social and political life, the imagination is a valuable resource that facilitates the emergence of new social constructs. The concept of the alternative imaginary as proposed by Castoriadis opens up an understanding of how groups of people of varying sizes can carry imaginaries, and how an imaginary can be challenged and under constant development.

3.2.2. The sociotechnical imaginary

Sociotechnical imaginaries are a specific type of imaginary, first proposed by Jasanoff and Kim in 2009 to understand the role of imagining technological futures as a crucial element in social life (Jasanoff & Kim, 2009; Jasanoff & Kim, 2015; Rudek, 2022). STIs build upon social imaginaries but also deviate from the social imaginary. First, STIs are specifically focused on scientific and technological development. Second, the imaginative capacity captured in STIs is closely connected to future visions, while in social imaginaries, the imagination is mainly connected to present-day societal structures.

In this study, the sociotechnical imaginary is defined following the definition of Jasanoff and Kim (2015), who defined the sociotechnical imaginaries as:

"collectively held, institutionally stabilised and publicly performed visions of desirable futures, animated by shared understanding of forms of social life and social order attainable through, and supportive of, advances in science and technology" (Jasanoff & Kim, 2015, p.120).

The definition shows the connection between desirable visions of the future, beliefs about the role of

science and technology in society, and the production of power and social order (Jasanoff & Kim, 2015). Moreover, the definition shows that imaginaries are shared ("*collectively held*"), practically performed, and contain an imaginative, future-oriented aspect ("*visions of desirable futures*").

First, the *shared* aspect of imaginaries highlights that imaginaries are shared and articulated by groups of people. These first mainly included whole societies and nation-states. However, after further developments of the concept, smaller groups of people, such as social movements, communities, or corporations, were considered to be capable of sharing imaginaries too (O'Neill, 2016; Jasanoff & Kim, 2015; Longhurst & Chilvers, 2019). Interestingly, an imaginary does not necessarily have to emerge from a shared identity or practice. Instead, imaginaries can emerge from the private visions and actions of individuals or groups of individuals (Schmid et al., 2022; Jasanoff & Kim, 2015).

Second, the *performed*, present-day dimension of imaginaries accentuates how visions of desirable futures are linked to present-day practices (Schmid et al., 2022). Imaginaries make a sense of legitimacy possible, creating the conditions in which we intervene in the present (O'Neill, 2016; Yusoff & Gabrys, 2011). These interventions describe all the things we do in the present. Imaginaries shape organised activities, physical practices, and economic and social interactions. Here, a form of co-construction can be recognised: imaginaries legitimise our actions, through which a future-oriented vision is constructed, which influences our actions. Notably, imaginaries "are not only socially constructed but also construct the social" (Arnall & Hilson, 2023).

Third, the *imaginative, future-oriented* aspect highlights the presence of a vision of a desirable future. This vision influences our imaginative capacity and understanding of possibility. This ties into the role transitions research has attributed to visions in setting about transformative change: visions have been proven to provide direction and justify our actions towards our visions. Recent research into the emergence and evolution of imaginaries has built upon this understanding of visioning research and highlighted how new imaginaries can be formed and give rise to transformative change. This research focuses on visions at the community level, which are developed within a network of actors who feel the need to address a specific issue (van der Helm, 2009). van der Helm (2009) highlights that community visions function as tools to hold actors together by leading actors towards a shared understanding of what the future might or should look like and which steps are needed to realise this future.

In sum, by bringing several aspects together, imaginaries provide a shared sense of meaning around societal and organisational issues through representing and performing a collective vision of the future (Levy & Spicer, 2013; Hajer, 2017). This aspect builds heavily upon visions literature, wherein visions and their functions are discussed in detail. The level of co-production at every dimension shows how imaginaries simultaneously function as instruments and products of the co-production of science, technology, politics, practices, and society (Jasanoff & Kim, 2015; Longhurst & Chilvers, 2019).

3.2.3. The sociotechnical imaginaries cycle

To fully understand how imaginaries exert their power and how this power can be challenged, it is important to understand how imaginaries emerge and adapt in response to changes in social, cultural, and political constructs. This process is captured in the sociotechnical imaginaries cycle, initially developed by Rudek (2022) (see figure 3.2).

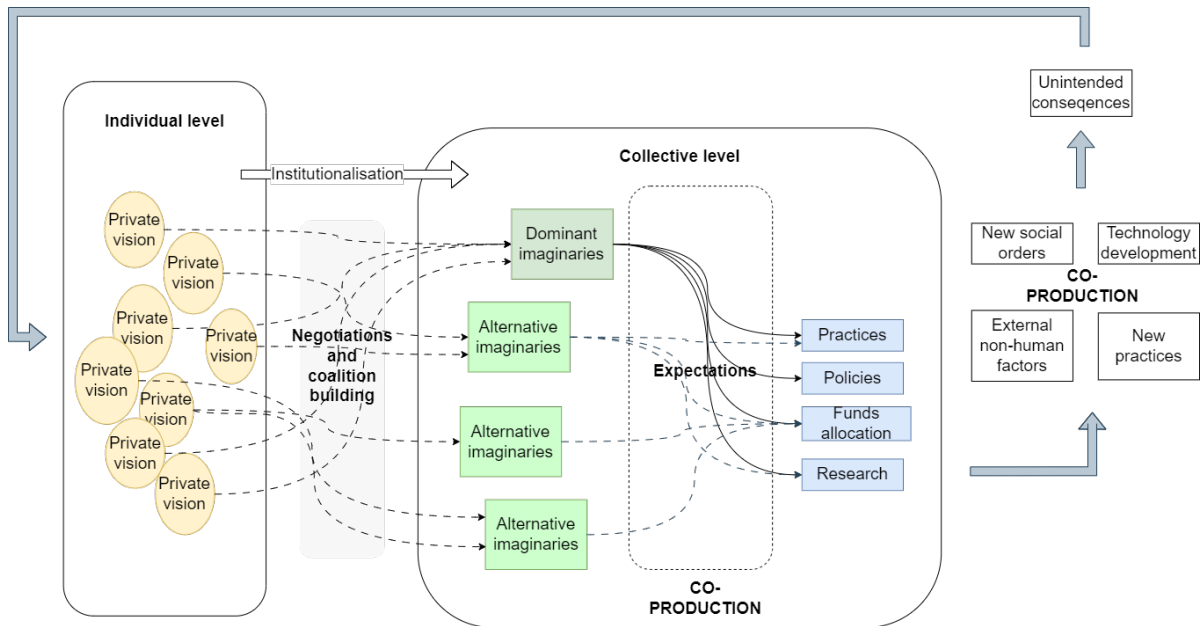


Figure 3.2: Sociotechnical imaginaries cycle. Adapted from Rudek (2022).

The sociotechnical imaginaries cycle in figure 3.2 depicts the levels at which imaginaries emerge, evolve, and exert their influence. First, the cycle shows how individual views are inspired and impacted by social context at the individual level. Second, at the collective level, the cycle shows how some imaginaries originating from private visions may gain stability through institutionalisation and how these imaginaries subsequently become publicly performed and represented in practices, policies, funds allocation, and research. The cycle shows the importance of expectations in this process: imaginaries trigger expectations which stimulate and mobilise actors and resources. Expectations are herein more project-oriented, whereas imaginaries are broad and create the expectations. Third, the cycle depicts the process of co-production of techno-scientific projects, social dynamics, and politics, also highlighted by Jasanoff and Kim (2015) in their elaboration on the sociotechnical imaginary. Finally, actors in the cycle are represented as being involved in, shaped by, and shaping imaginaries. They are, thereby, simultaneously active and passive actors.

The cycle also showcases how dominant and alternative imaginaries can co-exist, contest one another, and influence practices, policies, funds, and research. In that sense, imaginaries can exist in or out of support of the dominant mainstream imaginary (Marquardt & Delina, 2019). Castoriadis also outlines this process (see figure 3.1 - in Castoriadis terms, the alternative imaginary is the radical imaginary). In essence, an imaginary's power is determined by how it 'fits' with existing social structures.

The cycle is therefore helpful in illustrating how imaginaries do not always represent fruitful grounds for thinking and acting progressively because of their simultaneously constraining and enabling nature. Especially dominant mainstream imaginaries may constrain people to act in transformative ways because of their influence on policy-making and technology development. Earlier, I described how dominant imaginaries can be challenged by alternative imaginaries, which are often created in alternative groups such as NGOs or communities, as these groups often possess the capacity to perform counter-narratives (Marquardt & Delina, 2019). For example, 'mainstream' CE imaginaries can be challenged by alternative CE imaginaries. Even though mainstream CE imaginaries usually have more influence over how the CE is implemented - which has led to the production of CE policies and legislation with technological innovation at their core - CE imaginaries represented by bottom-up initiatives may carry the potential

for socially and environmentally desirable sustainability transitions. By vocalising future promises, these can legitimise solutions and own the potential to project new goals and development paths that depart from the existing, dominant path (Fratini et al., 2019).

3.3. Imaginaries and the Circular Economy

Especially in a world facing a climate crisis, imaginaries are relevant because they prescribe what futures are achievable. They enable and constrain our thoughts, feelings, and beliefs of what we ought and are able to do (Narayan & Tidström, 2019; Celermajer & Sturman, 2021). Imaginaries thereby influence how we act in the present and thus the way we prepare for and adapt to climate-changed futures (Hajer & Versteeg, 2018).

Imaginaries related to the climate crisis and sustainable transitions have been increasingly researched. For example, researchers have investigated climate imaginaries (Levy & Spicer, 2013; Celermajer & Sturman, 2021), sea level rise imaginaries (Arnall & Hilson, 2023), and proto-regenerative imaginaries (Leitheiser et al., 2022). Other examples, focusing specifically on how society and the economy can be organised (more) sustainably include: bioeconomy imaginaries (Holmgren et al., 2020), national energy imaginaries (Jasanoff & Kim, 2013), community energy imaginaries (Schmid et al., 2022), and CE discourses (Fratini et al., 2019; Hermann et al., 2022). This subset showcases the wide application and variety in imaginaries research. Additionally, it shows how imaginaries can be applied in different ways: to explain historical paradigm shifts (Jasanoff & Kim, 2015), showcase alternative ways of organising society (Holmgren et al., 2020; Leitheiser et al., 2022), and inspire radical ways of imagining and organisation (Levy & Spicer, 2013; Celermajer & Sturman, 2021; Arnall & Hilson, 2023).

CE imaginaries deserve special attention in this research because they engage directly with repairing practices and the organisation of repair infrastructures. Academic literature on CE imaginaries is relatively scarce but growing increasingly as imaginaries and the CE gain attention. CE imaginaries have been applied as a concept to describe how the CE is imagined in academic literature in support of sustainable transitions in European cities (Fratini et al., 2019), and to showcase how the CE can be instrumental to the development of a sustainable imaginary (De Angelis & Ianulardo, 2020). Besides, CE imaginaries have been explored in several case studies. Hermann et al. (2022) have applied CE imaginaries to a Norwegian case study, and Narayan and Tidström (2019) as a concept to understand sustainable innovations. These studies highlight how CE imaginaries differ on a case-by-case basis and depend heavily on cultural context. Additionally, they emphasise the lack of reflection on social and environmental justice related to the implementation of CE strategies.

3.4. Conceptualising the sociotechnical imaginary

In practice, imaginaries have been researched through a variety of methodologies. In imaginaries literature, a distinction in methods based on the level of analysis can be made: a local, regional, national, or global scale. To analyse and compare imaginaries on the national policy level, studies have used policy analysis methods, such as discourse analysis of policy papers and literature (Hajer & Versteeg, 2018; Mast, 2022; Hermann et al., 2022; Holmgren et al., 2020), comparative analysis of national policies, thematic analysis of policy documents (Hermann et al., 2022), (Jasanoff & Kim, 2013), and literature analysis (Holmgren et al., 2020); to analyse imaginaries in communities, researchers have applied ethnographic research methods combining interviews and document analysis (Lehtiniemi & Ruckenstein, 2019; Arnall & Hilson, 2023), and quali-quantitative investigation methodologies (Certomà et al., 2020).

Following this study's local and community-based nature, the study applies ethnographic research methods (further explained in chapter 4). Additionally, the study has sought to conceptualise the STI to comprehensively capture the complex STI concept. Subsequently, aiding with data collection and analysis of this study will be the imaginary dimensions defined by Schmid et al. (2022). This framework has been chosen for two reasons. First, the framework was initially developed for capturing imaginaries in a bottom-up initiative, providing a similar context to the case study of this research. Second, the core ideas of the STI (as explained in section 3.2.2) are captured in two dimensions and corresponding features. These dimensions provide clear guidance during data collection and analysis, ensuring no major aspects are overlooked. The dimensions include:

1. *aspirations* capture visions of desirable futures
2. *performances* capture the way aspirations are enacted and translated into present-day practices

Schmid et al. (2022) developed indicators for both dimensions through iteration between the theoretical concept of imaginaries and the data they collected during their research into Swiss energy initiatives. Table 3.1 shows the dimensions and indicators.

Table 3.1: Synthetic overview of operationalization of imaginaries. Adapted from Schmid et al. (2022).

Dimensions	Features of emerging new imaginaries
Aspirations - Linked to a desirable future	<ul style="list-style-type: none"> • Vision of a future repair system • Operational goals at the organisational level • Motivations of members • Envisioned role of technology in the transition to ideal future
Performances - Enactment of the future as of today	<ul style="list-style-type: none"> • Main activities • Organisational governance • Relationship of community repair initiatives with other local actors

The first dimension of aspirations is explored using three indicators. First, the *vision of a future repair system* captures how participants envision the future of repair and community repair. To gain a comprehensive understanding of the vision, participants will be asked about 1.) their vision of an ideal future of repair, 2.) the differences between this future and the present, 3.) the steps towards realising this future, and 4.) relevant actors towards realising this future. This approach draws inspiration from van der Helm (2009), who suggests that visions often stem from a desire to idealise the future in response to dissatisfaction with the present. Second, the *operational goals at the organisational level* of the community are addressed. Participants will be asked about the goals of the initiative, how these came to be, and how these are being pursued. Third, the *motivations of community energy members* are highlighted. While Schmid et al. (2022) highlights the importance of understanding how profitability is understood for this aspect, this study will maintain an open approach to see which motivations come up. Fourth, the final indicator addresses the *envisioned role of technology in the transition*. This feature aims to capture participants' expectations on the importance of technology and technological innovation in realising their future visions.

The second dimension of performances is examined through three indicators. First, the *main activities* undertaken by the initiatives will be captured, encompassing all tangible actions aimed at realising their aspirations, but also those which may not target those visions. Second, the *organisational governance* indicator looks at the rules and processes governing decision-making and implementation within the initiatives in order to pursue their goals. Third, the third aspect addresses the *relationship of community repair initiatives with other local actors* in the realm of product repair and governance. This aspect draws attention to the fact that community repair initiatives do not operate in a vacuum but rather in collaboration with other actors. Relationships include their organisational links with and dependence on incumbent actors, such as the municipality and other local actors.

3.5. Summary and conclusions

This chapter introduces the theoretical and conceptual framework of this study. First, the chapter shows the importance of transition research, social innovation, and transformative change in understanding radical shifts towards sustainability. Transition research highlights the importance of openness to new ideas, interdisciplinary exchange, system innovation, and sociotechnical co-evolution in governing transformative change. Additionally, the importance of visioning and exploring alternative futures to guide and empower actions is emphasised. Furthermore, the chapter highlights that social innovation initiatives, often driven by bottom-up citizen initiatives, play a crucial role in driving transformative change.

Second, the chapter shows how the concept of sociotechnical imaginaries developed. The chapter explored the diffuse use and conceptualisation of the imaginary and social imaginary. The contributions of Castoriadis (1993), Anderson (1991), and Taylor (2004) are highlighted for their pivotal roles towards the development of the social imaginary. Their contributions were crucial towards understanding the importance of the imaginative capacity in shaping society and societal constructs. Moreover, Jasanoff and Kim (2009)'s concept builds upon this imaginative capacity, creating the STI to highlight the relevance of future visions in scientific and technological developments. The STI is thus similar to social imaginaries in recognising the imaginative capacity but deviates in its focus on future visions and sociotechnical developments. Like transition research, sociotechnical imaginaries highlight the connection between desirable future visions and ideas about technology, science, power, and social order. In that sense, sociotechnical imaginaries are crucial in shaping what futures are deemed achievable, thereby influencing present-day actions and preparations for climate-changed futures.

Third, the sociotechnical imaginary cycle from Rudek (2022) is shown. The cycle explains how private visions transform into institutionalised sociotechnical imaginaries and how these imaginaries can influence society, politics, strategies, technological developments and practices. The cycle highlights the presence of alternative imaginaries and how these can challenge the dominant imaginary. Furthermore, the cycle demonstrates the role of expectations in shaping individual and collective actions.

Fourth, the chapter reports on literature exploring sociotechnical imaginaries related to the CE and climate change. The literature shows to be diverse; CE imaginaries have been applied to various subjects, geographical contexts, and with various aims. For example, sociotechnical imaginaries have been used to explain historical paradigm shifts, show alternative ways of organising society, and inspire radical ways of imagining the future. Only a few studies have applied the STI concept in the local context, providing a gap in the literature showing how STIs are formed and challenged at the local level.

Last, the chapter provides a conceptual framework summarising the sociotechnical imaginary in the local context. The sociotechnical imaginary is captured in two dimensions representing 1.) aspirations,

linked to a desirable future, and 2.) performances, representing the enactment of the desirable future. The conceptualisation will function as a framework during the data collection and analysis (see chapter 4).

4

Methodology

This chapter presents the embedded case study design of community repair in Amsterdam and repair cafes as the unit of analysis (section 4.1.1). Then, the data collection and data analysis methods are presented. Lastly, a discussion of the validity and reliability of the methods is presented.

4.1. Data collection

The outlined research questions in chapter 1 are addressed through a qualitative research approach. Qualitative research aims to understand a phenomenon through an open and flexible approach, looking through the eyes of participants in order to interpret the social world from their perspective. An emphasis is placed on description, context, and process in translating participants' experiences, meanings, and interpretations into a scientific report (Yin, 2008). This research aims to gain empirical evidence through participant observation (primary data), semi-structured interviews (primary data), and document analysis (secondary data). The empirical material for this study subsequently consists of field notes from participant observation at community repair events, semi-structured interviews with active participants in community repair initiatives in Amsterdam, and physical and online documents. All data collection took place between April and June 2023. A detailed description of each method is presented in section 4.1.

The research design focuses on exploring sociotechnical imaginaries in a local context. Specifically, it looks at the connection between 1.) aspirations and 2.) performances in the repair cafe community in Amsterdam (as set out in chapter 3). The dimensions of aspirations and performances were used to select stakeholder groups fit for interviews and observation, concluding in two stakeholder groups. First, participants in local repair cafes because they form the basis of the local activities of the repair cafes and carry private visions into the repair cafes. Second, representatives of the RCIF, as their activities and input is crucial in developing the repair cafes. Additionally, their ideas and actions can provide insights into the broader imaginaries at the collective level. Considering the scale, this research thus goes from a national-global (the RCIF) to a local (the local repair cafes) scale, comparing the perspectives within these scales and exploring the connection between them. To confirm the relevant groups and their positions, an interview with an academic researcher with expertise in the field of sustainability governance and bottom-up initiatives was held while writing the research proposal.

4.1.1. Case study selection

Multiple aspects were considered when picking the case study for this research. First, the repair cafe community in Amsterdam is extensive and has existed for more than ten years. The municipality praises the repair cafes for contributing to Amsterdam's road to becoming fully circular (Gemeente Amsterdam, 2020). Second, the repair cafe emerged in Amsterdam, making it a model for other repair cafes worldwide. Third, practical reasons made the choice for repair cafes in Amsterdam most fit as a case study: repair cafes in Amsterdam are easily identifiable and open to the public, the RCIF has their office in Amsterdam, and the languages spoken are Dutch and English. Thus, the repair cafe community within the geographical boundaries of the Amsterdam municipality was deemed best suited for examining sociotechnical imaginaries within a bottom-up circular initiative and deemed case study of choice.

4.1.2. Embedded case study

This research adopts an embedded case study approach to explore the sociotechnical imaginaries in repair cafes in Amsterdam. Case study research studies a specific phenomenon over time in its natural context (Bhattacharjee, 2012, p. 93). This manner of studying allows for capturing the circumstances and conditions of an everyday situation. Case study research proves advantageous when the phenomenon being investigated is context-dependent, as is the case with repair cafes in Amsterdam. Moreover, case studies facilitate the integration of practice and theory, fitting the exploratory nature of this study. An embedded case study approach involves more than one unit of analysis (Yin, 2008, p.96). This study takes community repair in Amsterdam as an embedded case study, wherein multiple local repair cafes and the RCIF are the sub-units. Figure 4.1 illustrates the embedded case study.

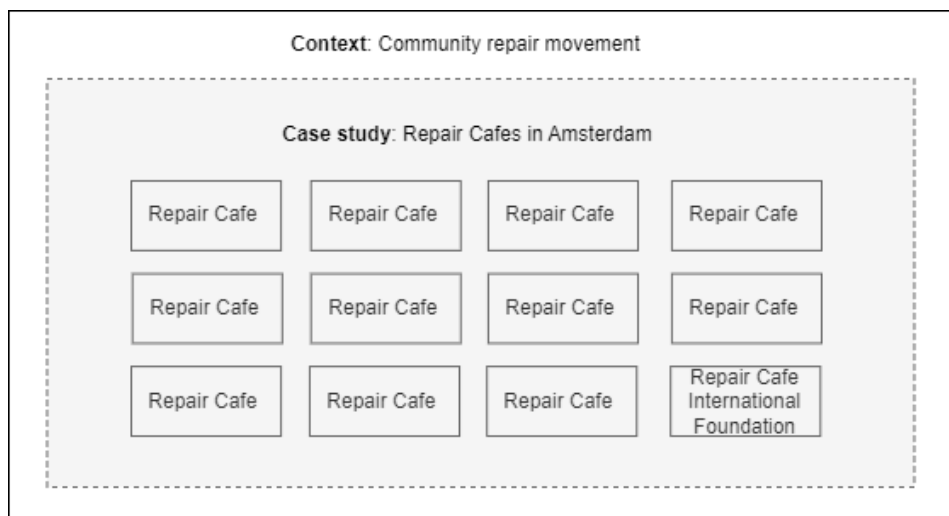


Figure 4.1: Context, case study, and unit of analysis of this study's embedded case study. Adapted from Yin (2008, p. 92)

Repair cafes in Amsterdam

Amsterdam is home to over thirty repair cafes, organised by different groups at various locations. Thirty-one Amsterdam-based repair cafes were identified via repaircafe.org, the website of the RCIF. One additional repair cafe was found through a Google search, which was not yet listed on the website at the moment of starting data collection. Analysis of the Facebook pages and websites of the repair cafes combined with the interviews and visits to the repair cafes clarified that some of the repair cafes

had been discontinued or merged with other repair cafes.

Multiple approaches were used for identification, contacting the repair cafes for observation, and contacting the interview participants. For the semi-structured interviews, interviewees were selected through a purposive sampling approach. The RCIF was contacted through their email address. Local repair cafes were identified through the website of the RCIF and web searches.

The selection of units in this study does not aim to create a statistically representative sample. Instead, a purposive sampling approach has been employed to select repair cafes and interviewees. Purposive sampling allows targeting participants with in-depth knowledge and perspectives relevant to the study objectives (Palinkas et al., 2015). Thirty-two repair cafes were identified, of which fifteen were contacted. The following criteria were kept in mind while reaching out to the repair cafes:

1. Representation of neighbourhoods.
2. Representation of temporary repair cafes versus repair cafes that operate from a fixed location, based upon their opening times.

Additionally, a snowballing technique was employed to contact and identify certain repair cafes and interviewees. Interviewees were selected based on 1) their involvement with the repair cafes and 2) their openness and availability to an interview. Ten repair cafes were visited, and one additional repair cafe was represented through an interview. Figure 4.2 shows the repair cafes in Amsterdam and which repair cafes have been visited.

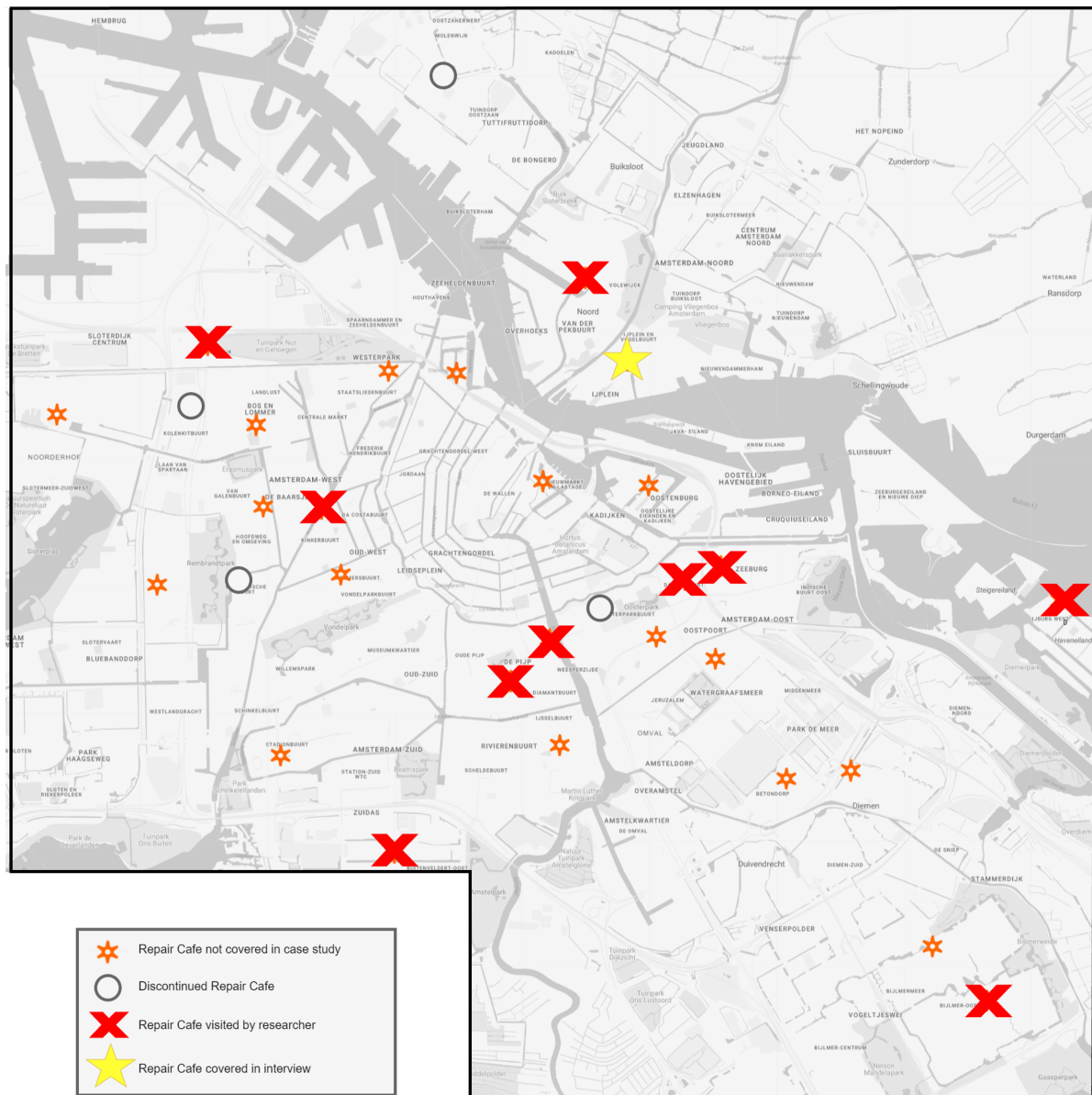


Figure 4.2: Map showing the spatial distribution of Repair Cafes in Amsterdam. Map taken from Repair Cafe (2023b), own elaboration. Discontinued repair cafes represent the repair cafes shown on the RCIF website, whilst not being active at the moment of research.

4.1.3. Data collection methods

Direct and participant observation

Case studies provide the opportunity for both direct and participant observation. Direct observations are characterised by the researcher being a passive observer (Yin, 2008). Direct observation was complemented by participant observation. Unlike direct observation, participant observation is an ethnographic method wherein the researcher takes an active approach, through which they generate knowledge about specific subjects through the observation by and interaction with the researcher (Yin, 2008). It is therefore advantageous in cases where the study intends to capture the processes behind how meaning is formed and perpetuated in specific communities (Bhattacharjee, 2012).

For this study, observations were carried out at public repair cafe events in multiple Amsterdam

neighbourhoods from April to June 2023. Data collection manifested as visiting repair cafes as a visitor with a broken item, as a researcher at the event, and helping out with the repairs at other events. Ten repair cafes were visited on twelve occasions (for an overview of the observation events, see Appendix A). To ensure consent, the organisers of the events were contacted and asked for permission to perform the observation. Additionally, an information form was provided at the event stating the researcher's contact information and the purpose of the study.

Observations aimed at getting an understanding of the practices happening in repair cafes in Amsterdam, and how future visions are communicated and enacted. Aiding with direct and participant observation was a notebook in which field notes were written. Observation was guided by the following question, aiming to get a complete overview of the event and how the event aimed at enacting the visions of the repair cafe community:

- Who organises the event?
- Where does the event take place?
- What does the location look like?
- Who attends the event?
- How are visitors welcomed to the event?
- What types of items are repaired at the event?
- What is the objective of the event?
- How does the event fulfil that objective?
- What is discussed at the event?

Semi-structured interviews

Interviews are essential sources of case study information because they can provide important insights into human interactions and behaviours (Yin, 2008). Individual interviews involved a session in which the interviewer interacted directly with the respondent to ask questions and record answers (Bhattacharjee, 2012, p. 78).

In this research, semi-structured interviews explored the perspectives, visions and motivations of active participants of local repair cafes concerning repairing practices and the future of product repair. Twelve semi-structured interviews with fifteen interviewees representing eleven repair cafes and the RCIF were conducted from May until June 2023. Table B.1 in Appendix B shows an overview of interview participants. Initial interviewees were identified and selected because of their active involvement in a repair cafe in Amsterdam. Repair cafes were identified via a web search and the website of the RCIF. Additional interviewees were suggested through a snowballing method. Various participants of repair cafes were selected, including founders, organisers, and active volunteer repairers of the repair cafe community in Amsterdam. Appendix B provides an overview of the interviewees and their roles.

In general, interviews lasted between 45 and 60 minutes. Individual face-to-face interviews were preferred, but if this was not possible or preferred, interviews could be conducted via MS Teams. None of the participants expressed the wish to hold the interview via MS Teams, so all interviews were held face-to-face. All interviews were individual, except two interviews, which were held with two and three participants. These interviews were originally planned as individual interviews, but the interviewees preferred having the interview together with (an)other volunteer(s). All interviews were conducted in Dutch, except for one which was conducted in English. To ensure consent, participants were provided and asked to sign the Information and Consent form describing the study's purpose and procedures. Appendix C contains a copy of this form.

An interview guide with questions about motivations, future visions, and practices was used to guide the interviews. Interview questions were based on the dimensions and features of imaginaries explained in chapter 3. The interview questions in English and Dutch can be found in Appendix D. All interviews were recorded, transcribed, and uploaded to the coding software Atlas.ti for analysis. One transcript was revised by the corresponding interviewee, who expressed the wish to review and approve the transcription prior to analysis. The interviewee returned a revised transcript version, which they believed to represent their opinions more accurately. The revised version was used for further analysis.

Document analysis

Documentary information is a stable and unobtrusive way of studying a subject (Yin, 2008). It functions well as a supplementary form of data because it can be used to check or contradict other sources of information (Yin, 2008). In this study, a variety of documentary information was included for analysis. Appendix E provides an overview of the analysed documents. The overview shows that the analysis included reports, website articles, Facebook pages of the repair cafes, flyers spread and given out at the repairing events, and other documents that participants supplied. These documents were analysed with the aim to explore the practices and future visions of repairing initiatives and how these are publicly communicated and displayed.

Before document analysis, a few questions were listed to guide the analysis. The primary objective of these questions is to extract information about the activities, visions, and key actors or institutions associated with the initiative. The following questions guided the document analysis:

- What information does the document supply about the activities of the initiative?
- What information does the document supply about the visions of the initiative? Is there explicit information about how this future is going to be achieved through practices of the initiative?
- Which actors or institutions are mentioned in the document?

4.2. Data analysis

Based on the suggestion of Jasanoff and Kim (2015) to systematically mine qualitative material to reveal imaginaries, the data collected through the interviews and other methods mentioned above was coded. A thematic approach was taken, combining both inductive and deductive elements. The theoretical framework provided a starting point to analyse the data: the sociotechnical imaginary framework as set out in 3 was used to guide the coding of the data. This provided the deductive part of the analysis, where a list of keywords was used in order to identify patterns that point towards the aspirations and performances dimensions of the sociotechnical imaginary framework.

However, more themes and perspectives emerged during the data collection and while analysing the data afterwards. This process provided the inductive part of the analysis. For example, experienced barriers towards achieving past goals appeared important to the set goals and practices. Following, the experienced barriers were considered during coding, and evolved into the theme 'scope of action'. Subsequently, the data analysis became an iterative process of reading and coding the data using the beforehand developed codebook influenced by new perspectives learned during the data collection. As such, the data analysis process consisted of multiple coding cycles. The first cycle mainly focused on condensing the data into codes and sub-codes derived from the data, theory, and codebook. Following, the codes were analysed and overlapping codes were grouped together. Then, the second and third coding cycles focused on further analysis of the interviews and documents. A focus was placed on

identifying data that confirmed or contrasted previous findings and codes. These cycles aided with confirming categories and readjusting them when necessary.

The codebook used to identify elements of the imaginaries and the scope of action is shown in Table 4.1. The codebook provides the themes, open codes, and keywords that define how these codes are applied. These elements serve as the foundation for recognising patterns and themes.

Table 4.1: Codebook

Theme	Open code	Operational definition
Aspirations		
Vision of a future repair system	Increased product repairability	Design for disassembly, modular design, right to repair, availability of manuals
	Inclusive and diverse repair infrastructure	Commercial repair alongside repaircafes, financial viability of repair, collaboration, circular centres
	Normalised repair	Repairing skills, repair knowledge, repair education
Operational goals at organisational level	Openness and accessibility	Continuity, welcoming atmosphere, inclusive, repair cafe should be free, volunteer-based, repairing together, neighbours helping neighbours
	Sharing repair skills	Teaching others, learning, asking questions, providing information
	Changing mindsets	Mindset change, information about sustainability, awareness, changing consumer lifestyles
	Combating waste generation	Repairing broken items, using second hand items
	Lobbying role	Lobbying, legislation, data exchange, RCIF, Right to Repair
	Taking repair cafe to the next level	Kids repair, circular centres, circulaire ambachtscentra, repaircafe +, collaboration
Motivations of members	Social motivation	Meeting people, contact with neighbourhood, meeting volunteers, repairing together, appreciation
	Enjoying to repair	Repairing is fun, good at repairing, learning from others, story behind product
	Environmental concerns	Climate change, waste, reusing things, worry about planet and future, throwaway culture, lifetime of products, combating waste
Envisioned role of technology	Technology plays a major role in the transition to an ideal future	Technological innovation, Artificial Intelligence, 3D printing, technology is useful
	Doubtful about role of technology	Social responsibility, critical about role of technology
Performances		
Main activities	Data collection	Data, information, data sharing, privacy
	Repairing	Product repair
	Engaging visitors	Welcoming, hosting, coffee+tea, social interactions

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Table 4.1 – continued from previous page

Theme	Open code	Operational definition
	Education / sharing information	Providing information, collaborating, sharing knowledge
Organisational governance	Coordinated organisation	Specific rol division, hosting function, coordinator role(s)
	Organically organised	No specific role division
	Decentralised organisation	Dispersed organisation, local embedding, no bureaucracy
Relationship of repaircafe with other local actors	Collaboration with local facilitating organisation	Facilitation, community centre, space, tool storage
	Collaboration for knowledge exchange	Visiting other repair cafes, knowledge exchange, use of manuals and online information sources
	Relation with local commercial repair	Referring to commercial repair shops, no clue about local commercial repairers
	Limited collaboration	Repair cafe as island, no contact with others
Scope of action		
Scope of action	Barriers to repairing products	Product design, manuals, availability components, Read The Fucking Manual (RTFM), need for specific tools, product lifetime, quality of goods, prices of repairing
	Difficulties in local repair cafes	Finding volunteers, financial support, communication about the repair cafe, age of volunteers, energy, time, frustration, repair cafes are only small
	Enabling factors	Appreciation, importance of facilitation, making it manageable, help from others, subsidies

4.3. Validity and Reliability

Using multiple sources of evidence - in this study, combining documents, interviews and observation data - is one of the major strengths of case study research because it enables the researcher to triangulate the data. This triangulation means that the findings of one method can be supported or validated by findings from another. This assurance increased the validity and reliability of the data (Yin, 2008). Nevertheless, it is important to recognise the limitations that impact the validity and reliability of the findings.

First, the study's sample size comprises only a subset of all repair cafes in Amsterdam. Ideally, all repair cafes in Amsterdam would have been visited or represented in the interviews. However, the limited opening times of the repair cafes combined with the time scope of this study did not allow for a larger sample size. Thus, the generalizability of the study is limited by the sample size.

Second, participant observation can be biased due to the observer's cultural background. Similarly, the data analysis is also biased towards the researcher because all concepts are personal interpretations

of the data. This limitation was addressed by reaching out to some of the participants to verify whether the data was interpreted correctly.

Third, the interview guide was structured around the researcher's interpretation of sociotechnical imaginaries. Although there was space for interviewees to add any opinions at the end of each interview, the interview guide may have biased the opinions of interviewees towards specific directions. Moreover, not all questions were asked in each interview due to time limits. This may provide for the over-representation of the opinions of certain participants that were given more time and questions in their interviews.

5

Results

This chapter presents the findings from the observations, interviews, and document analysis. First, section 5.1 presents an introduction to the repair cafe community in Amsterdam. Second, the results are structured into different sections following the dimensions of the sociotechnical imaginary framework as presented in chapter 3, and the findings related to the scope of action (in section 5.2, 5.3, and 5.4 respectively). Third, section 5.5 provides a synthesis of the findings, revealing the imaginaries in the repair cafe community.

5.1. Repair cafe community in Amsterdam

Thirty-two repair cafes in Amsterdam and the RCIF were identified through document analysis and interviews. Further analysis revealed that four of these repair cafes are currently closed. Thus, the repair cafe community in Amsterdam currently includes the RCIF and twenty-eight active repair cafes, of which twelve repair cafes provide the case study of this research. The following sub-sections briefly describe the RCIF and eleven repair cafes that provided the case study in this research. Given the importance of the RCIF in defining the course of the repair cafe community, the last subsection highlights 1.) the repair cafe as envisioned by the RCIF and 2.) how repair cafes in Amsterdam have materialised themselves in light of this envisioned format.

5.1.1. Repair Cafe International Foundation

The RCIF was established in 2010 to focus on spreading the repair cafe concept nationally and transnationally (Postma, 2015). Currently, the RCIF operates at the head of a network of more than 2.500 repair cafes worldwide, which is still growing. Communication towards the network is mainly done through its website and an electronic newsletter.

The RCIF publishes an annual report, which explains how the organisation aims to work towards their goals. In support of the repair cafe concept, the RCIF has partnered up with repairing organisations, educational institutes, and governmental organisations. Additionally, the RCIF has organised networking events, hosted lectures on repair, and adjusted their communication materials towards a more fresh and flexible style (Postma, 2015). To collect and analyse repair data, the RCIF has launched the Repair Monitor, in which repairers can upload their repair successes and failures. A report on this data is published yearly. The RCIF currently consists of one permanent employee and two freelance employees

and operates mainly from their office in Amsterdam.

5.1.2. Repair cafes in Amsterdam

Document analysis revealed thirty-two Amsterdam-based repair cafes listed in table F.1 in Appendix F. Four of these repair cafes were later identified as inactive because of, for example, closure of the location or COVID-19 impacts. Thus, at the moment of data collection, Amsterdam was home to twenty-eight active repair cafes.

Table F.1 shows that the repair cafes in Amsterdam differ considerably in 1.) opening times, 2.) the number of visitors and volunteers, and 3.) the available facilities at the locations. First, the opening times of Amsterdam's repair cafes range from monthly to biweekly, weekly, and even multiple days a week. Second, the number of volunteers in the observed repair cafes varied between 3 and 42. Third, the majority of the repair cafes is organised in community centres (see figure 5.1 for an example), with a few exceptions, including repair cafes organised in a private atelier (see figure 5.2), a squatted building, the building of the local food bank, and a care home.



Figure 5.1: Repair Cafe Jeltje is organised in community centre Jeltje. Repair Cafe Jeltje is open once a month and is home to 42 volunteers. It has its own logo and newsletter. Image by Lambriex (n.d.).



Figure 5.2: Repair Cafe Sloterdijk Zuid is hosted in the private shed of one of the repairers. This repair cafe is open two days a week and hosts three volunteers. Image by Jongeneel (2021).

Besides a document analysis revealing the characteristics of the majority of the repair cafes in Amsterdam, the results of this research are based on observations and interviews with participants of a subset of the repair cafes. Details on the repair cafes visited and/or covered in interviews for this study are presented in table 5.1.

Table 5.1: Repair Cafes visited by researcher and/or covered through interviews. Presentation in random order. More details about the repair cafes (including the date of visiting the repair cafes, founding dates, etc.) can be found in table F.1 in Appendix F.

Repair cafe	Opening frequency	Location	No. of volunteers	Special remarks
Repair Café Amsterdam Oud-Noord	Monthly	Community centre	27	Many of the volunteers are employees of a company whose employees started the repair cafe, but also people from the neighbourhood join. The repair cafe is remarkable because the average age of volunteers is much lower than in most other repair cafes.

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Table 5.1 – continued from previous page

Repair cafe	Opening frequency	Location	No. of volunteers	Special remarks
Repair Café Amsterdam Sloterdijk-Zuid	2 days a week	Private atelier/ shed	3	Mainly run by the owner of the atelier, who is helped out by two volunteers. Also does knife sharpening.
Repair Café Amsterdam-IJburg	Weekly	Community centre	4	The community centre is located in a building that houses refugees, so the repair cafe is remarkable because a lot of volunteers are refugees.
Repair Café Amsterdam-Oost (De Meevaart)	Weekly	Community centre	Around 10 present at the repair café	Repair Cafe has been running since the start. Deemed 'one of the more organised repair cafes'. When visitors enter, they fill in a form about their object and are asked to wait at the waiting table. They are called by the host when it's their turn. All volunteers wore a repair cafe De Meevaart-themed T-shirt with their name on it.
Repair Café Amsterdam-Noord De Meeuw	Biweekly	Community centre	3	A relatively new repair cafe. Volunteers from other repair cafes join to help out when there are not enough volunteers.
Repair Café Amsterdam-Oud West Jeltje	Monthly	Community centre	42	A very engaged repair cafe. Have their own website, newsletter, logo, and volunteer T shirts. Also organised two anniversary repair cafes including different repair-themed workshops (see Appendix A).
Repair Café Amsterdam-Zuid Amstelhuis	Biweekly	Elderly home	12	Hosted in an elderly home. Volunteers and visitors all sit around one large table and help each other with the repairs. An enthusiastic host welcomes all the visitors with a drink .
Repair Café Amsterdam-Zuid Buitenveldert	Monthly	Community centre	9	Volunteers and visitors all sit around one large table and help each other with the repairs. No textile repairs.
Repair Café Amsterdam-Zuid De Pijp	Monthly	Community centre	12	One of the first repair cafes. Used to run a separate computer repair cafe in the first 5 years, and a separate bicycle repair cafe in collaboration with a bike repair shop.
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Table 5.1 – continued from previous page

Repair cafe	Opening frequency	Location	No. of volunteers	Special remarks
Repair Café Amsterdam-Zuidoost	Weekly	Multiple community centres	4	This repair cafe runs three times a month at three separate locations in Amsterdam-Zuidoost. Focuses mainly on electronic repairs. No textile repairs.
Repair Cafe Jungle	2 days a week	Shop building (anti-squad)	30-40 (Afvalpaleis total), 4 (Textiles), 7 (Electronics)	Two repair cafes (electronics and textiles) on two days. The repair cafes are organised in het Afvalpaleis, which also hosts a give-away shop, living room for the neighborhood, and an energy consultation hour. The repair cafes help people repair their own products, or repair broken unwanted items that are then moved into the give-away shop.

5.1.3. Materialisation of the repair cafe in the local context

Although the RCIF does not provide a strict format according to which repair cafes should organise themselves, an envisioned ideal format presents itself in the communication channels of the RCIF. In essence, the repair cafe, as envisioned by the RCIF, is:

"... not a free repair workshop, but a meeting place in the neighborhood concerned with repairing together, about knowledge transfer, and social contact between neighbors."¹
(Founder of the RCIF, in local newspaper article "Repair Café en de planetaire gezondheid").

The repair cafe concept that represents this vision is illustrated in figure 5.3. The image shows the importance of the "cafe" atmosphere, depicted by, for example, the coffee and tea in the waiting corner and the collective repairing at the tables. The entrance is depicted in the upper left corner, where the visitors are welcomed. The repair is free, but visitors can donate to the repair cafe.

¹Originally written in Dutch: "Het is geen gratis reparatiewerkplaats, maar een ontmoetingsplek in de buurt waar het gaat om sámen repareren, om kennisoverdracht en sociaal contact tussen buurtgenoten."

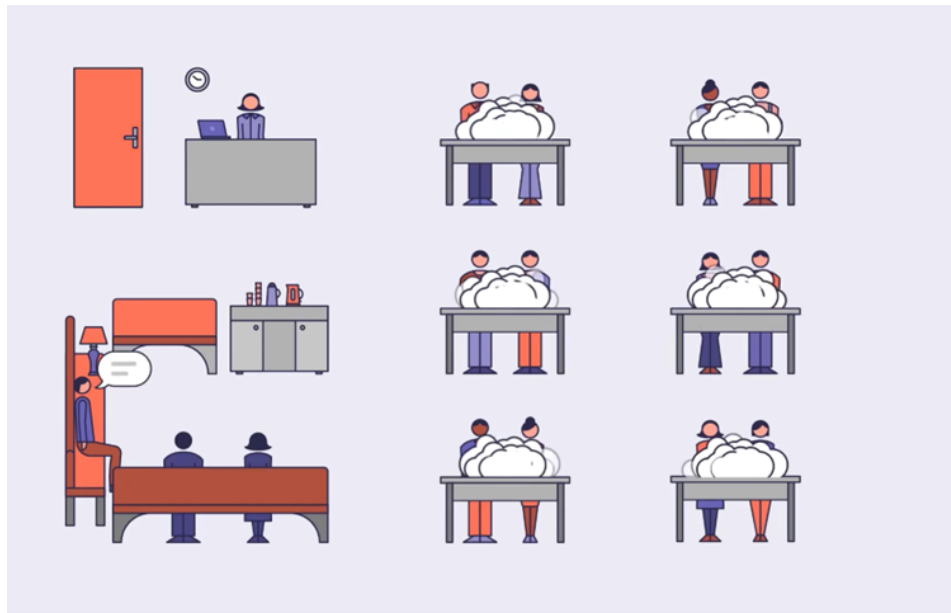


Figure 5.3: Repair cafes as depicted by the Repair Cafe International Foundation. Still from the video "RepairMonitor animation" (Repair Cafe International, 2018).

Observations showed that the layouts of the repair cafes varied considerably in practice. While some repair cafes keep strictly to the envisioned format shown in Figure 5.3, others had completely different set-ups. Figure 5.4 shows the layouts of several of the observed repair cafes. The set-ups were often dependent on available resources, and the wishes of the volunteers. During the data collection, it became clear that - intentionally or not - different layouts of the repair cafes facilitated different activities and interactions. For example, a volunteer remarked how, in their opinion, the repair cafe was at its best when everyone sat around the same table because this meant everyone could collaborate and socialise. In other repair cafes, the set-up facilitated less interaction between the repairers and visitors and consequently less socialising and knowledge transfers.

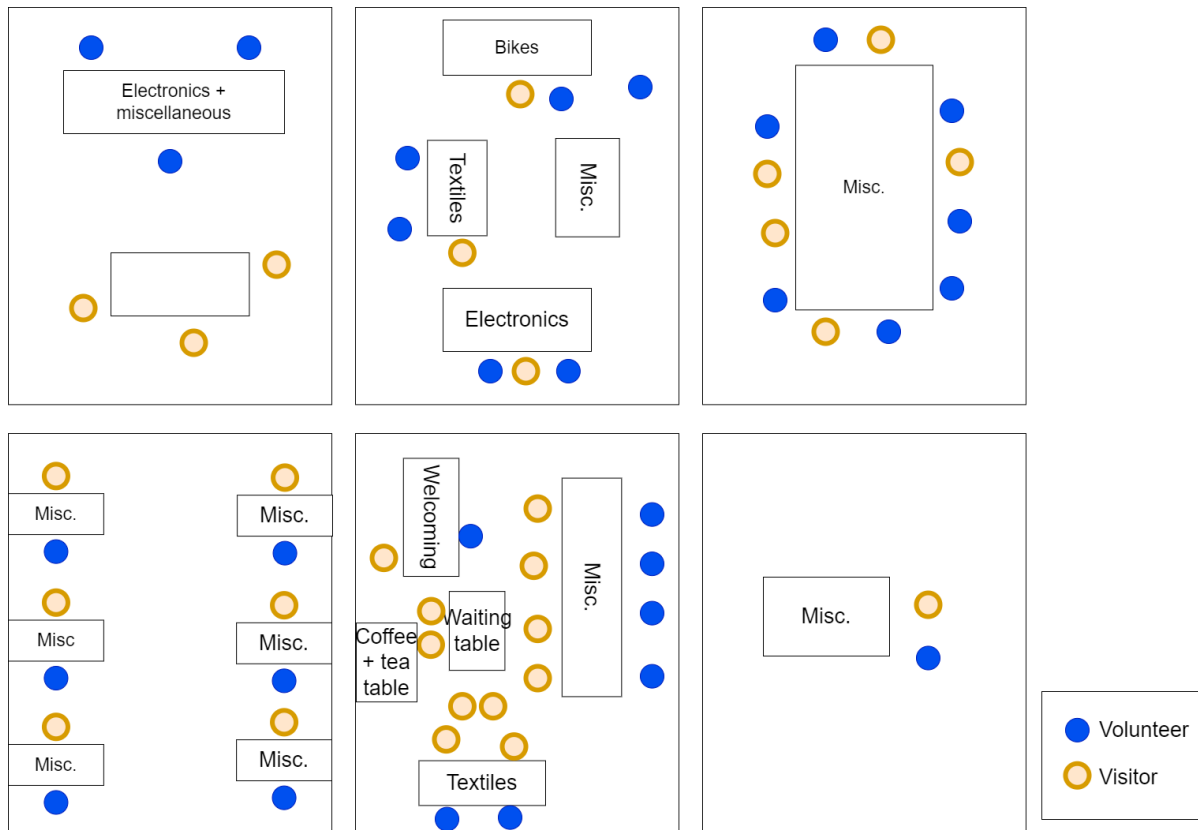


Figure 5.4: Example plans of observed repair cafes. Misc. = Miscellaneous.

Repair cafes also differed in the extent to which they kept to the RCIF's promotional materials. While some of the repair cafes kept strictly to the use of the promotion material provided by the RCIF in the starter's package ², other repair cafes created their own identity through a different logo, website, and newsletter. Some repair cafes that did this felt like the logo was too 'formal' and did not represent their identity well enough. The starter pack provided by the RCIF and two examples of repair cafes that have developed their own promotional material are shown in figure 5.5.

²The digital starting kit is provided by the RCIF and can be bought from the website of the RCIF. It includes a Repair Cafe manual, the logo, poster templates, a press release, registration forms, information on how to join the RepairMonitor, forms to cover liability and collect feedback, and sign boards. (Repair Café, 2023)

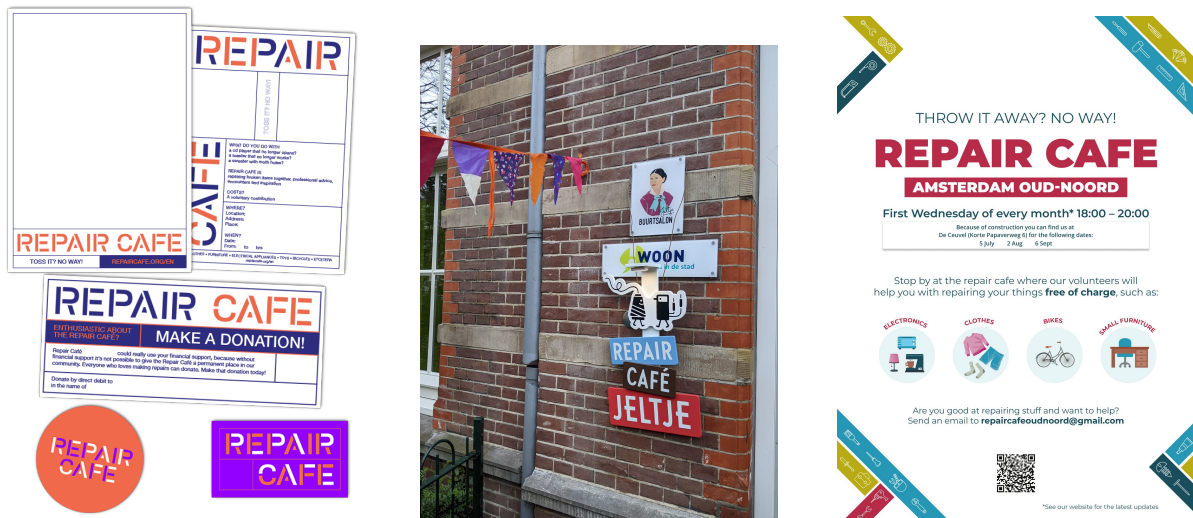


Figure 5.5: Communication materials provided by the RCIF vs some repair cafes. On the left: Digital starter kit. Image From Repair Café (2023); In the middle: the logo of repair cafe Jeltje. Picture by author; On the right: flyer provided by repair cafe Oud-Noord.

5.2. Aspirations

This theme is based on the first dimension of the sociotechnical imaginaries framework and shows the results regarding the visions, operational goals, motivations of members, and envisioned role of technology.

5.2.1. Visions of an ideal product repair system

Overall, visions of an ideal repair system describe a transition towards a repair society. This vision describes a society wherein repair is normalised and thus provides accessible and widely spread product repair facilities at both the commercial and the community level. The visions held by repair cafe volunteers range in the extent to which actors have their visions of an ideal repair infrastructure thought out and readily in mind. Although some participants needed more time than others to elaborate on their vision of an ideal repair infrastructure, interviewees generally envisioned a future repair system that includes affordable and widely spread commercial repair facilities. Moreover, interviewees indicated the ideal repair infrastructure to include repairable products, including design for disassembly and modular design of products, better and more easily accessible repairing information and spare parts, and repairing activities as part of the upbringing and educational systems.

The RCIF denotes a similar vision in their annual report, which was confirmed in the interview with the founder of the RCIF:

"The ideal situation would be that a professional repairer can earn a decent salary from his repair work. Repair work is valuable work. It's a craft, manual work, so you can't outsource it to the other side of the world. It has to happen here. [...] and what I would also like is if diversity in the repair services would emerge. Now... the repair cafe actually originated from a shortage, because there are no other repairers available. They have disappeared because people find them too expensive." (Interview, founder of Repair Cafe International Foundation)³

³Originally said in Dutch: "De ideale situatie is eigenlijk dat een professionele reparateur weer een fatsoenlijk salaris kan

The interviews with members of local repair cafes show that, to a large degree, this vision is shared at the local level as well. Many reflected upon the fact that they would love to see an increase in local, affordable repairing options.

"So the repair cafes will be how to teach people how to repair and the people that don't want to learn how to repair they could go to professionals. That would be ideal. The ideal scenario." (Interview, Volunteer repairer at Repair Cafe Oud-Noord).

Regarding the future of repair cafes, two ideal futures emerged during the interviews. On the one hand, interviewees described the disappearance of repair cafes as ideal. This future followed from the logic that, ideally, repair cafes will have become redundant because there will be enough alternative repair facilities available.

"The ideal future is that we can close because there is a shop on every corner where you can get something repaired." (Interview, Owner of Repair Cafe Sloterdijk-Zuid).⁴

On the other hand, interviewees expressed their enthusiasm about a future wherein repair cafes expand their focus areas and collaborate with different parties. For example, interviewees mentioned the "circulaire ambachtscentrum" (circular crafts centre) as ideal. In these centres, waste products are upcycled along the best-fitting R-strategy. Several pilots of circular crafts centres are currently running in different cities in the Netherlands. Another example of such a comprehensive circular centre is the already existing Afvalpaleis, a circular hub where one of the repair cafes studied in this research takes place. The coordinator of the Afvalpaleis reflects that it would be ideal if they could indeed exist for a long time:

"That we may be here for a very long time. And of course you get tired of telling the story. Because, of course, it is a story that has to be told every day. This story is also not finite in the sense that we will soon have reached it. [...] This is the story where we can say: this is a place where everyone, and stuff, everything, no matter how big or how small, is valued to continue to be used, Because it's here now. So we have to use it."⁵ (Interview, Coordinator Afvalpaleis).

At first sight, these two envisioned futures for the repair cafes may seem contradictory. However, they arise from a similar vision, which entails easy and logical circulation of materials and products and the normalisation of product repair. These visions emphasise that repair cafes do not expect to replace commercial repair but rather aim to complement the repair infrastructure.

Furthermore, visions entailed (more extensive) education and participation in repair skills at all levels of society. Interviewees mentioned repairing as part of the upbringing and in primary, secondary, and higher education as crucial towards enabling the ideal repair system.

"Now it's volunteer work, it's done by, and then I exaggerate, but it's very recognisable, old grey men. White men. It is a fairly exclusive area. People are retired and think, ah, I'm

verdienen met zijn reparatiewerk. Reparatiewerk is waardevol werk. Het is een ambacht, handwerk, dus je kunt het niet outsourcen naar de andere kant van de wereld. Het moet hier gebeuren. [...] en wat ik ook graag zou willen is dat er in de reparatie diensten een diversiteit ontstaat. Nu is.. het repair cafe is eigenlijk ontstaan uit uit armoede omdat er dus geen andere reparateurs beschikbaar zijn. Die zijn verdwenen, omdat mensen ze te duur vinden."

⁴Originally said in Dutch: "De ideale toekomst is dat we dicht kunnen omdat er op elke hoek een winkel is waar je iets kan laten repareren."

⁵Originally said in Dutch: "Dat we er nog heel lang mogen zijn. En natuurlijk word je wel moe van het verhaal vertellen. Want het is natuurlijk een verhaal wat iedere dag opnieuw vertelt moet worden. Dit verhaal is ook niet eindig in die zin van we hebben het straks bereikt. [...] Dit is het verhaal waar we van we kunnen zeggen: dit is een plek waar iedereen, en spullen, alles, maakt niet uit hoe groot of hoe klein, gewaardeerd worden om te blijven gebruikt worden, Want het is er nu. Dus we moeten het gebruiken."

going to do something fun. And what's more fun than repairing? That is very recognisable unfortunately. Because yes, we don't see the young generation and they should actually discover the usefulness of repairing stuff for themselves." (Interview, founder and repairer at Repair Cafe Jeltje). ⁶

"I think we should introduce repairs to schools for any age. I think kids are very curious. Kids love to open stuff and love to, its like a Lego for them. But we should make it fun, make it like... You know, start very small. Opening things and maybe some small maintenance in schools. Probably they're curious what's inside, but they're never allowed to open. Maybe start learning from, like, not-working objects just to see what's inside and how we can improve and repair it." (Interview, volunteer repairer at Repair Cafe Oud-Noord).

In their elaboration on the ideal future for product repair, the participants expressed their concerns about encounters with cheap, invaluable goods that are often not repairable. Various solutions towards an ideal future without these products were mentioned, including product passports, reparability indicators, public availability of manuals to repair the products, the introduction of a sharing economy, and modular design and design for disassembly. In the end, even though many different solutions were offered, all participants agreed that something needed to happen:

"I sometimes feel that repairing is like the tap is running, and we're just like, mopping the floor. So I would love, at some point, for this tap to be closed. So we just have the object that we produce, we have to repair them. And there are very strict regulations on the quality of the object. Because we know what is produced by Shein and Primark. And these textiles are... We can repair them, but they're gonna be broke the next week. So it's just... Sometimes I don't.. when people are bringing their stuff from Shein. I'm just like, I really don't want to repair it because I'm like.. They are produced in an unethical way. From very bad materials. And that sometimes we just don't know what to do with them." (Interview, Volunteer repairer at Repair Cafe Oud-Noord).

"It's kind of a vicious cycle that we all get into and someone just has to say stop. Let's think again if this is... if this is it. Whether this is the way we want things to be arranged. No, we want devices that last a long time, that can be repaired. Parts that can be replaced, devices that can also be understood, for which you do not need very complicated training to be able to repair them. So it has to be designed intelligently so that we understand what we're doing." (Interview, coordinator at Afvalpaleis). ⁷

5.2.2. Operational goals at organisational level

The RCIF's operational goals are stated in their annual report, which shows an overview structured goals that align with their vision of a society in which repair is normalised and manageable:

"In 2022, Repair Café International has continued to work on implementing her strategic multi-year plan 2020-2025. During this period, the foundation is committed to returning

⁶Originally said in Dutch: "Nu is t vrijwilligerswerk, wordt t gedaan door, en dan chargeer ik, maar het is wel heel herkenbaar, oude grijze mannen. Witte mannen. Het is een redelijk exclusief terrein. Mensen zijn gepensioneerd en denken och, ik ga wat leuks doen. En wat is leuker dan repareren? Dat is heel herkenbaar helaas. Want ja, de jonge generatie die zien we niet en die zou eigenlijk het nut voor zichzelf moeten ontdekken van spullen repareren."

⁷Originally in Dutch: "Het is een soort vicieuze cirkel waar we met z'n allen in terecht komen en iemand moet gewoon zeggen ho stop. laten we nog een keer nadenken of dit is.... of dit het is. of dit de manier is waarop we, ja, de boel ingericht willen hebben. Nee, we willen juist apparaten die lang meegaan, die te repareren zijn. Onderdelen die te vervangen zijn, apparaten die ook te begrijpen zijn, waarvoor je niet dus een hele ingewikkelde opleiding moet hebben om ze te kunnen maken. Dus het moet intelligent ontworpen worden zodat we snappen wat we aan het doen zijn."

repair as a normal activity in daily life and thus promoting the circular economy in four ways: A. by continuing to support existing Repair Cafés and helping to start new ones, and repairing in a wide range of phrase to promote; B. by contributing to the roll-out of so-called circular craft centres with a structural repair component; C. by broadening and deepening the Repair Café concept and in this way reaching and activating new – and also younger – target groups; D. by committing to the collection and analysis of repair data." ⁸ (Annual report, Repair Cafe International Foundation).

At the forefront of most of the repair cafes are, in contrast to the goals of the RCIF, organisational goals that relate to present-day practical challenges. Participants listed goals that focus on finding subsidies, enthusing volunteers, maintaining the continuity of the cafe, and, above all, repairing items in an enjoyable manner.

"Products keep breaking. We have to keep fixing them. Apart from that, we don't have high goals." ⁹ (Interview, coordinator at Repair Cafe Zuid-Buitenveldert).

"No just that it [the Repair Cafe] runs. My personal goal, and I think that's the goal of most repairers, is that it's just a nice place where we, say, can help people and get compliments as a reward, like, how nice that my device works again." ¹⁰ (Interview, founder and coordinator at Repair Cafe Noord)

The latter quote reflects the fact that, in many cases, socialising is considered just as important as repairing products and could, in many cases, not be seen as separate from the repair. This socio-material intertwining is also where the goal to engage people in the repairs rises from:

"But it's also about learning or teaching other people that it's possible to repair. It is like shifting their mindset because maybe one day they are going to repair clothes, but the next day the lamp will be broken. So the mindset, I hope they will be like, oh yeah, I repair one day this, but this is also possible to repair." (Interview, volunteer repairer at Repair Cafe Oud-Noord).

Some of the participants mentioned that they have or had plans to work towards expanding the repair cafe concept. For example, some of the repair cafes expressed the wish to start a Kids repair cafe or have a (semi-)permanent working place to work on repairs for longer if necessary. Also, collaborations with external parties to extend their knowledge and work were mentioned as goals. Yet, many of them also indicate that they have become demotivated because of the time and energy it took them to get the plans to work. They indicate that it takes considerable time to keep the repair cafe running and that this is their priority. For example, when prompted with the question if they have the aim to collect data, interviewees say that they would like to, but they have not yet had time.

In sum, the RCIF has a clear set of goals, aligning with its vision. At the local level, most of the repairers feel like the goal of a repaircafe should be to facilitate repairs at a local level and thereby

⁸Translated from Dutch: "Repair Café International heeft in 2022 verder gewerkt aan de uitvoering van haar strategisch meerjarenplan 2020-2025. In deze periode zet de stichting zich op vier manieren in om repareren terug te brengen als normale activiteit in het dagelijks leven en daarmee de circulaire economie te bevorderen: A. door bestaande Repair Cafés te blijven ondersteunen en nieuwe te helpen opstarten, en repareren in brede zin te promoten; B. door bij te dragen aan de uitrol van zogeheten circulaire ambachtscentra, met daarin een structurele repareercomponent; C. door het Repair Café-concept te verbreden en verdiepen en er op die manier nieuwe – en ook jongere – doelgroepen mee te bereiken en activeren; D. door zich in te zetten voor de verzameling en analyse van repareerdata."

⁹Originally in Dutch: Er blijven producten kapot gaan. We moeten ze blijven repareren. Verder hebben wij geen hoge doelen."

¹⁰Originally said in Dutch: "Nee gewoon dat het loopt. Mijn persoonlijke doel en dat is denk ik het doel van de meeste reparateurs is dat het gewoon een gezellige boel is waar wij, zeg maar, mensen kunnen helpen en als beloning complimentjes krijgen van goh wat fijn dat mijn apparaat het weer doet."

provide accessible insight into circular practices and propagate the circular mindset. Although many agree with the vision set by the RCIF, many of the members of the local repair cafes believe that the power of the repair cafe lies in its impact on the local level. Subsequently, their goals target making a local impact instead of targeting the higher goals set by the RCIF.

5.2.3. Motivations of members

Motivations of members to participate in the repair cafes range from environmental to social considerations and from activist to simply enjoying the creativity of the repairs. To many, participating in the repair cafe provided a way to do something meaningful to society in their spare time. Additionally, interviewees indicated that they hoped to meet people from their neighbourhood. Most members also mentioned that they especially like the combination of the technical challenge with the social interactions. Indeed, although many of the volunteers indicated that they first started because they liked to repair, some of them mentioned that they eventually understood that the social aspect of the repair cafes was really important. This is also understood by the repair cafe's founder, as seen from the following quotes.

"The social aspect is very important. The story, working together, transferring knowledge. Receiving appreciation is very important for the volunteers. So they [the volunteers] do it largely for social motives. Of course also because they think it's important for the environment. But the reason why people come out of the house to go to the repair cafe, sit there, that's because they just like it."¹¹ (Interview, founder RCIF).

"I thought it was about repairing, about things, devices, but for me it's more than half about social contacts with each other. And not only the social contacts with the customers, but also with the repairers. You are a team and you draw a lot of energy from that, and most of the energy comes from people, and not from devices."¹² (Interview, founder and repairer at Repair Cafe Jeltje).

Furthermore, interviewees indicated that they liked the appreciation they received for repairing a product. Also, repairers indicated that another motivator to keep participating was the fact that they were learning from the repairs and other volunteer repairers.

In sum, volunteers at the repair cafes indicated a variety of motivations to participate in a repair cafe. However, most volunteers indicated that they would not be motivated to repair without the social aspect. The following quote indicates the importance of the social aspect:

"Imagine they brought in thousands of broken things and I had to go and fix it and then a week later they come and pick it up? That's not nice no. So the best thing is the contact with people and the very best thing is when you repair something together."¹³ (Interview, coordinator Repair Cafe Noord).

¹¹Originally said in Dutch: "Het sociale aspect is echt heel belangrijk. Het verhaal, het samendoen, het overdragen van kennis. Het krijgen van waardering is voor de vrijwilligers heel belangrijk. Dus die doen het voor een groot deel uit sociale motieven. Natuurlijk ook wel omdat ze het voor het milieu belangrijk vinden. Maar de reden waarom mensen uit huis komen om naar het repaircafe, daar te gaan zitten, dat is toch omdat ze het gewoon leuk vinden."

¹²Originally said in Dutch: "Ik dacht dat het over repareren, over spullen, apparaten ging, maar voor mij gaat het voor meer dan de helft over de sociale contacten met elkaar. En niet alleen de sociale contacten met de klanten, maar ook de reparateurs. Je bent een team en daar put je ontzettend veel energie uit, en de energie komt voor het grootste gedeelte uit de mensen en niet uit apparaten."

¹³Originally in Dutch: "Stel dat ze duizenden kapotte dingen zouden brengen en ik zou het dan moeten gaan maken en dan komen ze een week later het ophalen? Dat is niet leuk nee. Dus het leukste is het contact met de mensen en allerleukste is dan dat als je samen iets repareert."

5.2.4. Envisioned role of technology

Interviewees considered technology as both a blessing and a curse. Many of the interviewees blamed technological innovation for producing devices that are not understandable, let alone repairable to the layperson anymore. On that account, some interviewees expressed doubts about the role that technology could play towards setting about their ideal future. These doubts were mainly expressed concerning previous technological developments, and the responsibility and accountability that should be, but has not been taken, by the industry.

"Many people always bet on technology. Technology will solve it again. That is why we must continue to innovate. And that is precisely why it is good to replace those laptops and telephones quickly. Otherwise, you will stand in the way of innovation. But I don't think so, because that way you stick to the current consumption pattern."¹⁴ (Interview, Founder of the RCIF).

"I find it difficult to attribute a major role to technology. Because the solution does not come from technology. And many technologists think so. [...] On the one hand, technology must come up with solutions there, but at the same time, they must also account for the directions in which they will look."¹⁵ (Interview, Founder and volunteer repairer at Repair Cafe Jeltje).

Nevertheless, some interviewees also agreed that technological innovation could facilitate a transition towards a repair society. For instance, tools, videos, or computer programs can help and educate people towards successful product repair. In this view, technology is understandable and plays a facilitating and educative role. In any case, interviewees agreed that technology could and should facilitate the transition towards the CE and make repairs understandable and easier.

"Technology will basically allow to support us in repairs, for example. I bet I can be super good at this because we can ask AI, and like ChatGPT, I have this problem and maybe ChatGPT can crawl through the websites across the world and can translate to our language. this person had also this problem across the world. And this is the steps that have been done. So we can learn from machines because basically they can.. and then also in our language, that's also great. I'm insecure about AI but I see AI also... it can be very useful." (Interview, volunteer repairer at Repair Cafe Oud-Noord).

5.3. Performances

After having shed light on the aspirations of the repair cafe community, this section provides an overview of the results related to the "performances" of the community. This theme is based on the second dimension of the sociotechnical imaginaries framework, and shows the results linked to the main activities, organisational governance, and relationship with local actors.

5.3.1. Main activities

The main activities of the RCIF are described in their annual report. Many activities are described and, amongst others, include providing a website and information to support repair cafes, promoting

¹⁴In Dutch: "Veel mensen zetten altijd in op technologie. Technologie zal het weer oplossen. Daarom moeten we vooral doorgaan met innoveren. En daarom is het juist goed om die laptops en de telefoons snel te vervangen. Want anders dan sta je innovatie in de weg. Maar ik denk daar niet zo over, want op die manier blijf je vasthouden aan t het huidige consumptiepatroon."

¹⁵Originally said in Dutch: "Ik vind het lastig om technologie een grote rol toe te dichten. Omdat de oplossing komt niet van de technologie. En heel veel technologen denken dat juist wel. [...] Aan de ene kant, technologie moet daar met oplossingen komen maar tegelijkertijd moeten ze ook verantwoording afleggen over de richtingen waarin gezocht gaat worden."

repair activities, doing interviews, and performing lobbying activities. Interviews and observations in the local repair cafes showed that activities only sometimes fulfilled the goals set out by the RCIF. For example, many of the repair cafes did not feel supported by the RCIF and had no clue what the RCIF was working on. This is, of course, not only due to the RCIFs shortcomings, but also has its origins in the extent of interest from the local repair cafes.

As for the repair cafes, observations and interviews indicated a range of activities in the local repair cafes, including 1) repairing products, 2) providing a social function, 3) teaching people to repair, and 4) collecting data. First, repair was considered the main activity in all repair cafes. Interviewees indicated that an average of 75% of the items were successfully repaired. Observations revealed that electronic household items, such as vacuum cleaners, coffee machines, toasting machines, and sewing machines, comprised the majority of items brought in for repair. Although some repair cafes also provided a designated bike repair area, no bikes were brought in during observations. Furthermore, most repair cafes also provided a separate section for textile repairs, for which interviewees reported an almost 100 % success rate. An interesting observation included that items brought into the repair cafe were often not broken, but needed to be cleaned or moved around a little.

However, observations showed that all repair cafes also performed a social function, which was sometimes as important as the repairing activity. Coffee and tea was provided in most repair cafes, facilitating the "cafe" atmosphere. Besides, many repairers took the time to chat with the visitors and walked around to see what other repairers are doing and helping out if necessary. During one of the repair cafes, I observed a repairer and a visitor chat for a long time after the "repair" (a question about a smartphone) was finished, even though some visitors were waiting with broken objects to repair. At some repair cafes, the social function is also upheld through drinks after the repair cafe ends, where volunteers sit together and share stories. Additionally, some repair cafes have yearly dinners to strengthen the bond among volunteers. Third, pedagogical activities played an important role in many of the repair cafes:

"You can also think: I'll bring it there and they'll see if they can fix it. But we make it a condition that people watch, learn something themselves." ¹⁶ (Founder of Repair Cafe De Pijp).

"But we do it together, so: hold on to this for a moment, maybe you can make that on that side? And then people will see for themselves, because I notice that a lot of people have the feeling of: can you open that? Can you open this to repair?" ¹⁷ (Interview, Coordinator and repairer at Repair Cafe Noord)

Mixed opinions exist about whether repair cafes should repair things regardless of the participation of the visitors and educational successes. According to the RCIF, the repair cafe should be mainly about interaction and sharing repair knowledge. However, observations also showed that social interaction was not a requirement at all repair cafes. Observations showed that some repair cafes pick up things from the street to repair and give away or take items home to repair them out of repair cafe hours.

"There are also repair cafes that are open weekly, even daily. There are also those where you can now drop off all your stuff. And pick it up again later. that is actually not the intention.

¹⁶Originally said in Dutch: "Je kan ook denken van ik breng het erheen en ze gaan kijken of ze t kunnen repareren. Maar wij stellen als voorwaarde dat mensen meekijken, zelf iets leren."

¹⁷Originally said in Dutch: "Maar we doen het samen dus. hou dit eens even vast, misschien kun jij dat aan die kant nog maken. En dan zien mensen zelf hé, want ik merk dat heel veel mensen het gevoel hebben van kan je dat openen? Kan je dit repareren?"

But I can't stop that either. [...] The intention is that it is a meeting place where you learn something about repair." ¹⁸ (Interview, founder of the RCIF).

Moreover, in advance of environmental goals, volunteers undertake circular activities beyond repairing or helping people repair their items. In one repair cafe, a volunteer started picking trash when there were no visitors. Another volunteer mentioned that it is very important to them to buy second-hand tools and items for the repair cafe as much as possible, following their circular motivations.

"If someone brings a device here and we can't repair it right away, there is room to leave it here temporarily so that we can check on another day whether it is repairable. Then we call people to pick it up again." ¹⁹ (Interview, Coordinator at Afvalpaleis)

Data collection is taken on to a varying degree in the local repair cafes. The RCIF provides a tool called the RepairMonitor. The RepairMonitor is a website on which repair cafes can submit their data. With this tool, repair cafe volunteers can submit which products they receive, what is wrong with them and what has been done - successfully or not - to repair the object. By collecting all this data in a central system, the RCIF aims to gain insight into the durability and repairability of the items in our daily lives. The RCIF and partners approach manufacturers, politicians and consumers with the information. In August 2023, more than 66.000 repairs had been uploaded by 237 repair cafes. Out of the 30 repair cafes located in Amsterdam, five repair cafes had uploaded data. Two of these cafes uploaded only two repairs. This varying degree of data collection is confirmed in the interviews and observations, wherein a large portion of the observed cafes did not collect or collect data for their own use because they thought the forms provided on the RepairMonitor were too complicated. To solve this, two of the visited repair cafes used their own data collection forms (see figure 5.6). These repair cafes collected data for personal use only.

"It takes time and they [the repairers] actually don't like doing it. Because they want to repair and no administration work." ²⁰ (Interview, coordinator at Circular Cafe IJburg).

"If you really want to extract data from that that you can use, then you have to register and record everything and add it up and make diagrams. And no one was interested in that." ²¹ (Interview, founder Repair Cafe De Pijp).

¹⁸Originally said in Dutch: "Er zijn ook repair cafés die wekelijks open zijn, zelfs dagelijks. Er zijn er ook waarbij je nu al je spullen kunt afleveren, afgeven. En later weer ophalen. dat is eigenlijk niet de bedoeling. Maar ik kan het ook niet tegen houden. [...] De bedoeling is dat het een ontmoetingsplaats is waar je iets leert over reparatie."

¹⁹Originally said in Dutch: "Als hier iemand een apparaat komt brengen en we kunnen die niet gelijk repareren dan is er ruimte om het tijdelijk hier te laten zodat we op een andere dag nog even kunnen kijken of het wel reparabel is. Dan bellen we mensen op om het weer op te komen halen."

²⁰Originally said in Dutch: "Het kost tijd en ze vinden het eigenlijk niet prettig om te doen. Omdat ze willen repareren en geen administratie werk."

²¹Originally said in Dutch: "Als je daar, als je daar echt data uit wilt halen waar je dan zeg maar mee door kan, dan moet je alles registreren en vastleggen en optellen en schema's maken. En daar had gewoon niemand zin in."

Repair Café Jeltje

(Vul s.v.p. volledig in met voor elk object een apart briefje.)

Persoonlijke informatie

Naam _____

E-mailadres _____

Leeftijdscategorie 0 - 20, 21 - 40, 41 - 60, 60+

Hoe heeft u / heb je ons gevonden? Omcirkel:

Nextdoor - via flyer - poster - landelijke website - Google
Facebook - Instagram, anders, nl

Wat is er stuk?

Soort object (stoel, staafmixer, broek etc.) _____

Merk _____ **Type / nummer** _____

Productiejaar (schatting) _____

Beschrijf kort wat er mis is en hoe het defect / de klacht ontstond.

Gered?

Omcirkel en beschrijf **Ja** Wat gerepareerd? **Half** Advies? **Nee** Reden?

Naam reparateur _____

Opmerkingen, tips

Bedankt voor het bezoek aan Repair Café Jeltje
Bezoek ons ook op: repaircafejeltje.nl, facebook.com/repaircafejeltje en
instagram.com/repaircafejeltje (z.o.z. voor evaluatieformulier)

RC Amstelhuis

volgnr: _____

datum _____

naam _____

postcode _____

contact _____

Inbreng

- ☐ Huishoudelijk
- ☐ Audio
- ☐ Textiel
- ☐ Media Apparaat
- ☐ Gebruiksvoorwerp
- ☐ Anders: _____

Oorzaak

- ☐ Weet niet
- ☐ Elektrisch
- ☐ Elektronisch
- ☐ Mechanisch
- ☐ Software
- ☐ Anders: _____

Herstel log

- ☐ Verholpen
- ☐ Reserveonderdelen
- ☐ Advies/Doorverwijzing
- ☐ Overleden bij Aankomst
- ☐ Niet Gelukt

door: initiaal _____

€ _____

Notitie Reparateur / Opmerkingen

Met dit formulier is Eigenaar/Bezoeker akkoord met onze Huisregels.

Figure 5.6: Data collection forms used at repair cafe Jeltje (left) and repair cafe Amstelhuis (right).

Regarding the use of technology, most volunteers were not wary of trying out or using technology. Volunteers were always eager to try repairing unknown technologies. Additionally, a couple of the repairers use a 3D printer to print spare parts for the repairs.

5.3.2. Organisational governance

The daily governance of the RCIF is in the hands of the founder and only employee of the foundation. Additionally, an official board and two freelancers work for the foundation. The RCIF does not enforce a strict organisational governance structure upon the local repair cafes; those are free to organise themselves however suits them.

The organisation of the repair cafes is often in the hands of one or two individuals (the coordinators), who communicate with the other volunteers when important decisions have to be made. Three roles could be distinguished in the repair cafes: the coordinator, the repairer, and the host. The roles are discussed in the following subsections.

The coordinator

The coordinator is the person who is in charge of the organisation of the repair cafe. The organisation includes coordination of the volunteers, communication with the hosting centre, keeping track of emails, and managing the donation money. Often, they are also in charge of the communication and PR of the repair cafe (including Facebook posts or spreading flyers in the neighbourhood).

The repairer

Repairers make up the majority of the repair cafe volunteers. These include experienced repairers and 'junior repairers' who are still learning about repairing. Often, a repairer has a speciality. For example, a repairer may be specialised in repairing sewing machines, so they are always asked to repair broken sewing machines when these are brought in. Many times, repairers help each other out when one of them struggles to repair an item by themselves. Many repair cafes have a room division between textile and electronic/miscellaneous repairs. Female repairers often occupy the textile repair section, while male repairers occupy the other sections.

The host

The host is often the first person a visitor meets when entering a repair cafe. The host asks the visitor about the type of item and the necessary repair. In some cases, the host keeps track of the repairs and notes them down for data collection. Often, the host offers the visitor a cup of coffee or tea. The host then matches the visitor with a free repairer. If no repairer is free, the visitor is asked to wait until a repairer is free to help them.

Depending on the number of volunteers and their willingness to fulfil certain roles, some roles were absent in the repair cafes. Observations showed that the presence of a host made a difference in how the repair was organised and how welcome people felt. One of the interviewees reflected on the importance of the host:

"A customer enters a repair cafe and stands with a broken device in his hand. They must be received, they must be addressed, they must be welcomed. And you don't see that at all at some repair cafes. You see people just a little lost entering a room where there is a lot of buzz and they don't really know what to do. So we've also seen more often that that intake, being welcomed, hostess or host, can be very valuable in the extent to which people feel comfortable."²² (Founder and repairer at Repair Cafe Jeltje).

5.3.3. Relationship of repair cafe with other local actors

The RCIF is part of an extensive network of alliances concerning community repair and the normalisation of repairing activities. It collaborates with organisations such as iFixit, the Open Repair Alliance, Right-to-Repair Europe, and the Restart Project. The RCIF also works with the municipality towards realising circular crafts centres and giving repair cafes a place therein.

Observations showed little interaction exists between the RCIF and the local repair cafes. Repair cafe volunteers are positive about the 'ambassador' function of the RCIF and the political function fulfilled by the RCIF. However, some interviewees mentioned that they do not feel any connection to the RCIF, and do not know what the RCIF works on. Additionally, many interviewees indicated that they would like to see a more facilitating role in support of the local repair cafes. One of the volunteers commented that the RCIF should be focussing on lobbying because:

"I think that should be their job to support us because we are small and we can't do that"

²³(Interview, coordinator at Repair Cafe Zuid-Buitenveldert).

²²Originally said in Dutch: "Een klant komt binnen bij een repaircafe en staat met een kapot apparaat in zijn hand. Die moet ontvangen worden, die moet aangesproken worden, die moet welkom geheten worden. En dat zie je bij sommige repaircafe helemaal niet. Zie je mensen gewoon een beetje verloren binnenkomen in een ruimte waar ontzettend geroezemoes is. En ze weten eigenlijk niet zo goed wat ze wat ze moeten doen. Dus we hebben ook vaker gezien dat dat intake, welkomst heten, gastvrouw of gastheer, heel waardevol kan zijn hoe mensen zich op het gemak gesteld voelen."

²³Originally said in Dutch: "Ik denk dat dat hun taak zou moeten zijn dat zij ons moeten ondersteunen want wij zijn klein en wij kunnen dat niet."

Relationships are established to various extents, with 1.) the hosting organisation, 2.) the municipality, 3.) local commercial repairers, 4.) educational institutions, and 5.) amongst repair cafes themselves. First, the most substantial relationship often existed between the repair cafe and the *local organisation* that hosts the repair cafe. In most cases, this organisation is the community neighbourhood centre. Repair cafes are often satisfied with the help they receive from the facilitating organisation. Besides providing the location, these parties sometimes provide coffee and tea at the event or help with communication.

"The most important thing for me are the community centres that make their building available. Because they recognise the social role that the repair cafe fulfils in the neighbourhood. I find that very valuable."²⁴ (Founder and repairer at Repair Cafe Jeltje).

Second, interaction with *the municipality of Amsterdam* varies per repair cafe. Often, there was indirect interaction through the community centres, which host repair cafes, because they are owned and operated by municipal parties. In some cases, a repair cafe received funding from the municipality. This funding was often at the initiative of one of the volunteers who knew how to apply for funding.

Third, there is limited interaction between the repair cafes and *commercial repair shops*. Many interviewees indicated that they do not know which commercial repair shops there are but would like to refer visitors to them if they knew about them. In some cases, repair cafe volunteers knew about repair shops to refer visitors to. An exception is the Afvalpaleis, which works with many local repairing and circular organisations.

Fourth, interviews showed that some repair cafes collaborated or aim to collaborate with *educational institutions*, in line with their goal to engage people towards product repair. Some interviewees reported that they (previously) collaborated with schools, organised repair cafes for kids, or had the aim to do so. For example, one of the repair cafes organised a day where students came to the repair cafe location and helped check out the items. Another example of an attempt to bring product repair towards a wider audience is the program "Repairman Reinier", a collaboration between a repair cafe volunteer and the Dutch TV program Kassa (see Figure 5.7). In this program, consisting of 6 episodes, a typical interaction between a visitor and a repair cafe volunteer is shown, repairing their broken object together. Members of another repair cafe also participated in the short BBC documentary "If It's Broke, Fix It" (BBC Earth, 2023).

²⁴Originally said in Dutch: "Voor mij allerbelangrijkste. Dat zijn de buurthuizen die hun gebouw beschikbaar stellen. Omdat die bij uitstek de sociale rol herkennen die het repaircafe in de buurt heeft. Ik vind dat heel waardevol."



Figure 5.7: Still from "Repairman Reinier: Melkopschuimer" (Kassa, 2023)

Finally, interaction between *local repair cafes* happens to a limited extent. Interaction often relies on a few enthusiastic individuals curious about what happens in other repair cafes. There are a few repairers that volunteer in multiple repair cafes. Besides, most interviewees indicated that they know about the other repair cafes in the neighbourhood and have visited them. In one neighbourhood, volunteers from different repair cafes came together to learn about the use of an oscilloscope. Interviewees indicated that it would be profitable if there was more interaction because some repair cafes house specific repairing skills, which could be exchanged.

"Well, we're on the island here, so I kind of miss the link with other Repair Cafés anyway."²⁵ (Interview, founder and volunteer repairer at Repair Cafe Buitenveldert).

"We once contacted other Repair Cafés in South to see if we could work together on a number of things, but that didn't really work out, no. Everyone was just doing their own thing and that was good enough."²⁶ (Founder of Repair Cafe De Pijp)

"We also refer to other repair cafes when people say, yes, you can try another repair cafe, because there are people with different expertise everywhere."²⁷ (Interview, volunteer repairer at Repair Cafe Zuid-Oost).

5.4. Scope of action

During observations and interviews, it became increasingly clear that it is important to recognise how aspirations and performances are influenced by (previously) experienced obstacles and enabling factors.

²⁵"Nou we zitten hier op het eilandje, dus ik mis eigenlijk sowieso wel een beetje de link met andere Repair Cafés."

²⁶"En we hebben wel eens contact gezocht met andere Repair Cafés in Zuid om te kijken of we samen op konden trekken bij een aantal dingen, maar dat is eigenlijk niet echt gelukt, nee. Iedereen was gewoon met z'n eigen dingetje bezig en dat was mooi genoeg."

²⁷"Wij verwijzen ook wel naar andere repair cafes als mensen zeggen, ja, je mag proberen nog bij een ander repair cafe, want overall zitten dus Mensen met andere expertises."

For example, many interviewees indicated that one of the significant issues towards the realisation of the repair cafes is having enough financial resources. Although some repair cafes receive sufficient donations or funding from the municipality, others indicated they had difficulty paying rent and covering the costs of buying spare items and tools. In most cases, the rent of the building was covered by external parties, or the location was provided to the repair cafes for free. Volunteers indicated that, even though the activity happens without any financial interest, it is important to them to have enough resources to keep the repair cafe running.

These issues are shared by the RCIF, whose founder stated that they are very busy working on finding financial support and communicatory work instead of working on the activities that would embody their goals:

"I determine the course. I think about where the foundation wants to go and I write a multi-year plan of what we are going to do. And then I also try to find financing so that we can also implement it. That is a big part of what I do, looking for money to keep doing this"²⁸. (Interview, founder of RCIF).

"And also all executive tasks, so supporting the repair cafes, giving interviews, promoting repair in a broad sense, and specifically promoting repair cafe to the outside world. I try to lobby with policymakers and producers as much as possible for more repairable goods and regulations that support repair instead of hindering it like how it is now. And that is very limited in practice because, well, I am the only one working for the foundation on a daily basis and I also do things like email and telephone."²⁹ (Interview, founder of RCIF).

Another issue for some repair cafes includes attracting and retaining volunteers. Some of the repair cafes indicated that they had a hard time getting enough volunteers for the repair cafe to keep running. Especially the host function was not fulfilled at many repair cafes due to the lack of a volunteer interested in fulfilling this role.

Additionally, many of the activities in repair cafes depend on pioneering individuals who are enthusiastic and committed to working out their plans. A realistic issue here included that because many of the volunteers are relatively old, these people pass away, and the plans die with them. For example, explaining the disappearance of the collaboration between their repair cafe and a bicycle repair shop, one of the interviewees explained:

"There was someone there who really liked that, who believed very much in this concept and who therefore also participated. But unfortunately he passed away. It really depends, stands or falls with people."³⁰ (Interview, Founder of Repair Cafe de Pijp).

Experienced obstacles influencing the enthusiasm of individuals also showed to have influenced many plans of the interviewees. For example, in one of the repair cafes repairs were completed without a lot of visitor engagement, even though this is one of the envisioned goals of the repair cafe. One of the

²⁸"Ik bepaal de koers. Ik denk na over waar de stichting naartoe wil en ik schrijf daar een meerjarenplan van wat we gaan doen. En daar probeer ik vervolgens dan ook financiering bij te vinden zodat we dat ook kunnen gaan uitvoeren. Dat is een groot deel van wat ik doe, dus het zoeken van geld om dit te kunnen blijven doen"

²⁹"En daarnaast ook alle uitvoerende taken dus het ondersteunen van de repair cafés, het geven van interviews, het doen van promotie voor reparatie in in brede zin, en specifiek repair café promoten naar buiten toe. Ik probeer zo veel mogelijk te lobbyen bij beleidsmakers en producenten voor beter repareerbare goederen en regelgeving die reparatie ondersteunt in plaats van belemmert, zoals nu. En dat is in de praktijk heel beperkt omdat. Nou ja, ik ben dus als enige dagelijks aan het werk voor de stichting en ik doe ook dingen als de mail en de telefoon."

³⁰Originally said in Dutch: "Dat was een iemand daar die dat ontzettend leuk vond, die heel erg geloofde in dit concept en die dus ook meedeed. Maar die is helaas overleden. Het hangt echt, staat of valt met mensen."

volunteers reflected on this in their interview, mentioning they got demotivated because visitors were not interested:

"People actually want you to fix it, but they don't want to learn how to do it themselves. But sometimes that's frustrating, that's what I want to do, transfer knowledge. But that works out less and less."³¹ (Volunteer repairer Repair Cafe Amsterdam Zuid-Oost).

Interviewees mentioned repair cafe expanding and networking activities that they had worked on or planned to work on but did not work out due to time limitations or limited cooperation of other parties. For example, one volunteer mentioned their plans to work on the realisation of a circular centre, but this was increasingly complicated because of the minimal cooperation of certain parties. In reflection upon these issues, they finally reflected that:

"The ideal future for a repair cafe is that it is relieved of external tasks and one of the external tasks is customer acquisition and information provision for repairers."³² (Interview, Founder and repairer at Repair Cafe Jeltje)

An illustration of a repair cafe that is relieved of some of its external tasks is provided by the Afvalpaleis, who is helped by an external organisation in the collection of revenues. The Afvalpaleis is exceptional in terms of networking and expanding the repair cafe concept, which is, according to the coordinator, largely due to the fact that their mother organisation, a neighbourhood organisation that helped them write the project plan, includes:

"... someone who is already there who can facilitate very well and simply says 'yes, we have the foundation so we can also apply for the subsidies' And also supports that because, without an organizer, an accountant, an overhead, so to speak, who also has to be paid, you can't really do this."³³ (Interview, coordinator of the Afvalpaleis).

Nevertheless, even in the case of the Afvalpaleis, action and imaginative space is limited by the fact that in their applications for subsidies, they are asked to provide their revenue model. In the case of the municipality of Amsterdam, subsidies are provided during the first three years of development, after which an organisation is expected to take care of their financial status. This hurdle indicates a focus on economic prosperity, which, in the case of organisations like the Afvalpaleis or other repair cafes, limits the action space but also their scope of imagining futures beyond those three years of existence because they will have to think of a way to function in the current economic system. In reflection on what would be needed to transition towards an ideal future, the coordinator of the Afvalpaleis commented:

"That there is more room for places like this and that the entire system is therefore not immediately asked: what is your revenue model? How are we going to change the system? By continuing to tell this story, and also by [changing] the financing organization, who says: 'Oh nice, a new project, we will give it a starting subsidy. And then we ask: what is your revenue model?' So we don't have that. No, we believe that this is such an added value that it is okay to spend public money on this."³⁴ (Interview, coordinator Afvalpaleis)

³¹Originally said in Dutch: "Mensen willen eigenlijk dat jij het repareert, maar ze willen niet leren hoe ze het zelf gaan doen. Maar dat is soms wel frustrerend dat wil ik juist doen, kennis overbrengen. Maar dat lukt steeds minder."

³²Originally said in Dutch: "De ideale toekomst voor een repaircafe is dat ze ontzorgd wordt voor externe taken en een van de externe taken is het werven van klanten en informatievoorziening voor reparateurs."

³³Originally said in Dutch: "... iemand die er al rondloopt heel erg goed kan faciliteren en ook gewoon zegt van ja wij hebben de stichting dus wij kunnen ook de subsidies aanvragen. En dat ook ondersteunen want ja zonder ja, zonder een ja een, een organisator, een boekhouder, een overhead zullen we maar zeggen, die ook maar betaald moet worden. Ja lukt je dit ook niet."

³⁴Originally said in Dutch: "Nou dat er meer ruimte is voor plekken zoals deze en dat er dus ook door het hele systeem dus niet

5.5. Emerging sociotechnical imaginaries in the repair cafe community

The exploration of the repair cafe community in Amsterdam reveal the presence of two types of imaginaries. On the one hand, the performances and aspirations of the repair cafe community reveal aspects of an alternative sociotechnical imaginary that departs from the prevailing technocentric emphasis in CE thinking. On the other hand, certain aspects of the performances and aspirations reveal a rather techno-economical CE imaginary. This section presents an overview of the aspects of the repair cafe community that point to alternative STIs surrounding repair within a circular economy context. After this, tensions between future aspirations and present-day practices are discussed, demonstrating how the mainstream imaginary exerts its influence.

First, section 5.2 reveals a shared vision of an ideal future repair system founded upon accessible and normalised repair. This vision departs from the mainstream CE vision, indicated by the limited role of technology and emphasis on economic prosperity. Visions furthermore highlight the importance of citizen participation, and making repair more visible and technology more understandable. Additionally, the section shows that motivations for participating in repair activities span a spectrum of environmental and social concerns, extending beyond the typical focus on economic interests found in mainstream perspectives. Thus, aspirations go beyond a techno-economical vision because of the importance of citizen participation, economic diversity, and the limited role of technological innovation. Second, section 5.3 shows how repair cafes in Amsterdam serve as a platform for experimenting with alternative approaches to circular practices. Activities transcend purely economically inspired practice and are community-based, socially inspired, and neighbourhood-oriented. For example, the stories shared by visitors and the interactions between volunteers and visitors are integral to the value derived from repair, emphasising a shift away from economically driven practices. Thus, an alternative CE imaginary can be identified in the visions and performances, denoted by particularly the importance of the social and the local aspects, and the limited relevance of technological innovation and economic prosperity.

However, at the same time, section 5.4 shows how the aspirations and performances are subject to factors following a more techno-economical line of CE thinking. For example, although the repair cafe community is not focused on making economic profit, the repair cafes and RCIF largely rely on donations and subsidies for breaking even on expenses such as beverages, rent for the location, and parking fees. Subsidies are supplied by the municipality for three years, after which the receiver is expected to operate based on its own revenue model. In the case of repair cafes, this does not exist. However, if they want to continue their existence, they may have to start looking for a revenue model, ultimately becoming co-opted by the economic-focused CE imaginary. Moreover, visions show that the ideal future for repair is still based upon economic viability. Even though the repair cafes show an alternative way of organising repair, most participants treated the repair cafe as a temporary solution to the shortage of repair options. The fact that the shared vision still emphasises economic viability, rather than valuing social aspects shows the influence the dominant imaginary has on imagining futures.

direct wordt gevraagd: wat is je verdienmodel? Hoe gaan we het systeem veranderen? Door dit te blijven vertellen, en ook door de financierende organisatie [te veranderen], die zegt: 'Oh leuk een nieuw project, die geven we een startsubsidie. En daarna vragen we: wat is je verdienmodel?' Die hebben wij dus niet. Nee, wij vinden dat dit zo'n meerwaarde is, dat het oke is om hier gemeenschapsgeld aan uit te geven."

6

Discussion

This chapter sets out a discussion assessing the results provided in chapter 5. The results are discussed in light of the sociotechnical imaginary, presenting a discussion of the tensions between future aspirations and present-day practices. This is followed by a section that discusses the academic and practical implications of the findings.

6.1. Reflecting on community repair from a sociotechnical imaginary perspective

In addition to identifying features of imaginaries (see section 5.5, analysis of STIs within repair cafes allows for a comparison of the aspirations and performances. This comparison reveals tensions between the present-day practices and envisioned futures at multiple levels. At the level of internal organisation of the repair cafe community, a tension arises at the point where the repair cafe community envisions the ideal repair cafe as a place to meet and learn about product repair. However, in practise, these activities are taken up to varying degrees. While some repair cafes prioritise interactions with visitors, others focus on the actual repair work, occasionally finding it challenging to generate interest for the repair process. Moreover, some repair cafes value the environmental impact generated by repairing as many things as possible, regardless of visitor interaction as more important than the sole pedagogical goal. The identified tension between pedagogical goals and practices is reflected in the study Madon (2022), who, in their study on the pedagogical nature of three French repair cafes, found that repair cafes find themselves gravitating towards a service-oriented approach wherein the visitors adopt a consumer rather than active learner goal.

Another tension was revealed regarding data collection. Data collection is a key goal for the RCIF as part of their organisational goals and vision of a future repair society. Local repair cafes acknowledge the potential value of data collection in advancing towards the ideal repair society. However, in practise, only a minority of the repair cafes in Amsterdam actively contribute to the database of the RCIF, highlighting a gap between aspiration and implementation in this aspect. This tension was also found by van der Velden (2021), in their study of a Dutch repair cafe. Moreover, this finding supports their finding and linkage of the unwillingness and inconsistencies in collecting repair data to the inseparability of repair and the community.

At the level of interaction with their environment, a key tension emerges regarding the position of

the repair cafes in the repair infrastructure. The RCIF and most repair cafes envision an inclusive and diverse repair and CE infrastructure characterised by collaborations between repair cafes and other (circular) parties. Nevertheless, only a few of the repair cafes have established connections with other local actors, showing a disparity between the envisioned future and present activities.

It is important to note that the observed tensions between aspirations and performances do not necessarily indicate inconsistencies in the imaginaries. Instead, the tensions demonstrate how new visions are confronted with present realities. This confrontation of visions with local constraints led to a high plurality in the repair cafes. This means that there are a wide range of motivations and activities that do not necessarily align immediately with the envisioned future. The tensions also show the experimental nature of repair cafes and their potential for facilitating experimentation. Thus, by connecting the concept of STIs with the scope of action, it can be shown that bottom-up initiatives provide a space where future visions confront present realities, allowing for experimentation, testing, and adaptation of alternative imaginaries.

To summarise, the community makes collective reimagining possible, and repair cafes act as crystallisation points where visions are translated into concrete actions. It is interesting to observe this interplay between the dominant techno-economic CE imaginary and the alternative imaginary and how they materialise in Amsterdam's repair cafe community practices. The Amsterdam repair cafe community can be seen as a noteworthy illustration of how grassroots efforts can contribute to a more sustainable and resilient future while, at the same time, co-produced by expectations, practices, and policies previously produced by the mainstream CE imaginary.

6.2. Scientific relevance and contributions

The findings of this research resonate with previous research on community repair that emphasises the role of bottom-up initiatives in driving sustainable transformations.

First, the research supports Visconti (2021)'s assertion that repair cafes serve as experimental spaces for citizens to interact with the CE in a manner that goes beyond economic interactions. These are findings that align with the theories and findings of studies into the visions and transformative intent of circular citizen initiatives and community repair, as seen in the studies of Quist et al. (2021), Spekkink et al. (2022), Schmid et al. (2022), and Pel et al. (2020). For example, the results of this study confirm the findings of Spekkink et al. (2022), who pose that the transformative intent of repair cafes is limited given the limited resources available to engage in activities beyond practical engagement in the CE. However, the variety of approaches revealed within the repair cafe community in Amsterdam challenges the notion of homogeneity within repair cafes as presented by Spekkink et al. (2022). This highlights the fact that repair cafes may be much more diverse than they are currently represented in literature. The study thereby underlines the importance of recognising and celebrating this diversity, as it signifies an adaptable system of bottom-up efforts driving the CE forward. The divergence in activities in the local repair cafes highlights the dynamic nature of the repair cafe movement. The diversity also suggests that while overarching goals may align, the strategies and priorities within individual initiatives can vary significantly. This finding ties into the concept of transformative social innovation, as conceptualised by Pel et al. (2020).

Thirdly, the identified lack of networking and limited resources at the local level exemplifies the "niche" that repair cafes operate in and the potential lock-in towards a transformation of the CE. This lock-in is strengthened by the dominant imaginary, which perpetuates policies and funds, marginalising the scope of action and subsequent development of alternative practices and visions. This is a finding

that complements prior research of Russell et al. (2020), who, in their exploration of the barriers and drivers towards the implementation of bottom-up CE initiatives, found that support from the municipal government was critical towards the implementation of these initiatives. This research not only shows that many of the repair cafes are in some way dependent on municipal funds or support structures (such as subsidies or hosting locations) but also that the extent of this support - varying per repair cafe - has considerable influence on organisational goals and practices towards the enactment of these goals. Moreover, this finding exemplifies the value of looking at a topic from a multi-level approach.

Fourth, by exploring community repair as a solution to the challenge of reaching a holistic circular transition, the research contributes to the literature gap identified by Kirchherr et al. (2017) in understanding the CE as a system transformation encompassing political, social, economic, and technological aspects. The visions and activities in the repair cafe community show circular engagement within a community initiative that is inherently socially and environmentally focused; this research goes beyond the understanding that the CE transition should mainly be driven by technological innovation and economic prosperity, as criticised by, amongst others, Kirchherr et al. (2017) and Jaeger-Erben et al. (2021). Additionally, by highlighting how circular practices are approached from a multidimensional sustainability perspective, the study contributes to the research gap identified by Blomsma and Brennan (2017) and Hobson and Lynch (2016), advocating to incorporate the social science aspects in the development of CE literature. The observations show the crucial role of social activities in the repair cafe community, indicating that material and technological aspects cannot be isolated from the social dimension. This finding complements the prior research of van der Velden (2021), who points towards the concept of socio-material entanglement in their analysis of repair cafes.

Fifth, the concept of a repair society that emerged from the visions in the repair cafe community ties into previous literature discussing the "circular society" compared to the "circular economy". For example, the repair society has been discussed by Svensson-Höglund et al. (2022), and the circular society by Jaeger-Erben et al. (2021). Both studies argue that pathways towards the circular society must be further explored and that alternative narratives must be provided. This study responds to their calls by showing how the repair cafe community finds their way towards such a society.

Sixth, this study adds to sociotechnical scientific literature concerned with bottom-up and grassroots organisations as spaces where ecological, social, and technical aspects come together. The study thereby expands upon, amongst others, the contributions of Visconti (2021) and Schmid (2019), advocating for the potential of bottom-up alternatives to shift a common understanding of the CE from a technological conception of sustainable growth towards a degrowth vision.

Seventh, the study shows that the STI concept can be a valuable tool to explore alternative CE practices at a local level. However, it is essential to acknowledge that STIs are inherently complex and that this approach may not fully capture their workings at higher levels. This study operationalised the STI concept by means of the performances and aspirations dimensions and corresponding features as outlined by Schmid et al. (2022). This framework provided a helpful guideline during data collection and analysis, but automatically led to a rather pragmatic interpretation of STIs. For example, "expectations" were not taken into account because they were not part of the framework guiding data collection and analysis, and did not emerge later in the process. However, the STI cycle - as elaborated upon in section 3.2.3 - shows that the role of expectations is crucial in policymaking, funds allocation, research, and the formation of practices. Further research should therefore consider the complexity of STIs, how to operationalise them, and the effect of certain operationalisation methods. The role of expectations in imaginary formation should also be further highlighted, especially in light of previous work that has been done on the role of expectations in visioning processes.

Conclusion

This chapter presents how the study has answered the main research question and sub-research questions. Then, the limitations are discussed. Finally, recommendations for future research and relevant actors are proposed.

This thesis explored circular economy imaginaries in analysis of the future visions and present-day practices of the repair cafe community in Amsterdam. The research question for this study is: "How do repair cafe initiatives in Amsterdam engage with and imagine product repair in the circular economy?". Features of CE imaginaries were researched using the sociotechnical imaginary concept (Jasanoff & Kim, 2015) and the dimensions hereof (Schmid et al., 2022). The methodology of this research is largely based on ethnographic methods, including semi-structured interviews, observational research, and triangulated with document analysis. The findings of the research provide insights into the development of alternative imaginaries in the repair cafe community in Amsterdam. These insights can aid researchers and policymakers in understanding the qualitative contributions of community repair and considering the social aspect of the circular transition. The following section will discuss how the research questions have been answered, followed by limitations and recommendations.

7.1. Answers to the research questions

The first sub-research question asks: "What is the academic state of the art on imaginaries and how can they be conceptualised regarding the circular economy and bottom-up citizen initiatives?". Chapter 3 presents an overview of the history and developments of imaginaries related to the CE and bottom-up initiatives. A review of the imaginaries literature revealed that the concept has been used in a diverse manner, covering several research domains and applications. The review further revealed that CE imaginaries have mainly been researched within the domain of science and technology studies, using sociotechnical imaginaries. These, in turn, build upon the social imaginary concept.

The social imaginary, as developed by Castor Castoriadis, Benedict Anderson, and Charles Taylor, describes the importance of our imaginative capacity towards the production of meaning, societal structures, and shared understanding (Anderson, 1991; Taylor, 2004). In this field, Anderson and Taylor elaborate on how an imaginary creates a sense of belonging. Through facilitating practices and a shared understanding, imaginaries are crucial to the organisation of society. This organisational

capacity highlights the collective aspect of the imaginary, as carried by society as a whole. In contrast, Castoriadis highlights how an imaginary can be carried by specific groups instead of the whole society. Castoriadis further underlines the difference between the mainstream "actual" imaginary which captures the ability to comprehend and construct the existing society, and the alternative "radical" imaginary, which represents the ability to imagine an alternative to the mainstream imaginary.

To analyse scientific and technological developments at a national scale, Jasanoff and Kim (2009) developed the sociotechnical imaginary. The STI sets itself apart from the social imaginary because it focuses on scientific and technological development and because it brings a future-oriented aspect to the imaginary, which in turn is built upon the recognition that the capacity to imagine *futures* is crucial towards the development and interpretation of social constructs (Jasanoff & Kim, 2009). After its first introduction, the STI was quite popularly received. Subsequently, over time, the STI developed into a broader concept and has been applied to describe wide-ranging developments at the national as well as the local scale. For example, in the climate change and CE fields, STIs have been used to explain historical paradigm shifts, showcase alternative ways of organising society, and inspire alternative ways of imagining and organisation. Especially because of the urgency posed by climate change to reorganise unsustainable systems, STIs are becoming increasingly relevant.

The way STIs work and exert their power has been effectively summarised by Rudek (2022), who developed the STI cycle (see section 3.2.3). The cycle shows the working of STIs at the individual and collective level, as well as the co-production of imaginaries and performances at all levels of society. The cycle also demonstrates how alternative imaginaries can arise when visions are shared, enacted and transformed. These imaginaries can ultimately provide a challenge to the mainstream imaginary.

Hence, the STI concept was deemed relevant for researching alternative CE imaginaries in grassroots communities. However, it remains debatable whether the original focus on technological developments in STI analysis reinforces the technocentric focus on the CE that currently prevails. Recognising this focus and in line with the aim to explore alternative CE imaginaries, extra attention was paid to ensure the inclusion of all sustainability dimensions in the research process. Limitations within the STI literature included how most studies do not report transparently on how STIs were researched and how conclusions on the imaginaries were drawn. This study conceptualised the STI using the dimensions and features developed by Schmid et al. (2022). Although this provided a way of operationalising the STI, it also automatically led to a rather pragmatic understanding of STIs. It is important to recognise that the working and development of STIs are much more complex and should be understood considering many more dimensions than the ones identified in this research.

The second sub-research question addresses the organisation of the repair cafe community (*"How is the repair cafe community in Amsterdam organised?"*). Desk research, complemented with interviews, showed that the community involves the RCIF and twenty-eight currently active Amsterdam-based repair cafes. The RCIF operates at a national to international level, representing all repair cafes worldwide. The RCIF communicates with the repair cafes through a newsletter and a website. Additionally, the RCIF takes up lobbying activities and partners with national and international organisations to support better repairing infrastructures. Yet, although the repair cafes are all inspired by the concept originally developed by the RCIF and many apply for a starting kit, interviews showed that many repair cafe participants remain ignorant of the activities undertaken by the RCIF. Likewise, interviews showed that at the level of the RCIF, there was little time to visit or communicate with the local repair cafes (there are simply too many, and too few resources at the level of the RCIF). Moreover, research showed that amongst the repair cafes themselves, little to no networking existed either. The limited networking indicates a decentralised to localised organisation structure, wherein all local repair cafes are free to do

what fits best within local circumstances.

The third sub-research question addresses the visions and performances of the repair cafes by asking *"What visions do active members of the repair cafe community in Amsterdam hold of the future of product repair practices in Amsterdam? What are the current practices in repair cafes, and how do these enact the visions?"*. Chapter 5 presents an overview of the future-oriented aspirations and present-day performances of the repair cafes community. At the level of aspirations, findings show that members of the repair cafe community in Amsterdam share a vision of an ideal repair society in which repair is normalised at all levels. Additionally, results show that participants' motivations for participating in repair activities span a spectrum of environmental and social concerns, extending beyond the typical focus on economic and technological interests found in mainstream perspectives. Furthermore, the aspirations section also highlights the facilitating role attributed to technology in the transition to a CE, deviating from the dominant technocentric CE imaginary.

At the level of present-day performances, findings show how repair cafes in Amsterdam serve as a platform for experimenting with alternative approaches to circular practices. Activities in the local repair cafes transcend purely economically inspired practices, such as community-based, socially inspired, and neighbourhood-oriented activities. Additionally, findings show a high diversity of motivations, goals, and activities at the local repair cafes. This diversity shows that repair cafes are organised according to the facilities and possibilities available at their location, which is reflected in the scope of action (see 5.4).

To summarise, while the repair cafe community shares a common vision, it is diverse in the manners of enacting these visions. Tensions between visions and performances illustrate how imaginaries develop and re-develop according to their scope of action. An advantage of this is that the plurality of the movement allows for the development of practices enacting their visions, which are constantly challenged. Thus, the collectivity and plurality of the movement make collective reimagining possible, and local repair cafes make it possible to act towards these visions in whichever way possible regarding the local circumstances. This process is inherent to mainstreaming new alternative imaginaries and testing their viability.

Finally, the fourth sub-research question asks *"Which imaginaries are revealed through these visions and practices?"*. The repair cafe community in Amsterdam showcases features of an alternative CE imaginary. The results reveal the presence of two imaginaries.

First, aspirations and performances suggest an alternative to the mainstream imaginary in which economic and technological aspects prevail. This alternative imaginary emphasises social interactions and local integration, prioritising communal repair over economic profitability. This imaginary is especially evident in the limited relevance of economic profitability, the emphasis on promoting product repair, and the integration of environmental, technological, and social aspects in the repairing activities.

Second, the results reveal how the aspirations and performances are subject to factors following a more techno-economic line of CE thinking. These factors indicate the influence of a techno-economic imaginary that sets the boundaries within which the repair cafes shape their aspirations and performances. For example, while the repair cafe community is not profit-driven, it relies on donations and subsidies to cover expenses such as beverages, rent, and parking fees. This reliance on external financial support raises the question of sustainability and the potential for co-optation by the economically-focused CE imaginary. Moreover, the visions for the future of repair articulated within the community demonstrate a focus on economic viability. Despite providing an alternative model for organising repair, many participants view the repair cafe as a temporary solution to the need for more repair options. In contrast, the ideal repair infrastructure is economically viable, and not necessarily centred around the alternative repair model present in repair cafes. This continued emphasis on economic viability, rather than a

full embrace of the social aspects, underscores the enduring influence of the prevailing imaginary on shaping future perspectives.

In conclusion, the repair cafe community in Amsterdam embodies a complex interplay of imaginaries, showcasing both an alternative sociotechnical imaginary and a techno-economic CE imaginary. This nuanced understanding of their practices and aspirations sheds light on the diverse visions surrounding repair within the context of a circular economy.

Finally, the main research question asks:

"How does the repair cafe community in Amsterdam imagine and engage with product repair in the circular economy?"

The study shows that the repair cafe community imagines product repair as a circular strategy that should be accessible, affordable, and understandable to everyone. Members of the community share a vision of an ideal repair infrastructure supporting this imagined ideal through a diverse repair infrastructure, repairable products, and accessible information on how to repair broken products. The participants further stress that technology should play a facilitating role and should become understandable again.

Furthermore, the results show that the repair cafe community engages with product repair in a widely diverse way. The results show a diversity in set-ups, motivations, activities, and goals. This diversity indicates that the local repair cafes provide a space where the shared vision materialises according to the local context, adapting to available resources and motivations of the participants. Additionally, the results show that activities in the community revolve around attention and care: for the objects on the table, the people, and the environment. Through this attention, the community shares a story through which people become considerate, conscious, and concerned. This heightened awareness extends beyond the physical act of repair and results in changed mindsets and sustainable living. Furthermore, socio-material entanglement demonstrated through the importance of social interactions shows that the community aspect is just as important as the environmental aspect, as individuals share knowledge, skills, and stories. In doing so, the repair cafe community challenges the prevailing notion of individualistic consumption and highlights the potential for collective action in addressing environmental challenges.

Interestingly, while the repair cafes' performances emphasise the social, local, and community aspects, this emphasis is not exactly mirrored in the community's ideal future. For most members, this future is still structured around economic viability of repair. Moreover, most repair cafe participants do not envision the repair cafe as a solution towards a sustainable CE transition. Instead, the repair cafe functions as a solution to fulfil local demands and present-day shortages in repair facilities.

Thus, the study shows an interplay between a dominant techno-economical CE imaginary and an alternative imaginary emphasising local and social aspects of the CE. The results show how both the aspirations and performances demonstrate aspects of the mainstream and the alternative imaginary. Additionally, it shows how the aspirations materialise into practices depending on local resources. The Amsterdam repair cafe community therein stands as a noteworthy illustration of how grassroots efforts can contribute to a more sustainable and resilient future while at the same time co-produced by expectations, practices, and policies produced by the mainstream CE imaginary.

7.2. Limitations

In this section, the reliability and validity concerning the methods of this study are discussed. To ensure the reliability of the data, a spectrum of methods was used and cross-references through triangulation

of the data. Nevertheless, it is important to acknowledge certain limitations regarding the validity of the data.

First, it is important to note that the findings of this study may have limited applicability beyond the specific case study of repair cafes in Amsterdam, as other contexts with different cultural or political infrastructures may differ significantly.

Second, a limitation presents itself in potential biases during data collection. Interview participants were selected based on their active involvement and enthusiasm in repair cafes, potentially excluding the opinions and experiences of the group of people involved in repair cafes at a lower level of engagement. Furthermore, participants may have provided socially desirable responses. It is also worth noting that no kids repair cafes were visited, although there are two in Amsterdam.

Third, the researcher's position influences the data collection and interpretation processes in multiple ways. First, the researcher's personality and presence shape the interactions and experiences in the research process. Second, pre-existing beliefs of the researcher influence the data interpretation process, which can make it possible that evidence is overlooked or has a biased interpretation of the data. Results can be biased in collection and interpretation due to the research being conducted by a single researcher. Therefore, a diversity of perspectives to ensure a more holistic understanding is preferred.

Fourth, while this study has shown that the sociotechnical imaginary concept lends itself well for analysis of future visions and circular practices, the concept and manner of operationalisation of the concept in this research may not fully capture all nuances of this complex and evolving concept. Especially the use of the framework developed by Schmid et al. (2022) (see section 3.4) may have led to overlooking certain aspects, while at the same time, being very useful during the data collection. In hindsight, more attention could have been directed towards participant's expectations of the future, an aspect of the STI that is further highlighted in the STI cycle (see section 3.2.3). Moreover, the aim of the study to go beyond the currently prevailing techno-economical understanding of the CE, may provide a mismatch with the conceptual goals of the STI, which was originally developed to study technological and scientific developments. Nevertheless, the STI was still deemed relevant because of its usefulness in analysing inter-linkages of future visions and present-day practices.

7.3. Recommendations

Considering the above-mentioned limitations and implications of this research presented in chapter 6, several recommendations emerge. Recommendations for future research will be presented followed by recommendations for relevant actors.

First, since community repair has spread worldwide and exhibits a large potential to keep expanding, insights into contextual factors must be provided to understand the imaginaries that may form under different circumstances. Therefore, comparative analysis of community repair projects within different cities or countries is useful to examine variations in their visions and practices and the contextual factors that shape them.

Second, future research should focus on understanding imaginaries on the broader community repair movement, and how these relate to the imaginaries within the local repair cafes. Research should, therefore, focus on including organisations that are more focused on lobbying or spreading repair knowledge, such as Right to Repair Europe or iFixit.

Third, at the level of the local repair cafes, research should focus on consumer motivations to visit repair cafes and their experiences of repair cafes. These motivations and experiences could provide insight into the impact of repair cafes beyond the direct participants. It would also be interesting to see

how relieving the repair cafes from external tasks (such as communication and data collection) would influence their practices and imaginaries.

Fourth, future research could examine the lessons learned from more mature bottom-up sustainability initiatives, such as citizen energy projects or alternative food initiatives. These lessons could help the repair cafe community overcome certain practical obstacles and - if desired - increase their transformative potential.

Fifth, future research should focus on further developing the sociotechnical imaginary concept beyond technological and scientific developments. Additionally, future research should consider whether this development of scope is suitable or if an extension or different concept is needed to facilitate understanding of local initiatives and future sustainability transitions. This study shows that the sociotechnical imaginary is useful in identifying alternative CE practices beyond the technological scope. However, it would be interesting to learn how the STI influences the research process towards certain aspects of the CE. Moreover, future research should explore the connection between imaginaries and the (perceived) scope of action. This research has focused on the dimensions developed by Schmid et al. (2022) to research STI. However, the STI cycle of Rudek (2022) further highlights the role of expectations in developing STIs, which have not been explored in detail in this research. It would therefore be interesting to find out whether other conceptualisation frameworks would lead to the identification of other imaginaries.

The findings of this research also bear practical implications for the development of future CE strategies in the municipality of Amsterdam but also on a wider scale. A main takeaway is the importance of recognising socio-material entanglement in circular policy-making. The repair cafe community shows that the local and social context plays a crucial role in the engagement of citizens in circular activities. Therefore, the material aspect cannot be considered separate from the local and social context. This understanding is key to achieving a comprehensive transition towards a CE. Policymakers should therefore equally consider the social dimension alongside the technical and economic dimensions when creating strategies.

In terms of internal organisation, it is important for local repair cafes to find a balance between their pedagogical goals and practical repair work to fulfil both goals that are deemed relevant in the local context as well as aid those repair cafes that are interested in supporting the RCIF and other parties in achieving higher level goals. Stakeholders can provide resources and guidance to help repair cafes create environments that effectively engage visitors in learning about product repair. Additionally, support for data collection efforts should be strengthened, emphasising the value of this information in advancing towards the ideal repair society. For example, internships could be offered at repair cafes, aiding data collection and engaging visitors.

The findings demonstrate that repair cafes provide a space for alternative aspirations to emerge and develop. However, the extent to which these aspirations are brought into action remains limited due to practical concerns. For example, an exception to the limited enactment of the RCIFs vision is presented by repair cafe Jungle, located in the circular hub "het Afvalpaleis". This centre collaborates with many local actors to reuse as many objects as possible. The Afvalpaleis is also exceptional in their organisation; it is part of a larger organisation which manages their space and subsidies. This organisational set-up is a key factor in facilitating networking activities. Thus, the dependence of repair cafes on local resources implies that relieving repair cafes from external tasks (such as communication and organisational efforts) may enable them to further develop alternative imaginaries and challenge the dominant techno-economical CE system.

However, a dilemma presents itself at the level of (trans)national organisation, which the RCIF deals

with. The findings indicate that not all members of the repair cafe community are motivated to engage in activities beyond practical repairing. Providing support and thereby tightening the repair cafes' rules and beliefs may lead to losing those who join solely based on practical motivations, which are also important to the repair cafe community. Nevertheless, this dilemma may be solved by focusing on relief instead of tightening: offering relief where it is welcomed may allow those that are motivated to go beyond, while at the same time those who are not interested can remain concerned with local activities.

Subsequently, at the level of interaction with the broader repair infrastructure, collaborations between repair cafes and other (circular) parties should be actively promoted. This promotion could involve creating platforms or initiatives that facilitate networking and partnerships. The RCIF is working on this but has yet to find a way to reach all the local repair cafes. Additionally, commercial companies and the government can take a more active role in connecting to repair cafes and helping them where needed.

Finally, stakeholders should acknowledge and celebrate the diversity within the repair cafe community. This diversity signifies an adaptable system of bottom-up efforts driving the circular economy forward. Supporting and recognising the various approaches taken by different repair cafes will contribute to a more inclusive and effective transition towards a circular economy. Therefore, to enable a more social and inclusive understanding of the CE, it is crucial for stakeholders and policymakers to encourage collaboration and cultivate a shared understanding of the objectives of the repair society.

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A

Observation events

Table A.1: Overview of observation events.

Event	Event description
Repair Cafe Jeltje	Repair Cafe in Amsterdam Oud-West
Repair Cafe De Pijp	Repair Cafe in Amsterdam De Pijp
Repair Cafe Oud-Noord	Repair Cafe in Amsterdam Oud-Noord
Repair Cafe Sloterdijk-Zuid	Repair Cafe in Amsterdam Sloterdijk Zuid
Repair Cafe Amstelhuis	Repair Cafe in het Amstelhuis, Amsterdam De Pijp
Repair Cafe Zuid - Buitenveldert	Repair Cafe in Amsterdam Zuid - Buitenveldert area
Anniversary event Repair Cafe Jeltje	Two-day anniversary event to celebrate the 5 year anniversary of Repair Cafe Jeltje. This included a repair cafe on both days, a music performance on the first day, and repair workshops (such as a bicycle repair workshop and a kintsuki workshop) on the second day.
Repair Cafe De Meevaart	Repair Cafe in Amsterdam Oost
Repair Cafe IJburg	Repair Cafe/Circulair Cafe in Amsterdam IJburg
Repair Cafe Zuid-Oost	Repair Cafe in Amsterdam Zuid-Oost, three locations

B

Interviews

Table B.1: Overview of interviewees. More information on the coordinator and repairer roles can be found in chapter 5. RC = Repair Cafe.

Interview number	Interviewees
1.	Academic researcher at Erasmus University Rotterdam
2.	Founder and coordinator RC Amstelhuis, repairer at RC Jeltje and RC De Pijp
3.	Coordinator of RC Amsterdam Zuid-Buitenveldert
4a.	Coordinator and repairer of RC Amsterdam Zuidoost
4b.	Repairer at RC Amsterdam Zuidoost
4c.	Repairer at RC Amsterdam Zuidoost
5.	Repairer at RC Amsterdam Zuid-Buitenveldert
6.	Founder of the Repair Cafe International Foundation
7.	Founder and coordinator of RC Amsterdam-Noord, repairer at RC Rivierenbuurt
8.	Coordinator at Circulair Cafe/RC IJburg
9.	Repairer at RC Amsterdam Oud-Noord
10.	Repairer at RC Amsterdam Sloterdijk Zuid
11.	Founder of RC Jeltje and repairer at RC Amstelhuis and RC Rivierenbuurt
12a.	Founder and repairer at RC De Pijp
12b.	Founder at RC De Pijp
13.	Coordinator RC Afvalpaleis

C

Information and Consent Form

The information and informed consent form is provided on the following pages.

Delft University of Technology
HUMAN RESEARCH ETHICS
INFORMATION & INFORMED CONSENT

You are being invited to participate in a research study titled “Exploratory study of imaginaries in the repair movement”. This study is being done by Silke Jonk, master student from the TU Delft and Leiden University.

The purpose of this research study is to explore the future visions of people active in the repair café community in Amsterdam. This interview will take you approximately 45 minutes to complete. The data will be used for the completion of a master thesis for the study Industrial Ecology. We will be asking you to answer a series of semi-structured interview questions related to the repair cafes and your motivations, barriers, and how institutions may better support repair practices. Additionally, you may be asked to elaborate on your answers if possible.

As with any online activity the risk of a breach is always possible. To the best of our ability your answers in this study will remain confidential. The data will be stored in a TUD secure server and will only be accessible to Silke Jonk and her supervisor, Jaco Quist.

The interview will be recorded, and a written transcript will be produced. The transcript will then be analysed to identify elements of imaginaries including beliefs, motivations, and expectations of the repairing community.

The transcript and the recording will be deleted at the latest 1 month after the end of the study. The code book, and conclusions resulting from the analysis of all other interviews conducted will be made publicly available in a MSc thesis. Only anonymised data will be included in the final project.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any questions.

If you have any questions or complaints, please contact:

Silke Jonk,
 Jaco Quist

Privacy declaration:

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICPANT TASKS AND VOLUNTARY PARTICIPATION		
1. I have read and understood the study information dated [DD/MM/YYYY], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	<input type="checkbox"/>	<input type="checkbox"/>
2. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	<input type="checkbox"/>	<input type="checkbox"/>
3. I understand that taking part in the study involves: an audio-recorded interview of approximately 45 minutes.	<input type="checkbox"/>	<input type="checkbox"/>
B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)		

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
9. I understand that the following steps will be taken to minimise the threat of a data breach and protect my identity in the event of such a breach. Information will be treated confidentially. Data will be stored on the TU Delft OneDrive secure server and will only be accessible to Silke Jonk and her supervisor, Jaco Quist.	<input type="checkbox"/>	<input type="checkbox"/>
10. I understand that personal information collected about me that can identify me, such as my name, will not be shared beyond the study team.	<input type="checkbox"/>	<input type="checkbox"/>
11. I understand that the (identifiable) personal data I provide will be destroyed maximum 1 month after the end of the project (expected: September 2023).	<input type="checkbox"/>	<input type="checkbox"/>
C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION		
12. I understand that after the research study the de-identified information I provide will be used for the completion of a master thesis for the study Industrial Ecology at TU Delft and Leiden University.	<input type="checkbox"/>	<input type="checkbox"/>
13. I agree that my responses, views, or other input can be quoted anonymously in research outputs	<input type="checkbox"/>	<input type="checkbox"/>
14. I agree that my real name and function can be used for quotes in research outputs	<input type="checkbox"/>	<input type="checkbox"/>

Signatures_____
Name of participant [printed]_____
Signature_____
Date

I, as researcher, have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

Researcher name [printed]_____
Signature_____
Date

Study contact details for further information: *[Name, phone number, email address]*

D

Interview guide

Table D.1: Interview guide

	English	Dutch
General	<i>What is your name and role in the organisation of this Repair Café / community repair initiative?</i>	<i>Wat is uw naam en rol binnen de organisatie van dit Repair Cafe / community repair initiatief?</i>
Motivation	<i>How and why did you get involved with Repair Cafes/community repair?</i>	<i>Hoe en waarom bent u betrokken geraakt binnen Repair Cafes?</i>
	<i>What motivates you to repair other peoples items?</i>	<i>Wat beweegt u om andermans spullen te repareren?</i>
	<i>What would you like to achieve with the repair cafe?</i>	<i>Wat zou u willen bereiken met het repair cafe?</i>
Vision	<i>What do you see as the main problems in the current organisation of product repair?</i>	<i>Wat ziet u als de voornaamste problemen in de huidige organisatie van product reparatie?</i>
	<i>How does an ideal future for product repair in Amsterdam look like?</i>	<i>Hoe ziet een ideale toekomst voor product reparatie in Amsterdam eruit?</i>
	<i>Which changes are necessary to realize this future?</i>	<i>Welke veranderingen zijn er nodig om deze toekomst te bereiken?</i>
	<i>Who would need to be involved in realizing this future? Who are important actors and how could a collaboration be organised?</i>	<i>Wie zou er betrokken moeten zijn bij het waarmaken van deze toekomst? Wie zijn belangrijke actoren, en hoe zou een samenwerking kunnen worden georganiseerd?</i>
Continued on next page		

Table D.1 – continued from previous page

	English	Dutch
	<i>In which way can Repair Cafes contribute to the realization of this ideal future for product repair?</i>	<i>Op welke manier kunnen community repareer initiatieven/repair cafes bijdragen aan het waarmaken van de door u geschetste ideale toekomst?</i>
	<i>What does the ideal future of a repair cafe look like?</i>	<i>Hoe ziet de ideale toekomst voor het repair cafe eruit?</i>
Role of technology	<i>What do you expect to be the role of technology and products in this ideal future?</i>	<i>Wat verwacht u van de rol van technologie en producten in deze ideale toekomst?</i>
Activities	<i>What are the most important activities in this Repair Cafe, and why? What are the results of these activities, do you measure them?</i>	<i>Wat zijn de belangrijkste activiteiten binnen dit community repareer initiatief, en waarom? Wat zijn de resultaten, en worden die bijgehouden?</i>
	<i>How many volunteers and visitors visit the repair café in general?</i>	<i>Hoeveel vrijwilligers en bezoekers komen er gemiddeld naar het Repair Cafe?</i>
Organisa- tion	<i>Which roles exist within this repair cafe?</i>	<i>Welke rollen zijn er binnen het Repair Cafe?</i>
	<i>How are activities organised in this repair cafe?</i>	<i>Hoe worden activiteiten binnen dit Repair Cafe georganiseerd?</i>
Actors	<i>Who are important actors / organisations for this initiative, and why?</i>	<i>Welke actoren / organisaties zijn belangrijk voor dit repair cafe?</i>
	<i>How is/are collaboration(s) going/have collaboration(s) gone? What are the results of collaborating?</i>	<i>Hoe verloopt/is deze samenwerking verlopen? Wat zijn de resultaten van deze samenwerking?</i>
Operational goals	<i>Which goals are pursued by this Repair Café, and how have they come about? How are these goals pursued? Are all goals equally important?</i>	<i>Welke doelen worden er door dit repair cafe nagestreefd en hoe zijn deze tot stand gekomen? Op welke manier worden deze doelen nagestreefd? Zijn alle doelen gelijk?</i>
	<i>Can you describe the challenges that this Repair Café has encountered in pursuing these goals, and how these have been handled?</i>	<i>Kunt u de uitdagingen beschrijven die het initiatief is tegengekomen bij het bereiken van de operationele doelen, en hoe deze zijn aangepakt?</i>
End of interview	<i>Is there anything you would like to add to this conversation, or do you have any questions for me?</i>	<i>Is er iets wat u toe wilt voegen aan dit gesprek of heeft u nog vragen voor mij?</i>
	<i>Are there any people you know or events that may be of interest for me to interview or visit?</i>	<i>Bent u bekend met mensen die u me zou aanraden om ook te interviewen, of community repareer evenementen die ik de komende tijd zou kunnen bezoeken?</i>

E

Document analysis

Table E.1: List of documents

Document Title	Actor	Date	Pages
Jaarverslag 2022	Stichting Repair Cafe International	2023	31
Statuten	Stichting Repair Cafe International	2016	5
Facebook pages of the repair cafes, accessed via repaircafe.org	Various repair cafes	2023	N/A
Websites of Amsterdam-based repair cafes	Repair cafe Jeltje; Repair Cafe Amsterdam Zuidoost; Repair Cafe Amsterdam Oost De Meevaart	2023	N/A
Local newspaper article "Repair Café en de planetaire gezondheid"	M. Koopmans	June 2023	1
Huisregels	Repair Cafe Zuid-Oost	n.d.	1
"Ontmoeting Repair Café Jeltje"	Repair cafe volunteer	2023	2
iFixit repair Manifesto	iFixit/Repair Cafe Oud-Noord	1	
The RepairMonitor dashboard	Stichting Repair Cafe International	2023	N/A

Repair Cafes in Amsterdam

Table F.1: Repair Cafes in Amsterdam. Highlighted in blue are repair cafes that were visited for this research

No.	Repair cafe	Opening frequency	Location	Founding date	Date visited	No. of volunteers	Special remarks
1	Repair Café Amsterdam Oud-Noord	Monthly	Community centre	1/6/22	3/5/23	27	Closely connected to a company whose employees started the repair cafe. Many of the volunteers are employees of the company, but also people from the neighbourhood join.

Continued on next page

Table F.1 – continued from previous page

No.	Repair cafe	Opening frequency	Location type	Founding date	Date visited	No. of volunteers	Special remarks
19	Repair Café Amsterdam-Slotervaart	Weekly	Community centre	2015		ND	ND
20	Repair Café Amsterdam-West Bos en Lommer	Temporarily closed	ND	ND	NA	NA	NA
21	Repair Café Amsterdam-West De Baarsjes	Temporarily closed	NA	ND	NA	NA	Not open since COVID-pandemic
22	Repair Café Amsterdam-West Westerpark	Weekly	Community centre	ND		ND	ND
23	Repair Café Amsterdam-Zuid Amstelhuis	Biweekly	Elderly home	ND	12/5/23	12	Hosted in an elderly home. Has a textile and a miscellaneous section. Volunteers and visitors all sit around one large table and help each other with the repairs.
24	Repair Café Amsterdam-Zuid Buitenveldert	Monthly	Community centre	2012	13/5/23	9	Volunteers and visitors all sit around one large table and help each other with the repairs. There is no textile repairs.
25	Repair Café Amsterdam-Zuid De Pijp	Monthly	Community centre	2010	30/4/23	12	One of the first repair cafes. Used to run a separate computer repair cafe in the first 5 years, and a separate bicycle repair cafe in collaboration with a bike repair shop.

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Table F.1 – continued from previous page

No.	Repair cafe	Opening frequency	Location type	Founding date	Date visited	No. of volunteers	Special remarks
26	Repair Café Amsterdam-Zuid Groenpunt Welkom	Monthly	Community centre	4/8/21	30/5/23	ND	ND
27	Repair Café Amsterdam-Zuid Rivierenbuurt	Weekly	Community centre	4/8/21		ND	Includes an electronics and clothing repair café
28	Repair Café Amsterdam-Zuidoost	Weekly	Multiple community centres	ND	30/5/23	4	This repair cafe runs three times a month at three separate locations in Amsterdam-Zuidoost. Focuses mainly on electronic repairs. No textile repairs.
29	Repair Café Amsterdam-Zuidoost Gliphoeve	ND	Farm shed	12/6/22		1	ND
30	Repair Cafe Jungle	2 days a week	Shop building (anti-squad)	ND	24/5/23	30-40 (Afvalpaleis total), 4 (Textiles), 7 (Electronics)	Two repair cafes (electronics and textiles) on two days. The repair cafes are organised in het Afvalpaleis, a project by Jungle Amsterdam. Besides the repair cafes, the Afvalpaleis hosts a give-away shop, living room for the neighborhood, and an energy consultation hour.

Continued on next page

Table F.1 – continued from previous page

No.	Repair cafe	Opening frequency	Location type	Founding date	Date visited	No. of volunteers	Special remarks
31	Repair Café Kids Amsterdam-De Baarsjes	Monthly	ND	ND		ND	ND
32	Repair Café-Zuid Harmoniebuurt	Monthly	ND	ND		ND	ND