TransScale

Sharing for Sustainability, Scaling Solutions

D5.3 Midterm Environmental Impact Assessment

Report of the TransScale CSE initiatives

TransScale

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This report, produced under Task T5.3, presents the midterm environmental assessment of four Circular and Sharing Economy (CSE) initiatives in the TransScale project, with a focus on changes since the baseline assessment (Markussen et al., 2025).

Prepared within Work Package 5 (Environmental Impact Assessment), the analysis integrates Social Practice Theory and Life Cycle Assessment to evaluate sustainability impacts. Following the WP5 methodological guidelines (Markussen et al., 2024), the report assesses four CSE initiatives implemented across Denmark, Norway, Latvia, and Poland, highlighting key developments in practices, data collection approaches, and environmental performance relative to the baseline conducted by Markussen et al. (2025)

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Reference

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1. Introduction

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This introduction is identical to that in the D5.2 Baseline Environmental Impact Assessment (Markussen et al., 2025a), but with minor changes. Because the project scope and underlying theories are unchanged and we therefore are following the same guidelines in D5.3 as in D5.2, we reuse the primary part of the introduction so that the *D5.3 Midterm Environmental Impact Assessment* can be read independently of the D5.2 Baseline Environmental Impact Assessment.

1.2 TransScale-Project Description

The TransScale project investigates the conditions under which Circular Sharing Economy (CSE) initiatives can scale up and scale out effectively. By identifying key factors influencing their sustainability, the project provides a framework for evaluating and expanding community-based resource-sharing models across diverse geographical and cultural contexts.

1.2.1 Scaling-Up and Out the CSE Initiatives

Scaling up refers to integrating CSE initiatives into institutional frameworks, embedding them in policies, and expanding their infrastructure to support growth. Scaling out, on the other hand, involves replicating successful initiatives in different locations, adapting them to new socio-economic environments while maintaining their core principles. This distinction is crucial for assessing the feasibility of expanding the CSE initiatives without compromising their community-driven character. Scaling Up and/or out can happen simultaneously or independently and can relate to different strategies for scaling a CSE initiative. This midterm assessment evaluates progress in scaling up and scaling out since the baseline.

1.3 WP5 Guideline Description

This report presents an analysis of circular and sharing economy (CSE) initiatives as part of the TransScale project, work package 5 – Environmental Impact Assessment. The report draws on Social Practice Theory and Life Cycle Assessment in assessing sustainability impacts. The document follows WP5 methodological guidelines (D.5.1) to establish a baseline assessment of four CSE initiatives across different contexts in Denmark, Norway, Latvia and Poland, highlighting key aspects of practices, data collection methods, and environmental evaluation (Markussen et al.,

2025). WP5 establishes the methodological framework for evaluating CSE initiatives using interdisciplinary approaches. It integrates Social Practice Theory (SPT) to analyze behavioral patterns, through a sociomaterial perspective that sees the social and material as entangles, and Life Cycle Assessment (LCA) to quantify environmental impacts. These guidelines ensure consistency in data collection in order to facilitate cross-country comparisons of sustainability outcomes (Markussen, et al., 2024).

1.3.1 Social Practice Theory

SPT provides a lens for understanding how social, material, and cultural elements interact to shape sustainability practices. It examines how individuals engage with CSE initiatives through established norms, competencies, materials and shared meanings. By focusing on practices rather than individuals, SPT helps identify systemic barriers and enablers to long-term adoption of sustainability behaviors. This approach aligns with WP5's emphasis on understanding social dynamics as a key factor in sustainable transitions (Markussen, et al., 2024).

SPT, as conceptualized by {Shove et al., 2012} examines the dynamic interplay between social practices and their constitutive elements - **materials, competence,** and **meanings**. SPT positions practices as the central unit of analysis, emphasizing how they are shaped by and, in turn, shape social and material contexts.

SPT is particularly relevant to the study of CSE initiatives, as it offers a lens to understand how these initiatives influence everyday social practices, including consumption, waste generation, and mobility choices. While initiatives within reuse and repair contribute to measurable environmental benefits, their broader impact may lie in the long-term shifts they induce in social practices. Employees, volunteers and visitors engaging with these spaces may adopt new habits and values that extend beyond the immediate activities, potentially leading to more profound environmental and behavioral changes over time.

A purely conservative environmental assessment, which focuses on direct material savings, may therefore overlook or even misrepresent the full scope of an initiative's impact. Drawing on Shove et al. (2012), who build on the work of Reckwitz (2002) and Schatzki (2012), we emphasize that practices are not individually driven but rather routinized and collectively sustained. From this perspective, CSE initiatives function as sites of social learning and norm formation, fostering the institutionalization of sustainable practices within communities.

A fundamental distinction within SPT is between **practice-as-performance** (observable enactments of practice) and **practice-as-entity** (the underlying structures, norms, and meanings that form the sustained practices over time). This distinction allows for the examination of both the immediate manifestations of social practices and their embeddedness in broader infrastructures and cultural conventions.

SPT also accounts for the circulation and transformation of practice elements. The interaction of materials (objects, infrastructures), competence (skills, know-how), and meanings (cultural conventions, shared understandings) determines whether a practice is established, evolved, or dissolved. Changes in CSE initiatives, for instance, may lead to the reconfiguration of these elements, influencing how sustainable practices emerge and persist.

Moreover, Shove et al. (2012) describe the interrelations between practices, which form bundles (loosely connected practices) and complexes (interdependent practices). Understanding these interconnections is essential for scaling up and institutionalizing sustainable practices within urban settings. As CSE initiatives evolve, their success depends not only on individual participation but also on their integration into broader socio-material networks.
By applying SPT, researchers can systematically analyze the stability, transformation, and diffusion of sustainability practices, offering critical insights into the mechanisms through which CSE initiatives influence social and environmental change.

1.3.2 Life Cycle Assessment

LCA is a quantitative tool used to assess the environmental footprint of products and services throughout their lifecycle (Bjørn, Owsianiak, et al., 2018). Applied to CSE initiatives, it can help assess carbon emissions, energy consumption, waste generation, and other environmental indicators. The WP5 guidelines suggest an LCA methodology based on the ISO 14040/44 standards, ensuring standardized impact assessment across the different CSE initiatives (Markussen et al., 2024).

LCA is a decision-support tool that facilitates sustainability improvements by identifying opportunities to reduce resource consumption, minimize pollution, and enhance environmental efficiency (Bjørn, Laurent, et al., 2018). It can inform product design, supply chain management, and policymaking, ensuring that sustainability measures are grounded in comprehensive environmental impact assessments.

The Four Phases of LCA

1. **Goal and Scope Definition**: Establishes the purpose of the assessment, defines system boundaries, and determines the functional unit of analysis (Bjørn, Laurent, et al., 2018).
2. **Life Cycle Inventory (LCI):** Collects data on all inputs (materials, energy) and outputs (emissions, waste) for each life cycle stage, forming the basis for impact assessment.
3. **Life Cycle Impact Assessment (LCIA):** Evaluates environmental impact categories such as climate change, resource depletion, and ecosystem effects (Hauschild, 2005).
4. **Interpretation:** Analyzes findings to draw conclusions, compare scenarios, and provide recommendations for sustainability improvements (Hauschild et al., 2018).

Even though the significance of the LCA's could give a more precise picture of the environmental impacts of each initiative, this midterm assessment represents the initiatives' data in its current form, making the environmental impact assessment of the initiatives differ in the use of the method. The exact approach to the environmental results is stated within the chapters for each initiative.

1.3.3 Midterm Assessment

This document provides a midterm assessment of four initiatives, each offering distinct approaches to sustainability and resource efficiency.

1. **Denmark - Repair Café Initiative**: A community-driven initiative where volunteers help repair household items to extend their lifespan and reduce waste. The assessment focuses on the role of social interactions, skill-sharing, and the environmental impact of avoided waste and product replacement.
2. **Norway – Reuse of Furniture in Asker Municipality:** A municipal initiative that facilitates the reuse of office furniture through a digital platform and physical storage. The study examines logistics, the role of digital tools in promoting reuse, and the environmental savings achieved through furniture repurposing.
3. **Latvia – Nomales Initiative:** A material-sharing platform that promotes circular use of resources by redistributing surplus materials. The assessment highlights the social and economic dynamics of material exchanges and their contribution to waste reduction.
4. **Poland – Jadłodzielnia (Food Sharing Initiative**): A community-led food-sharing program that combats food waste by redistributing surplus food to those in need. Unfortunately, due to a prolonged process of obtaining ethics approval from the Human Research Ethics

Committee of Adam Mickiewicz University the study of this initiative is first expected to start after the hand-in of this deliverable.

The midterm assessment presents a structured evaluation of four initiatives in Denmark, Norway, Latvia and Poland. It offers insights into changes in their initiatives and their environmental contributions since the baseline assessment and examines how processes of scaling up or scaling out may have influenced these outcomes. Following a brief introduction to the methodology employed by researchers in the four countries, the midterm assessment is organized into subchapters, each dedicated to one of the four initiatives in the order outlined above. In these subchapters, the term “we” refers to the research group responsible for the respective initiative.

1.4 Methodology

The WP5 methodology employs an abductive approach, combining qualitative and quantitative data collection methods. It emphasizes participatory research techniques, stakeholder engagement, and empirical validation through real-world case studies (Markussen et al., 2024).

1.4.1 Interviews

In-depth or semi-structured interviews with key stakeholders will provide qualitative insights into their perspectives, experiences, and roles within the initiatives. A core set of guiding questions will ensure consistency while allowing for exploratory discussions.

1.4.2 Participant Observation

Observing daily activities, meetings, and events within the initiatives will provide an immersive understanding of practice-as-performance. Detailed field notes will capture interactions, behaviors, and operational dynamics, offering contextual insights into how participants engage with the initiatives.

1.4.3 Measurements of Product/Material Flows

Quantifying the flow of goods and materials within local hubs is crucial for assessing the environmental impact of the CSE initiatives. Accurate records should be maintained to support LCI assessments.

1.4.4 Data Collection for Life Cycle Inventory

For the LCI, each partner should systematically collect data on products and materials, following the same approach used in the baseline assessment. This is to ensure that a comparable midterm environmental impact assessment can be carried out.

1.4.5 Additional Data Collection Methods

- **Participatory Workshops**: These workshops could engage stakeholders in discussions about the challenges and successes of CSE initiatives, generating collective insights and fostering knowledge exchange.
- **Surveys:** A quantitative survey can be conducted to gather demographic data, attitudes toward CSE initiatives, and self-reported resource-use behaviors.

1.4.6 Thematic Areas for Data Collection

The WP5 framework defines thematic categories for structuring data collection: Product/material flows, Operational data, Waste related data, Infrastructure and the facilities (buildings) for the infrastructure, Transportation, Social Practice Data (Markussen et al., 2024).

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2. CSE Initiative in Denmark: Analyzing Repair Café Denmark

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2.1 Presentation of Initiative

Repair Café Denmark consists of community-driven initiatives that offer free repair services facilitated by volunteers. These spaces act as hubs for reducing waste and promoting a circular economy by encouraging reuse, repair, and skill-sharing among participants. Since 2006, the number of repair cafés in Denmark has increased from around five to about 130 in early 2025 (where the baseline report was written) and to 145 by late 2025 where the midterm assessment is made. This has happened as a result of organizational scaling activities and growing public engagement in product extension practices. The initiative supports individual locals in repairing everyday items, thereby reducing resource consumption and extending the lifespan of consumer goods. Beyond repairing objects, these cafés also function as spaces for social learning, environmental awareness, and community building among visitors and volunteers (Markussen et al., 2025a).

For this midterm study, we have continued to investigate the four repair cafés in the Capital Region of Denmark in the Copenhagen area: **Repair Café Valby, Repair Café Sydhavn, Repair Café Frederiksberg** and **Repair Café Østerbro** as well as ongoing activities in the organization on a national level**.**

2.2 Case Specific Differences Between Baseline and Midterm Assessment

In the baseline assessment, we outlined the location, infrastructure, meanings, materials, competences, and the types of visitors (“bringers”), volunteers, and bundles of practices identified through our empirical data collection, including observations, semi-structured interviews, and desk research (see Box 1: Summary of the baseline assessment of Repair Café Danmark: (Markussen et al., 2025a).

The baseline assessment described the facilities, operations, and presented data on products brought to the four case cafés in the Copenhagen area between 2020 and 2024. The analysis showed that electrical and electronic household items were the most frequently repaired, while smartphones were least common, which reflects the cafés' policy of avoiding market distortion by not competing with local professional repair services.

The report also mapped the typical visitor journey through the café, including registration and weighing of items, the coordinator's role, and how visitors are matched with volunteers who have the relevant competences. It further outlined common forms of volunteer–visitor interaction and the overall sequence of repair activities.

Drawing on observations and interviews, the baseline traced how repair practices have developed over time and provided typologies of both volunteers (technical experts, craft-based, community-oriented, and activist volunteers) and visitors/bringers (pragmatic, sustainability-conscious, sentimental, and learning-oriented). Using a practice-as-entity perspective, it analysed repair practices through materials, competences, and meanings, and identified overlapping bundles of practices, including diagnostic, functional, creative, sentimental, aesthetic, educational, and social repair.

Finally, the baseline included an environmental assessment demonstrating measurable CO_2 savings through avoided waste disposal and reduced demand for new products. Across the four cafés, repairs were estimated to save 14.791 kg of CO_2 between 2020 and 2024 (data registered to medio March 2024), underscoring repair cafés' role in supporting the circular economy by reducing waste and emissions while fostering community engagement and sustainability-oriented culture.

Box 1: Summary of the baseline assessment of Repair Café Danmark

The midterm assessment examines developments within the national network of Repair Café Danmark that have occurred at local, national, and international levels since the baseline. Particular attention is given to organizational scaling efforts, including scaling-out initiatives and scaling-up efforts.

Based on additional interviews, site visits, and workshops, we are now able to provide a detailed account of Repair Café Danmark as an organization, including the establishment and evolution of

a small, staffed secretariat, as well as the dynamics and characteristics of the individual cafés included in the study.

In addition, we further analyze the repair practices in the four case cafés by examining concrete repair cases and categorizing them using the analytical categorizations developed in the baseline report, namely types of volunteers, types of visitors/bringers, and bundles of practices within repair cafés (Markussen et al., 2025, pp. 21–27 summarized in Box 2: Analytical output of baseline assessment of) This approach enables deeper insight into the situated interactions between visitors and volunteers, as well as into the range of distinct repair-practice constellations that emerge across the cafés. Finally, we conduct an environmental assessment comparing 2024 (baseline) and 2025 (midterm) to examine whether these local, national, and international developments have influenced repair activity and, consequently, the estimated CO_2 savings resulting from these repairs.

Summary of types of volunteers, types of visitors/bringers, and bundles of practices within repair cafés (Markussen et al., 2025b)	
Types of volunteers	The baseline report identifies four volunteer types: 1) **technical experts** (e.g., engineers, mechanics) motivated by problem-solving and hands-on challenge, 2) **craft-based volunteers** (e.g., seamstresses, artisans) focused on textile and aesthetic repairs, often treating these skills as practical “life skills”, 3) **community-oriented volunteers** who value repair cafés as social spaces for knowledge-sharing and connection and 4) **activist volunteers** who see repair as part of a broader effort to challenge overconsumption and promote systemic change. Many volunteers combine multiple motivations, and this diversity strengthens repair cafés as sites of repair, learning, collaboration, and community-building.
Types of visitors/bringers	Repair café visitors (“bringers”) vary in motivation and engagement, but can be grouped into four types: 1) **pragmatic bringers** who seek repairs mainly for economic reasons, 2) **sustainability-conscious bringers** who see repair as an ethical choice to reduce waste 3) **sentimental bringers** who repair items with personal or emotional value and 4) **curious, learning-oriented bringers** who want to understand the repair process and build skills. These categories often overlap, and participation ranges from active involvement to a service-oriented approach. Regardless of motivation, bringers sustain

	repair café activity by creating repair demand often because they lack the time, skills, knowledge, or inclination to repair at home.
Bundles of practices within repair cafés	Repair cafés function as interconnected ecosystems of practices and not "just" a place where repairs happen in isolation. Different repair types (e.i., **diagnostic, functional, creative, sentimental, aesthetic, educationa**l, and **social)** overlap and blend depending on the product, available materials, volunteer competences, and the visitor's motivations. **Diagnostic work:** Often becomes **educational** as volunteers explain troubleshooting, and visitors actively seek to learn. **Creative repairs:** Frequently combine **functional** and **aesthetic** goals, while outcomes can be shaped by the quality of volunteer–visitor interaction. **Sentimental repairs:** Tend to involve more time and explanation, linking **emotional** value with learning and long-term care. **Social repair:** Underpins all other forms by fostering knowledge exchange, inclusive collaboration, and community-building. Overall, these bundled practices sustain an evolving repair culture that supports circular economy principles by building skills, reinforcing values of maintenance, and challenging throwaway consumption (Markussen et al., 2025).

Box 2: Analytical output of baseline assessment of Repair Café Danmark

2.3 Data Collection and Methodology

This case study applies the general methodological framework outlined in chapter 1.4 to assess the Danish Repair Cafés through qualitative and quantitative approaches, integrating Social Practice Theory and Life Cycle Assessment to capture both social and environmental dimensions.

2.3.1 Contextualization of Methods

The methodology was tailored to account for the characteristics of repair cafés. Ethnographic techniques such as participatory observations and semi-structured interviews were employed to document real-time interactions, repair processes, knowledge exchange, and changes in practices and in the organization. The study also integrated material flow assessments from Repair Café Denmark's own data collection, to quantify and compare the environmental impact of repaired items and CO_2-emissions saved in the baseline assessment.

2.3.2 Selection and Implementation

To ensure a comprehensive analysis, multiple data collection methods were used, when collecting data for the assessments:

Baseline (2024):

- **31 semi-structured interviews** with 11 volunteers and 20 visitors/bringers to understand motivations, experiences and social practices. The interviews were conducted within the period from 21/08/2024-12/09/2024.
- **On-site (participatory) observations** at all four repair cafés to capture repair practices in action.
- **A small survey with 10 respondents** assessed perceptions of sustainability and engagement from (10) volunteers not able to have a conversation on-site. The survey was sent out the 11/06/2024.
- **Material flow tracking**, measuring types of repaired items and frequency of repairs, based on Repair Café Denmark’s own data collection methods from 2020 to medio march 2024. (Markussen et al., 2024).

Midterm (2025):

- **3 semi-structured interviews/meetings** (transcribed) with the chairman of Repair Café Danmark. Discussing data collection, the organization's structure, including practices and infrastructure. Initiatives for scaling up and out on a local, national, and global scale (period: 31/01/2025 - 25/09/2025).
- **2 semi-structured interviews** (transcribed) with a volunteer and a local coordinator. Discussing motivations, experiences and social practices (period: 11/02/2025 - 18/02/2025).

- **5 semi-structured interviews** (transcribed) with 2 volunteers in charge of registration and three coordinators, discussing change in practices and quantitative data (CO_2 savings, numbers of repairs) since baseline.
- **10 On-site (participatory) observations** at all four repair cafés to document specific repairs of different products to capture the repair practices in action (period: 23/01/2025 – 19/02/2026).
- **Material flow tracking**, measuring types of repaired items and frequency of repairs, based on Repair Café Denmark's own data collection methods from 2024 and 2025.

These methods balanced qualitative insights especially for analyzing social practices and organizational change with the quantitative data primarily used to create the environmental impact overview. For reference, the data collected for the *midterm assessment* are cited using the interview and observation codes listed in Table 1: Empirical data with reference codes below.

Date/time	**Location**	**Methods**	**Actor(s)**	**Ref. code**
23-01-2025 / 17.10–18.40 (1h 30m)	Repair Café Frederiksberg	Photographic field notes, informal conversations, participant- and non-observation	9 volunteers, 13 visitors	**VF1**
31-01-2025	Online	Meeting/interview	The chairman of Repair Café Danmark	**I1**
11-02-2025	AAU, CPH	Recorded and transcribed interview	Volunteer M	**V1**
18-02-2025 / 17.00–17.40 (40m)	Online	Recorded and transcribed interview	Coordinator Østerbro	**IØ1**
19-02-2025 / 17.10–18.40 (1h 30m)	Repair Café Østerbro	Photographic field notes, informal conversations, participant- and non-observation	7 volunteers, 5–6 visitors, 1 coordinator, 1 paid employee from the secretariat	**VØ1**

19-03-2025 / 17.15–18.45 (1h 30m)	Repair Café Østerbro	Photographic field notes, informal conversations, participant- and non-observation	6 volunteers, 1 coordinator, 10 visitors	**VØ2**
10-04-2025 / 16.50–17.50 (1h)	Repair Café Sydhavn	Photographic field notes, informal conversations, participant- and non-observation	—	**VS1**
10-04-2025 / 17.00–19.00 (2h)	Repair Café Valby	Photographic field notes, informal conversations, participant- and non-observation	—	**VV1**
25-08-2025 (2h)	Online	Recorded and transcribed interview	The chairman of Repair Café Danmark	**I2**
25-09-2025 (2h)	Online	Recorded and transcribed interview	The chairman of Repair Café Danmark	**I3**
06-11-2025 (1h)	Repair Café Sydhavn	Photographic field notes, informal conversations, participant- and non-observation	2 volunteers, 2 visitors	**VS2**
06-11-2025 (20m)	Repair Café Sydhavn	Interview	1 Coordinator	**IS1**
13-11-2025 (20m)	Repair Café Valby	Recorded and transcribed interview	Volunteer K	**IV1**
13-11-2025 (1h)	Repair Café Valby	Photographic field notes, informal conversations, participant- and non-observation	1 Volunteer, 1 Visitor	**VV2**
03-12-2025 (1h)	Online	Interview	Local environmental group, employee and coordinator in Valby	**IV2**
18-02-2026 (20m)	Repair Café Østerbro	Semi structured interview	Registrar X	**VØ3**

18-02-2026 (1h 30m)	Repair Café Østerbro	Semi structured interview and observation	Coordinator and Registrar X	**VØ3.1**
19-02-2026 (1h 30m)	Repair Café Frederiksberg	Semi structured interview and observation	Registrar and 1 Volunteer	**VF2**

Table 1: Empirical data with reference codes.

2.4 Scaling Repair Café Denmark

The Repair Café concept originated in Amsterdam in 2009. In Denmark, the first Repair Café opened at Østerbro in 2014, followed shortly thereafter by Vesterbro. Since then, an average of approximately 13 cafés has been established annually, with around 28 new cafés opening during the baseline period (2024) and a further 12 during the midterm period (2025) (see Figure 1). Today, repair cafés are found in almost every parts of Denmark (see map on Figure 2), extending as far as Nuuk in Greenland, where the first Repair Café opened in February 2025 . Despite this broad geographical spread, most cafés remain concentrated in larger cities (Figure 2).

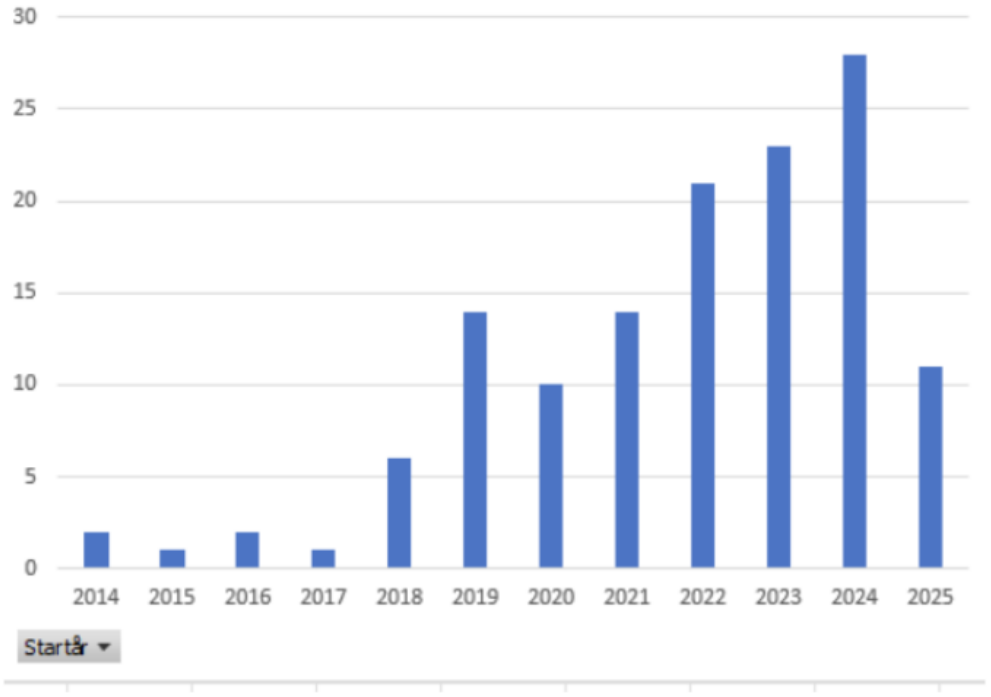


Figure 1: Establishment of new repair cafés in connection to Repair Café Danmark. Source: (Arne, 2025)

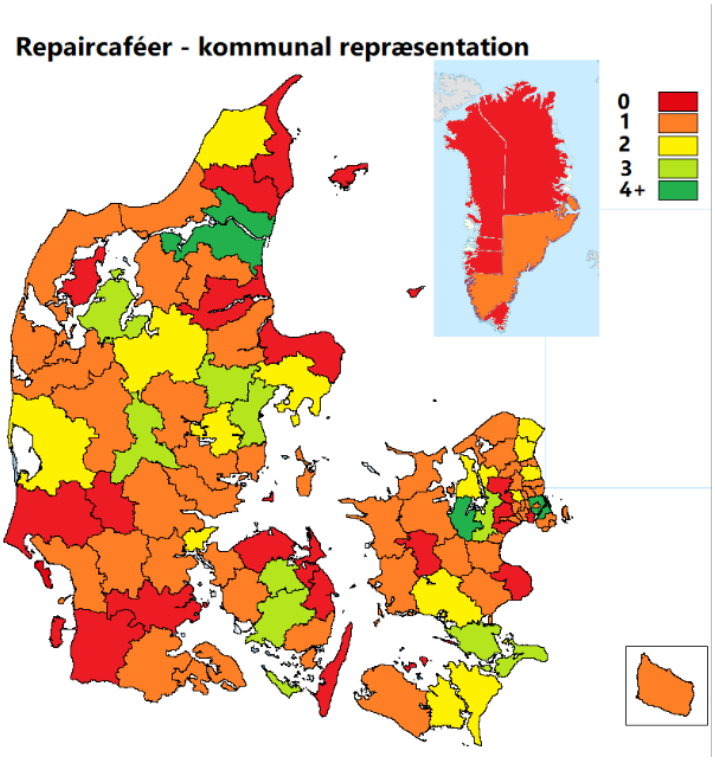


Figure 2: Number of repair cafés represented within Danish municipalities (Arne, 2025).

In early 2025, Repair Café Danmark received funding from the Rural District Fund (Landdistriktspuljen) to support a more systematic expansion of the national network into rural areas, rather than concentrating primarily in larger cities. The funding was specifically directed toward strengthening the presence of repair cafés in the South Sea Islands (Sydhavsøerne) in southern Denmark and ensuring their inclusion on Repair Café Denmark's national map (I3, "Nyhedsbrev Arkiv," 2025). This effort contributed to the establishment of several new rural initiatives in southern Denmark, including Repair Café Møn and three new cafés on Lolland and Falster (two in Nykøbing F and one in Nakskov). Despite these developments, the geographical distribution of repair cafés remains uneven. Large gaps persist in the far northern and southern parts of Jutland, which are areas that, according to the chairman of Repair Café Danmark, should be prioritized more directly in future outreach and establishment efforts.

2.4.1 The Process of Opening a New Café (scaling out)

When new repair cafés are established, the process typically begins with the involvement of a driving force. A key local actor characterized by strong commitment to either repair practices, community engagement, sustainability concerns, or a combination of all these motivations. This individual is often either (a) a local stakeholder identified through Repair Café Denmark's existing network or (b) a private citizen who, inspired by experiences with repair cafés elsewhere, seeks to initiate a similar initiative within their own community (I3).

The next step in the establishment process typically involves recruiting a sufficient number of volunteers. According to the coordinator at Repair Café Valby (IV2), around 30 volunteers are usually needed, although this likely varies from café to café depending on the size of the café and the potential number of visitors within the local community. During this early phase, Repair Café Danmark provides substantial support in collaboration with the local initiator(s). Recruitment efforts commonly include announcements on social media platforms (e.g., Facebook), poster campaigns in the local area, and, in some cases, coverage in local newspapers. Once an initial pool of interested individuals has been identified, which often happens through sign-ups to a mailing list, they are invited to an introductory meeting. By the time the meeting takes place, some individuals who initially expressed interest may no longer participate. Nevertheless, a group of engaged participants typically attends, and the meeting often results in several individuals formally committing as volunteers (I3, IV1).

The actual introduction meeting is typically organized in cooperation with a host organization or a representative of the venue where the Repair Café activities are expected to take place. The venue may be identified either by Repair Café Danmark or by the local initiators. If a host organization has not yet been secured, establishing one becomes an immediate priority (I3).

At the introductory meeting, representatives from the host organization typically present the available facilities and clarify their anticipated role. Subsequently, the chairperson or another Repair Café Danmark representative introduces the Repair Café concept, outlines the organization's core values, and specifies the expectations placed on volunteers (I3). Repair Café Danmark's core values, as stated on its website, are as follows:

- *Repair cafés must not distort competition in relation to local businesses.*
- *Repairs may not be carried out for commercial purposes.*
- *Repairs must be offered free of charge, with visitors providing their own spare parts.*
- *Volunteers cannot be held responsible for any deterioration or damage occurring during repair attempts*

During the introductory meeting, the group of prospective active volunteers also typically agrees on the anticipated opening schedule of the future repair café, including both frequency and timing (I3, IV2). The group also assesses whether additional material and financial resources are needed to initiate and sustain operations. Material support, primarily in the form of tools, may be facilitated through Repair Café Danmark via sponsorship arrangements (e.g., through iFixit or RS Group). Financial support at the organizational level is provided mainly by LB Foreningen, which has

donated approximately EUR 670,000 (DKK 5 million) over a four-year period to Repair Café Denmark (“LB Foreningen,” n.d.). Beyond supporting the establishment of new repair cafés, this funding also contributes to the operation of the newly established national secretariat. As a result, the organization has been able to hire an organizational consultant on a part-time basis (three-fifths of full time), primarily responsible for maintaining contact with local repair cafés - a task that was previously handled mainly by the chairman. This also enables that the chairman has more time to participate in public events and festivals.

At the introductory meeting, a coordinator for the new repair café is also typically appointed. Following this appointment, the café is generally regarded as operational. However, sustained operation depends on several enabling conditions. First, access to a sufficiently large and committed volunteer base ideally with a diverse set of competencies, appears to be critical, as emphasized by both the chairman of Repair Café Danmark and coordinators across the studied cafés (IV2, I3, IØ1, V1). Although participation is voluntary, volunteers are generally expected to respond to invitations, regardless of whether they are able to attend a specific session, because if the café cannot rely on an adequate number of competent volunteers being present on the day, the experience may be negatively affected for both volunteers and visitors (I3). Over time, such disruptions may influence whether visitors choose to return, and whether volunteers remain engaged, thereby undermining the initiative’s continuity and local legitimacy. Regarding the competencies required for the successful operation of a repair café, our observations of the volunteers, together with the interviews with the chairman, indicate that these extend beyond the act of repair itself. While technical competencies – such as skills in electrical, mechanical, and textile repair – are important, non-technical roles are equally essential. These include welcoming visitors, registering repairs, documenting activities for communication purposes, and carrying out administrative tasks between café sessions (ref. code: VØ1-3, V1, VF1-2, VV1-2, VS1).

A further enabling condition, emphasized by the chairman based on his experience with establishing and supporting new cafés, concerns the importance of maintaining a *low-threshold* organizational structure in order to sustain volunteer motivation and engagement (I3). In this regard, the requirement to register repaired items has, in some cases, constituted a barrier or a huddle for some coordinators, as also noted by the coordinator at Repair Café Valby (IV2). The chairman noted that a small number of cafés have been excluded due to reluctance or inability to document repair activities. This is an outcome regarded as controversial, according to the chairman, within the broader international Repair Café movement, given the substantial effort typically required to establish a café in the first place. At the same time, he stressed that data

collection remains critical, because such data are used to document environmental benefits (e.g., estimated CO_2 savings) and potential economic impacts, and they underpin the organization's capacity for political advocacy (Elaborated in section 6.1 Patterns of Scaling Across Initiatives).

An illustrative example of this "registration barrier" concerns Repair Café Danmark's attempted collaboration with Ældre Sagen, a nationwide Danish organization dedicated to improving the quality of life of senior citizens (aeldresagen.dk, n.d.). Ældre Sagen was considered a promising potential partner, not least because a substantial share of repair café volunteers are senior citizens. However, according to the chairman, the organization did not regard the systematic registration of repaired items as sufficiently valuable and instead viewed it as an unnecessary administrative burden. As a result, Ældre Sagen has continued to run a similar initiative independently, but without systematic documentation of repairs and without formal alignment with key principles of the Repair Café model, including avoiding competition with local repair businesses and encouraging active interaction between volunteers and visitors to support mutual learning (I3). Overall, this case can be interpreted as an unsuccessful attempt by Repair Café Danmark to *scale out* its model through partnership; nevertheless, it also illustrates how comparable repair practices may persist outside the Repair Café Danmark network, albeit under different organizational conditions and value commitments.

Another factor that may constrain efforts to scale out repair cafés concerns the role of municipalities. This challenge is linked to the Danish Waste Order, under which municipal waste management is embedded in financial arrangements associated with the collection and treatment of waste (Miljøstyrelsen, n.d.). From this perspective, when repair cafés extend the lifespan of products that would otherwise enter the waste stream, municipalities may perceive this as a reduction in waste-related revenue, as explained by the chairman (I3). Consequently, Repair Café Danmark's plans to establish repair activities at municipal recycling depots have in some cases been met with restrictions from municipal authorities, and therefor at present, no such repair activities are formally established within municipal waste-handling facilities.

One area in which Repair Café Danmark has succeeded in scaling-out their initiative is the diversification of host organizations. While many repair cafés are still primarily located in publicly owned or municipal settings, such as cultural centers, libraries, and community facilities, Repair Café Danmark has increasingly supported the establishment of cafés in a broader range of venues. These include privately owned enterprises and cooperative-based spaces, such as housing cooperatives. This development reflects an ambition to extend the reach of repair cafés

beyond traditional public venues and to embed repair practices within a wider set of social and economic contexts (I3).

A notable example of such collaboration with a privately owned company is the Repair Café hosted at IKEA Dybbølsbro (Arne, 2025b). The chairman explains that IKEA initiated the collaboration by approaching Repair Café Danmark, because they had identified a strategic value in hosting a repair café to support their sustainability profile by promoting product longevity and more sustainable consumption practices. More specifically, the repair café is integrated into IKEA Dybbølsbro's *Cirkulär* department, where customers can buy and sell used furniture and, more recently, repair existing item.

According to the chairman, IKEA has expressed interest in expanding this model in collaboration with Repair Café Danmark to additional stores across Denmark. He further notes a desire to establish similar partnerships with other private companies, suggesting that such collaborations represent a promising platform for scaling by aligning grassroots repair initiatives with corporate sustainability agendas (I3).

In addition to private-sector partnerships, housing cooperatives are identified as a potential future setting for repair cafés. The chairman envisions that cooperatives of sufficient size may benefit from hosting temporary or pop-up repair cafés as a form of social service and shared workshop for residents. However, he emphasizes that these initiatives must be largely self-sufficient and resident-driven, given the practical limitations in performing support and direct involvement in the establishment of such new cafés (I3).

In Table 2 below the scaling-out activities within Repair Café Denmark is summarizes into four scaling categories (i.e., Nationale establishment of new repair cafés, targeted rural expansion, organization support, new facility organizers).

Scaling-Out activities	
National establishment of new repair cafés	• 28 cafés opened during the 2024 baseline period. • 12 cafés opened during the 2025 midterm period.
Targeted Rural Expansion (2025)	• Funding from the Rural District Fund (Landdistriktspuljen). • Strategic focus on South Sea Islands (Sydhavsøerne).
Organizational support	• Operation of a national secretary (LB Foundation grant). • Tool sponsorships (iFixit, RS Group).

New Facility Organizations	• Private enterprises • Corporate actors (e.g., IKEA Dybbølsbro) • Housing cooperatives

Table 2: Scaling-out activities within Repair Café Danmark.

2.5 Scaling-up Repair Café Denmark

On Repair Café Danmark's website, the organization's activities are described as operating along a "dual track." The first track focuses on supporting existing repair cafés and establishing new ones, corresponding to the *scaling-out* activities described in the previous section. The second track concerns efforts to influence political and institutional frameworks, which we define as *scaling-up* activities (Markussen et al., 2025). In this area, Repair Café Danmark targets improved conditions for product repair and repair-friendly product design, consistent with its stated mission: "To reduce waste, change consumption patterns, and foster knowledge about and enthusiasm for a green transition". Or as the chairman puts it: "It's not a fight to fix a toaster. It's a fight to fix people's buy-and-throw-away culture" (I3).

This mission is operationalized primarily through "the first track": the repair cafés, which function as local, community-based hubs for repair practices and informal learning between volunteers and visitors. Beyond these practical initiatives, the mission is pursued more broadly through "the second track": Repair Café Danmark's public and political engagement. While this work is largely driven by the chairman, the organization mobilizes multiple channels, including collaboration and membership in aligned organizations such as Forbrugerrådet Tænk, Brancheforeningen Cirkulær, Danmarks Naturfredningsforening, and Grønne Nabofællesskaber, which engage with municipalities, citizens, companies, and policymakers to support Denmark's green transition (cirkulaer.dk, 2026; dn.dk, n.d.; gnf.green, n.d.; taenk.dk, n.d.). Furthermore, on behalf of Repair Café Danmark, the chairman engages in lobbying and public outreach by communicating the organization's mission and activities through national media and public arenas. This includes participation in television and radio broadcasts, contributions to public debate through newspaper articles, and an active presence at festivals and public forums (I2-3). A prominent example is Folkemødet on Bornholm, which are Denmark's annual democratic gathering where politicians, interest groups, business representatives, civil society actors, volunteers, and citizens convene for events and discussions on a wide range of societal issues (folkemoedet.dk, n.d.) . In addition, Repair Café Danmark has participated in food- and climate-focused public meetings in the Region of Southern Denmark (Fyn) and in Region Zealand (Lolland–Falster), where the organization has

contributed to debates and activities intended to strengthen public dialogue on repair practices, product longevity, and the broader green transition (madensfolkemode.dk, n.d.).

According to Repair Café Danmark's website ("Mission," n.d.), a central component of the organization's advocacy efforts concerns the promotion of legislative reforms aimed at strengthening repairability and extending product lifespans. In this regard, Repair Café Danmark explicitly supports several policy initiatives.

First, the organization advocates mandatory product design standards that prioritize repairability, including requirements for manufacturers to ensure the availability of spare parts to consumers. Second, it calls for legislation that mandates the production of more durable goods, for example through the extension of statutory warranty periods on electronic and household appliances to a minimum of five years. Third, Repair Café Danmark proposes the introduction of economic incentives to encourage consumers to choose repair over replacement. These include tax deductions for repair labor, which is modelled on the existing Danish maintenance deduction scheme (servicefradraget), which currently allows a 26% deduction on labor costs for only domestic appliances (e.g., ovens, refrigerators, and washing machines), as well as the potential removal of value-added tax (VAT) on repair services ("Servicefradrag, skat.dk," 2025). Finally, the organization advocates the introduction of a certification scheme supported by a recognizable label to identify manufacturers that commit to producing repair-friendly products, providing public access to repair manuals, and ensuring the long-term availability of spare parts. This proposal parallels the French Repairability Index (*Indice de réparabilité*) as seen on Figure 3. This is a mandatory labeling scheme introduced in 2021 to promote product longevity and support the circular economy (eea.europa.eu, 2024). Under this scheme, selected categories of electrical and electronic products must display a repairability score from 0 to 10 at the point of sale, calculated across five dimensions: documentation, disassembly, availability of spare parts, price of spare parts, and product-specific criteria (Arne, 2024a; mdepypere, 2021).

Figure 3: French Repairability Index (Indice de réparabilité) Source: (Chasson and Vasseur, 2021)

At a national level, these policy objectives have been pursued through multiple channels. According to the chairman, local repair cafés were encouraged to promote a repair-oriented agenda during the most recent municipal elections. In addition, he personally engages in national level lobbying activities, submitting between one and three formal policy requests annually to draw attention to issues aligned with the organization's objectives (I3). At present, his primary focus is Danish waste legislation, particularly its interpretation and implementation of the Waste Electrical and Electronic Equipment (WEEE) Directive. The WEEE Directive (Directive 2012/19/EU) is an EU regulatory framework intended to protect the environment and human health by prioritizing the prevention of waste electrical and electronic equipment (WEEE) and by promoting reuse, recycling, and other forms of recovery. A central element of the directive is extended producer responsibility, whereby producers are assigned responsibilities (including financial responsibilities) for the collection and treatment of WEEE (environment.ec.europa.eu, n.d.). The chairman emphasizes that his critique is not directed at the directive's underlying rationale. Indeed, he considers producer responsibility an important principle and rather argues that the framework does not sufficiently address consumers' motivations and practical willingness to repair electronic products (I3). From this perspective, consumers should also bear a degree of responsibility for the electronic waste they generate, and stronger institutional support is needed for consumer-led repair initiatives, an argument that aligns closely with Repair Café Denmark's mission.

Repair Café Danmark's national repair registration indicates consistently high repair success rates making repair cafés a strong consumer-led initiative. For example, Repair Café Danmark reported a success rate of 75.9% for registered repair attempts in the first quarter of 2024 (Arne, 2025a; Markussen et al., 2025a). Importantly, Repair Café Danmark also frames unsuccessful repair attempts as valuable, insofar as they generate knowledge about product quality and repairability.

According to the chairman, the remaining “unsuccessful” share is still a form of success because it produces knowledge and learning for both visitors and volunteers (Arne, 2025b). The chairman argues that repair cafés should be understood not only as service providers but also as community-based sites of knowledge production, where systematic documentation of both successful and unsuccessful repairs can be mobilized in advocacy efforts related to product design and repairability which we also saw the potential for in our baseline assessment (see also section 6.1 Patterns of Scaling Across Initiatives, . In this sense, the learning environment and knowledge generation in the cafés could also be considered as a form of *scaling-out.*

At the international level, Repair Café Danmark is a member of the Right to Repair Europe coalition, a network representing over 180 organisations from 30 European countries (repair.eu, n.d.). The coalition brings together environmental NGOs, community repair initiatives, social-economy actors, spare-parts distributors, self-repair advocates, repair and refurbishing businesses, and engaged citizens. Its core activities include advocating for the removal of regulatory and market barriers to repair at the EU level, while also facilitating knowledge exchange and networking among members.

A current priority for the coalition concerns Microsoft’s decision to end support for Windows 10 on 14 October 2025, which the coalition frames as a potential driver of software-enabled obsolescence. According to Repair.eu, the change may leave approximately 400 million computers globally without security updates, potentially generating more than 700 million kilograms of electronic waste, in addition to the estimated 62 billion kilograms of e-waste produced worldwide each year. In response, the coalition has pursued EU-level advocacy and lobbying aimed at addressing functional obsolescence where software becomes outdated (repair.eu, n.d.).

RC Denmark has similarly engaged with this issue regarding software-enabled obsolescence for Windows 10 through national outreach as described by the chairman and by supporting volunteers in exploring practical alternatives, such as optimizing existing Windows 10 systems, enabling transitions to Windows 11 where feasible, or installing Linux-based operating systems (I3). These initiatives are framed as a form of “repair”, and these are oriented toward extending product lifetimes and avoiding unnecessary replacement, despite focusing primarily on software rather than the hardware repairs that typically constitute repair cafés’ core activities.

In addition to the Right to Repair Europe coalition, Repair Café Danmark collaborates with the French non-profit organization HOP (*Stop Planned Obsolescence*), which is recognized for its extensive engagement with European Union regulation related to product durability and

repairability. Together, Repair Café Danmark and HOP have sought to strengthen international and EU-level collaboration on initiatives aimed at extending product lifespans and supporting the broader objectives of the Right to Repair movement ("HOP – Stop Planned Obsolescence," n.d.)

An outcome of this international collaboration was reflected in Denmark through the Environmental Strategic Annual Meeting (Miljøstratetisk Årsmøde, held during the midterm period of this project and co-organized by the Danish Society of Engineers, Aalborg University's Department of Sustainability and Planning, and Repair Café Danmark (plan.aau.dk, n.d.) The meeting focused on product lifespan, repair, and access to information. The objective was to discuss Danish experiences to date, identify lessons from international practices and explore how EU regulation can be implemented ambitiously within the Danish context to support waste prevention and product longevity at both national and local levels. A broad range of stakeholders, including municipalities, private companies, waste actors, universities, and civil society organizations such as Repair Café Danmark and HOP, participated as speakers and contributors (plan.aau.dk, n.d.). One significant outcome of the meeting was the establishment of a new national (Danish) initiative, the *Alliance for Product Life Extension*. The alliance brings together key actors from municipalities, waste management companies, private enterprises, the retail sector, academia, and non-governmental organizations, united by a shared objective of addressing challenges related to electronic waste and extending the lifespan of electronic products. Through this collaboration, the alliance seeks to promote regulatory and market-based measures aimed at improving product durability and repairability. The Danish alliance is expected to undertake further activities in the coming years, the outcomes of which will be documented and assessed in this case' final assessment for the TransScale project. Table 3 shows the scaling-up activities of Repair Café Danmark categorized by local, national, and international level.

Scaling-up activities		
Local	Promote repair agendas	• Through repair activities in the local cafes • Encouragement to promote repair agendas during municipal elections • Volunteer Education on Software Repair (windows 10)

National	Media and (Political) Public Outreach	• Participation in national media by Repair Café Danmark's chairman • Contributions to public debate written articles and a blog • Active presence at festivals and public forums • Direct outreach to national political actors
International	Right to Repair Europe Coalition Partnership with HOP (France)	• Software Obsolescence Campaign (Windows 10) • Establishment of the Alliance for Product Life Extension (also national)

Table 3: Scaling-up activities within Repair Café Danmark.

2.6 Case Activities/Flow

Repair cafés function as structured yet flexible initiatives, where visitors bring broken items, and volunteers assist in diagnosing and repairing them. The process follows a flow, ensuring that each visitor receives help from a skilled repairer while fostering an engaging, community-driven atmosphere. The physical infrastructure supporting Repair Café Danmark plays a crucial role in the efficiency and accessibility of repair activities. Each repair café operates within a unique space, often housed in community centers or cultural houses, which influences the repair process, volunteer workflow, and visitor experience. The infrastructure includes aspects such as room size, storage facilities, accessibility (see Table 4: Location and operating hours of the four repair cafés cases), and the availability of essential tools and equipment.

Café	**Space**	**Opening day**	**Opening hours**
Frederiksberg	Det Bæredygtige Forsamlingshus	3rd Thursday of the month.	16:30 to 19:00
Sydhavn	Karens Minde Kulturhus	1st Thursday of the month from	17:00 to 20:00
Østerbro	Kildevælde Kulturcenter	3rd Wednesday of the month	17:00 to 19:00
Valby	Valby Kulturhus	2nd Thursday of the month	17:00 to 19:00

Table 4: Location and operating hours of the four repair cafés cases.

One of the key factors in shaping repair operations is the variability of facilities across different locations. Repair Café Valby, for example, operates from Valby Kulturhus. Repair Café Frederiksberg was during the baseline at Det Bæredygtige Forsamlingshus, a much smaller place compared to Valby (see Picture 1: Repair Café Frederiksberg and Repair Café Valby). Now Repair Café Frederiksberg has moved to the culture center KU:BE also in Frederiksberg. In Sydhavn, repairs take place at Karens Minde Kulturhus, the largest of the four places, while Østerbro's repair café operates out of Kildevæld Kulturcenter where they have to change rooms from time to time. Each of these venues offers different spatial conditions, influencing how repairs are conducted and how visitors engage with the initiative.

Picture 1: Repair Café Frederiksberg and Repair Café Valby.

The infrastructure of each repair café directly affects operational efficiency and the level of community engagement. Sufficient space allows for the accommodation of multiple repair stations, facilitating simultaneous repairs, and minimizing waiting times for visitors. Proper storage facilities ensure that tools and materials remain in good condition and readily available for use, enabling volunteers to carry out a broad range of repairs effectively. As an example, Repair Café Valby operates in the FabLab (a user-driven fabrication laboratory for citizens) of the culture center making the space suitable for repair because of the accessibility to the FabLab tools and workstations. Accessibility features, such as ramps and elevators, also play a role in ensuring that people with mobility challenges can participate, promoting inclusivity and expanding the reach of the initiative.

The choice of cultural and community centers as venues for repair cafés is strategic in fostering community engagement. These locations often function as social and cultural hubs, bringing together different groups of people for various activities. By situating repair cafés in such spaces, Repair Café Danmark benefits from increased visibility while also providing an informal learning

environment where visitors can gain hands-on experience in maintaining and repairing their belongings.

Despite the benefits of operating within shared community spaces, certain challenges persist. Scheduling conflicts with other events hosted in these locations can sometimes limit the availability of space (as experienced in Østerbro, VØ1-3), while restrictions on customizing the setup to better suit repair activities may hinder efficiency. Additionally, limited storage space can make it difficult to maintain an organized inventory of tools and spare parts (each café has about one cabinet each). However, these challenges also open avenues for collaboration with venue administrators and local organizations. By working closely with community center management, repair cafés can secure dedicated repair time slots, negotiate shared storage arrangements, and even co-host events that promote sustainable practices (VV1-2). We see this in Valby with their paid coordinator.

The size, layout, and available facilities at these locations thus directly impact the number of repairs that can be performed simultaneously, the types of repairs possible, and the overall visitor experience. While some cafés have dedicated storage rooms for tools and materials, others work with minimal space, requiring creative solutions to optimize their workflow.

The opening hours of the repair café also affect the number of repairs performed. There is often a waiting period, and some visitors choose to leave without having their items examined because of this period. In other cases, by the time it is their turn, there is insufficient time to carry out the repair. Some visitors may then choose to attend another nearby café, while others return at a later session. However, there is also a group of visitors who never return and therefore never have their items repaired.

The collaboration between individual repair hubs and Repair Café Danmark as a central coordinating body is essential for ensuring consistency and operational efficiency across locations. While each café is locally managed and operates semi-independently, Repair Café Danmark provides overarching guidance, support, and networking opportunities. This collaboration ensures that best practices are shared, allowing repair hubs to learn from each other's experiences, optimize their logistical setup, and improve their service delivery.

One of the key benefits of this collaboration is resource allocation. Many repair cafés operate with limited budgets, and all rely heavily on volunteer-driven efforts. Repair Café Danmark helps coordinate funding opportunities, facilitate partnerships with municipalities or sponsors, and provide centralized access to tools and repair guidelines. For example, some hubs receive

financial support from local committees to acquire necessary repair tools, while others may benefit from shared donations of materials. Without this involvement in structuring these connections, individual repair hubs might struggle to secure the necessary infrastructure to function effectively.

2.6.1 Sequential flow of initiative

Visitors arrive at the repair cafés using various transportation methods, depending on location and accessibility. Based on our empirical data, visitors mostly arrive by bicycle or on foot and few with bus or by car, which highlights the local accessibility of the repair cafés, since most of the visitors cover relatively short distances, because the live in the neighborhoods (Markussen et al., 2025).

Upon arrival, two different flows for welcoming visitors, registering the items they bring, and guiding them to a volunteer fixer, were observed.

The most common flow observed in Valby, Frederiksberg, and Østerbro can be seen in Figure 4: Flow of Repair Café Valby, Repair Café Frederiksberg and Repair Café Østerbro. It begins with a coordinator who greets visitors on entry and collects key information about the item (VV1-2, VF1-2, VØ1-3). The coordinator then registers the product and helps direct the visitor to a volunteer with relevant repair competences.

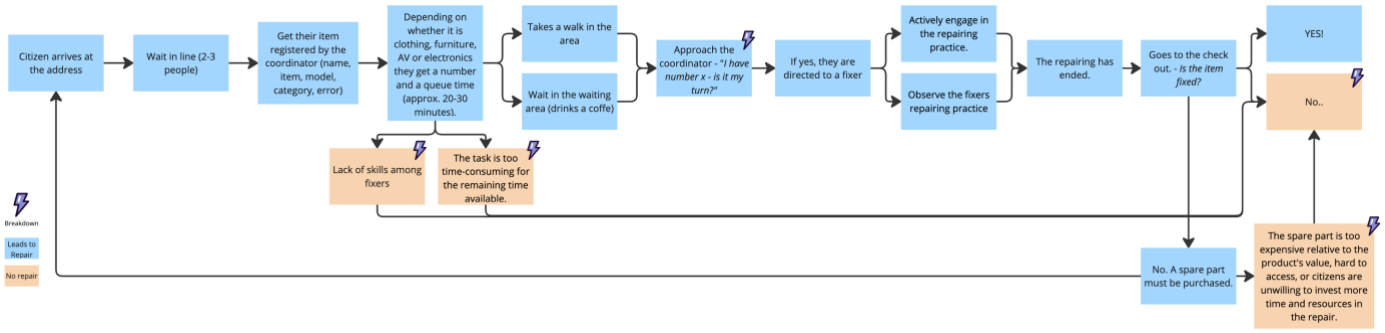


Figure 4: Flow of Repair Café Valby, Repair Café Frederiksberg and Repair Café Østerbro.

A second, more informal flow was observed in Sydhavn (VS1-2). As seen in Figure 5, no single volunteer is clearly responsible for reception and registration. Visitors are largely left to manage the queue themselves, which can create uncertainty about how to proceed upon arrival. Registration is still handled by the coordinator, but in this café, the coordinator is also actively engaged in repair work. As a result, registration is typically completed only at the end of the visit when the visitor leaves with an item that is either repaired or not repaired, rather than being recorded both on arrival and departure, as is standard practice in the other case cafés.

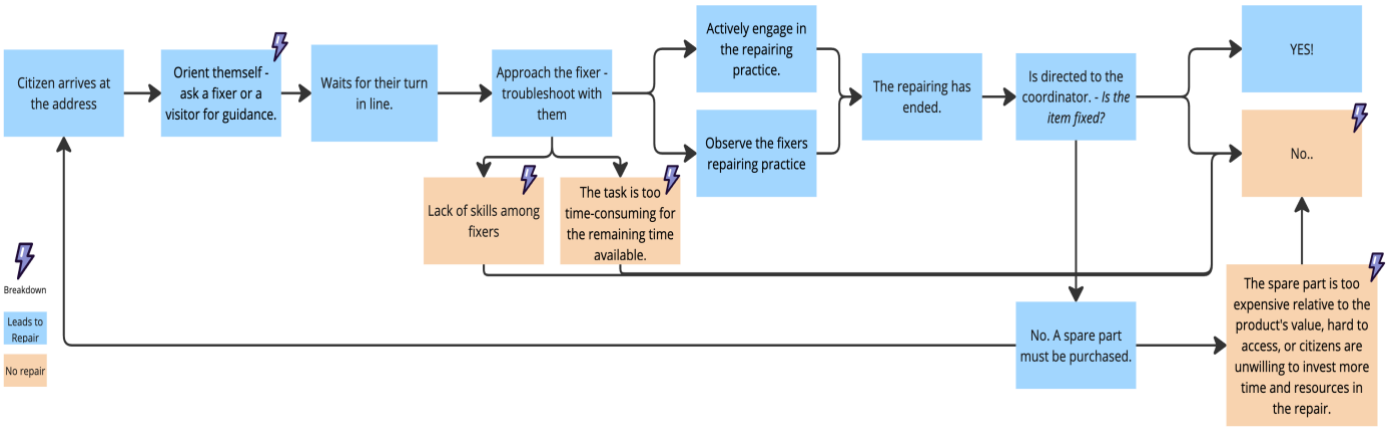
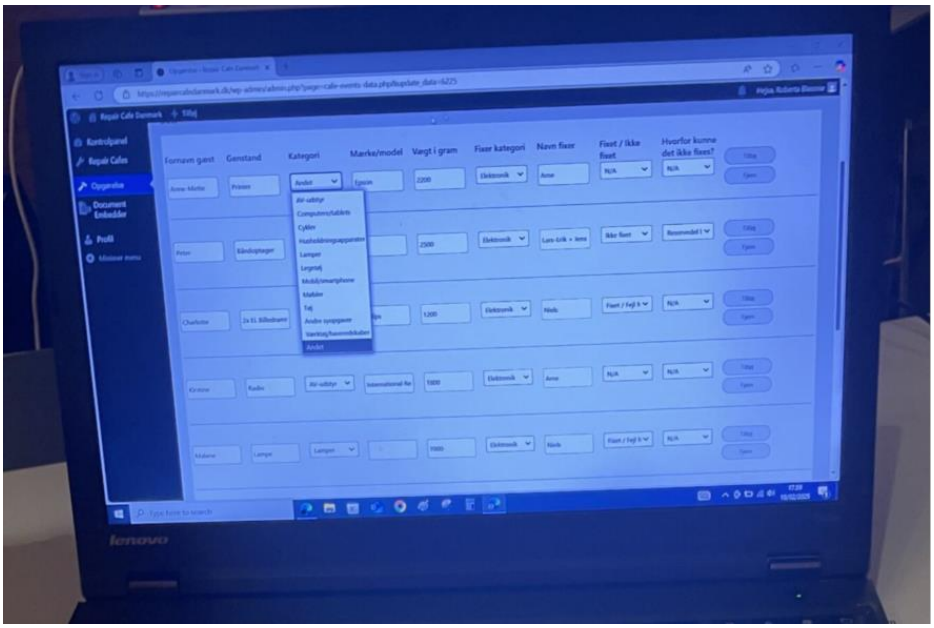


Figure 5: Flow of Repair Café Sydhavn.

The categorizes of the product is done in the following categories: audio-visual equipment (e.g., speakers, radios, and so on), computers/tablets, household appliances, lamps, toys, mobile phones/smartphones, furniture, clothing, other textile tasks (e.g., alterations, mending), tools/gardening equipment, bicycles, or 'other items'. The weight of the item is recorded by the coordinator, this is done by either using a simple kitchen scale for small objects (see Picture 2: Scale used for estimating the weight of objects at Repair Café Frederiksberg) or through an estimated assessment by holding the item (VØ1).

Picture 2: Scale used for estimating the weight of objects at Repair Café Frederiksberg.

It is hereafter the coordinators' role to document the data of the products in Repair Café Danmark's digital system (see Picture 3: The digital datasheet for Repair Café Denmark's data collection). This data collection helps measure the impact of repair efforts by tracking the weight of fixed items (VØ1).



Picture 3: The digital datasheet for Repair Café Denmark's data collection.

After registration or just arriving, visitors wait until a volunteer with the right competencies is available to assist them. It is the coordinators' role to keep track of which volunteer would be suitable to fix the products brought in. Volunteers are seated at tables dedicated to specific types of repairs, such as textiles, electronics, or mechanical items (VØ1).

The repair process varies based on the complexity of the problem. Some repairs are quick and straightforward, while others require diagnostic troubleshooting or creative improvisation with spare parts. Occasionally, visitors actively participate to learn repair skills, while others prefer to observe. This is even though the manifest of Repair Café Denmark state that visitors are required to participate and learn. If an item is successfully repaired, the visitor thanks the volunteers and leaves with their fixed item. If the item cannot be repaired, volunteers explain the issue and, in some cases, suggest alternative solutions, such as reusing parts or seeking professional repair services. Due to the difficulties in estimating the time of repairs, it can happen that some visitors do not get assigned a volunteer and therefore must return home without assistance. Our observations showed that this mostly happens for visitors bringing electronics and more technical products. For example, a visitor in Frederiksberg arrived with a large flatscreen TV an hour after the opening of the café. This resulted in the coordinator estimating that, with the current queue, they would not have time to help him. Another example was in Østerbro where a mixer was so complicated to open (to fix) that the time of its repair hindered another visitor from receiving the help that they needed. The volunteers with competences to fix electronic and technical products, in general have the longest queues, whereas volunteers with sewing competences have quicker

tasks and therefore a shorter amount of people waiting in line. In some cases, repairers take items home to continue working on them if the repair requires special tools or spare parts not available on-site. Meanwhile, visitors engage in conversations and learning, creating an interactive space where repair knowledge is shared across participants.

2.6.2 Repair Café Valby

To obtain an in-depth understanding of Repair Café Valby, two interviews were conducted with key actors (IV1, IV2). Both interviewees have been closely involved in the establishment and ongoing operation of Repair Café Valby, which was founded in 2019 as a collaboration between Copenhagen FabLab and the environmental group of Valby's local committee (copenhagenfablab.kk.dk, n.d.; valbylokaludvalg.kk.dk, n.d.).

One interviewee has several years of experience working with volunteers and is employed by the local environmental group in Valby (IV2). The other is a senior volunteer described as a "super volunteer," by the employed interviewee characterized by strong public engagement and a deep commitment to circularity, waste reduction, and resource conservation. This person is also a member of the local environmental group. Both interviewees regularly participate in the café's monthly repair activities (IV1, IV2, VV1-2).

Repair Café Valby operates on the second Thursday of each month from 17:00 to 19:00. However, the opening hours are described as a "soft opening," during which some volunteers arrive as early as 15:00–16:00 to prepare, and visitors are encouraged to arrive early to secure a spot in the queue. This practice reflects a perception among some volunteers that a two-hour repair window is relatively short, although they were unable to agree on extending the official opening hours. The café has approximately 32 affiliated volunteers, of whom around 12 are considered "active volunteers" who attend every session, while approximately 20 are semi-active (IV2).

Regarding the process of establishing Repair Café Valby, one interviewee explains that the local environmental group initially considered three different repair models. One model, currently operating in Høje-Taastrup, resembles professional repair practices: items are dropped off, repaired by volunteers or flex-job employees, and later collected for a small fee (mec-ht.dk, n.d., IV1). A second option involved establishing a repair café in collaboration with Ældre Sagen, which was considered a suitable partner due to its strong connections with senior citizens, who were seen as potential volunteers. However, Ældre Sagen was not interested in establishing a café in Valby. As a result, the group contacted Repair Café Denmark and ultimately established the café in collaboration with them (IV1), thus settling with the third model.

In relation to the volunteers, one interviewee explains that although the composition of the volunteer group was previously more diverse, the café still maintains a relatively broad representation in terms of age and gender. As in many other repair cafés, however, the majority of volunteers are senior citizens (IV2). This intergenerational composition is described as beneficial both for the atmosphere in the café and in practical terms, as older volunteers contribute extensive experience and knowledge of older machines and nearly extinct crafts, such as sock darning, while younger volunteers bring competencies related to modern technologies.

As also observed in other repair cafés, the repair practices also tend to be gendered, with technical repairs predominantly carried out by men and sewing-related repairs more often undertaken by women. The male volunteers' motivations are primarily described as rooted in technical and professional interests rather than environmental concerns, corresponding closely to the volunteer type identified in the baseline analysis as "the technical expert." Nevertheless, the interviewed volunteers still perceive the associated reduction in resource consumption and the related environmental benefits as meaningful and worthwhile outcomes (VV1-2). For senior volunteers in particular, motivation is also linked to the continued relevance of their skills after retirement and to their contribution to society. Volunteers express satisfaction when repairs draw on their former professional expertise, for example as radio mechanics or IT specialists, or when visitors demonstrate a strong sentimental attachment to the item in question (VV2, IV2). Repairs involving visitors who are eager to learn are likewise viewed positively. By contrast, volunteers are less inclined to accept repairs of very dirty items or products perceived as low-quality and lacking emotional value to the visitor.

Regarding the local community, one interviewee describes Valby as having a highly diverse and representative population, comprising residential areas, social housing, owner-occupied homes, and shared apartments (IV2). This diversity is reflected in the profile of visitors attending the repair café, although there is a slight overrepresentation of visitors from less affluent segments of the population. The interviewee further explains that the café has many repeat visitors, some of whom later join the café as volunteers. Other volunteers initially became involved through their connection to the already established FabLab. Apart from access to skilled volunteers, however, the repair café has benefited only modestly from this collaboration. It is noted that FabLab equipment, such as the 3D printer, has only rarely been used to produce spare parts, while most of the FabLab's facilities remain largely unused by the repair café. Instead, the café benefits primarily from shared access to sewing machines in the sewing workshop, a dedicated storage room for tools, and the cultural centre's café, which provides a space for volunteers and visitors to

socialize after repair sessions. The interviewee emphasizes that being located in a building where these facilities are available is highly valuable for the café's operations (IV2).

In contrast to the other cafés, Repair Café Valby benefits from the established communication channels of the local committee through one interviewee's role as an employee, which provides broader outreach for attracting both visitors and volunteers. These channels include a Facebook group, a newsletter, and an Instagram profile. In addition, the café maintains its own Facebook account with approximately 1,200 followers, which is actively used to announce monthly opening hours and to pre-diagnose visitors' items by offering guidance on whether repairs are likely to be possible (IV2"1, Repair Café Valby | Facebook," n.d.)

Furthermore, one interviewee explains that posters are placed around the local area and flyers are distributed in nearby shops. Nevertheless, it is noted that reaching new audiences has become increasingly challenging due to information overload and declining readership of local newspapers. Despite these challenges, the interviewee expresses a strong sense that the café is well known and positively perceived within the local community, as reflected in the consistently high visitor turnout with an average of X visitors (IV2).

As presented in the baseline report, the first point of contact when visiting the café is the check-in counter (see Picture 4: Check-in counter and data collection sheets).

Picture 4: Check-in counter and data collection sheets.

Currently, one volunteer is responsible for registering visitors and their items, although a second volunteer is being trained, as it has been found beneficial to have two people assigned to this task (VV1-2). Registration is conducted on paper, which requires the person employed by the local environmental group to subsequently enter repair data and item weights into Repair Café Danmark's climate calculator in order to document CO_2 savings. The employed interviewee expresses some frustration with this process, as he is not consistent and is behind with the registration which is reflected in the relatively low reported CO_2 savings for Repar Café Valby in 2025. He explains that attempts to involve the volunteers responsible for registration in the digital data entry have been unsuccessful, as they are uncomfortable with this task (IV2).

More generally, the interviewee explains that, as a paid professional employed by the local environmental group, he aims to limit his involvement in an initiative that is most other cafés entirely volunteer driven. He has encouraged the volunteers to establish a formal association for the café, but this suggestion has been met with reluctance, since they prefer his leadership and approach to volunteer care and he states: "That's the thing about volunteers, once they get used to something, it's very hard to take it away from them" (IV2).

Compared to other repair cafés, Valby appears particularly well functioning, possibly due to the presence of a paid municipal employee supporting the initiative (baseline, VV1-VV2). As part of this volunteer care, social activities such as a jointly planned Christmas lunch are organized to strengthen social ties and provide an opportunity to evaluate the year's activities.

Regarding the café's relationship with the wider organization, it is noted that contact with Repair Café Danmark is relatively limited. Nevertheless, the employed person shares Repair Café Danmark's newsletter and emphasizes that it is reassuring to know the organization provides support in matters such as insurance and legal issues. Repair Café Valby has also received some financial support and has benefited from Repair Café Danmark's collaboration with the Danish tool wholesaler Carl Ras, through which the café has received tools (IV2).

Overall, the café is described and observed as well-functioning, with a stable group of volunteers, good facilities and materials, strong recognition within the local community, and a high number of repairs (typically between 20 and 40 per session). Comparing the baseline and midterm assessments, no notable changes have been identified in relation to volunteers, practices, facilities, or visitor numbers. In the next section, we turn to an example of a repair in Repair Café Valby.

Repair Practices: Exemplified Through the Repair of a Ghetto Blaster.

	Volunteer	Visitor
Age	Senior	Senior
Gender	Male	Female
Residence	Valby	Frederiksberg
Profession	Retired from social pedagogy and philosophy	Retired

An elderly male volunteer is working diligently to open the front of a retro ghetto blaster brought in by an elderly woman. There is a friendly and casual atmosphere, as this is not their first meeting. The repair process began months ago when the visitor initially brought the music player to the café. Patiently, she has waited for this specific volunteer to return from his long trip to the USA, as it is important for her to complete the project they started together. The visitor expresses her gratitude for the volunteer's willingness to help, explaining that her motivation for repairing the ghetto blaster stems from her “enjoyment of its unique sound quality, particularly when playing classical music tapes”.

Picture 5: Cluttered table during repair

The table is cluttered with circuit boards, plastic parts, and small screws (see Picture 5: Cluttered table during repair). The volunteer is currently searching for the right screwdriver in order to disconnect the front of the device, which is essential for reattaching the tape recorder they have successfully repaired, as evidenced by the occasional bursts of classical music emanating from their workstation. Unfortunately, during an earlier attempt to repair the device, they accidentally dropped a circuit board, which has rendered the CD player inoperable. As the volunteer leaves the table to find a suitable screwdriver, the visitor whispers that she hesitates to mention this setback, realizing how much time they already been invested in the repair and acknowledging that her primary interest lies in using the tape player.

While he still searches for the screwdriver, she shares her impressions of him. She has convinced herself that he is an engineer and is surprised when he returns to reveal that he has a background in social pedagogy and philosophy. The volunteer explains his knowledge of electronic repairs and his reasons for joining the café, that he has always had an interest in making and fixing things. His journey began with building cars in his youth, and later, as a father, he started repairing small electronic items for his children when they broke down. After retiring at the age of 70, he felt a void in his life, longing for “something to wake up for and to do something meaningful.” This longing led him to join the local repair café, where he discovered the joy of connecting with others who share a passion for repairs.

The visitor, who has visited the café three times, describes it as “well-functioning” with a welcoming social atmosphere. "Can you feel the good energy here?" She comments and inquiries about the café's upcoming annual Christmas lunch for volunteers, demonstrating her interest in the community.

Returning to the repair, the volunteer wrestles with the task at hand, struggling to find the right screwdriver that fits into a narrow groove housing a crucial screw. His inability to see the screw adds to his challenge, inciting a moment of frustration as he states, “This product isn’t made for repairing and disassembly! It was designed for quick assembly.” The visitor acknowledges their mutual struggle in locating “hidden screws” to open the device, but volunteer remains optimistic*:* “We got in once, and we will get in again!”. While he is primarily the one handling the repair, she occasionally lends a helping hand. Throughout the process, the volunteer takes care to explain each action, ensuring that she understands what he is doing and why.

In their earlier attempts to fix the ghetto blaster, another volunteer had initially succeeded in disassembling the device. However, the significant breakthrough came when the current volunteer found a YouTube video detailing its components, coupled with discovering an online manual specific to that model: “Then the penny dropped!”*,* the visitor exclaimed, realizing the diagnosis was merely that a wire had come loose, disconnecting the electrical system and preventing the tapes from playing.

She expresses that she would never have understood the issue without the support of the volunteer and the other volunteers at the café, and they both agree that it is impressive what can be repaired in such a collaborative environment.

Ultimately, while they have identified and corrected the defect, reassembling the device proves to be more challenging than anticipated. Unfortunately, they run out of time before the café closes, necessitating another visit from her to complete the repair.

This case highlights the screwdriver as an essential tool and therefore **material element** in the execution of the repair practice. Additionally, competence-enhancing materials, such as YouTube videos and instructional manuals, were utilized to facilitate both the diagnosis and disassembly of the device.

In terms of **competence**, the fixers employed their technical and mechanical skills extensively to identify issues and reassemble the ghetto blaster. This hands-on engagement not only underscores the application of their expertise but also demonstrates the importance of practical skills in the context of community repair.

The **meaning** of this repair practice is primarily situated within the realm of socialization and skill-sharing. Participants in the practice engaged not only to repair a device but also to foster connections through collaborative efforts. For the visitor who brought the device, there was an additional sentimental significance attached to the repair. The ultimate objective was to restore the ghetto blaster to functionality, enabling them to enjoy the unique sound quality that this specific device provides.

Drawing on the type of volunteers, visitors and repair practices that are presented in the baseline assessment (see section 2.2 in baseline assesment), this repair situation presents a **technical** and **community-oriented** volunteer, that preform a **functional, sentimental** and **social repair**, for a **sentimental bringer.**

The volunteer is technical because he highlights how he enjoys using this skill, which he has gained not through an interest in “making things”. He is also community-oriented because he emphasizes the enjoinment of meting other fellow repair interested people and the social community in the café.

The repair has a shared functional and sentimental character, because the bringer/visitor explains how she misses playing some specific tapes on this exact device because she thinks it has a nice sound. The repair situation also seems social especially for the bringer’s perspective, since she very curiously asks about the volunteer’s professional and personal background, and there is a “chatty” dynamic between them. It is clear that the bringer is sentimental about the repair, and is curious, but it doesn’t seem like the repairing situation gave her the courage to repair at home, indicating that the social aspect of the practice also was very important for her.

2.6.3 Repair Café Frederiksberg

Repair Café Frederiksberg held its first event in August 2023 as an initiative launched by the Sustainable Community House (*Det Bæredygtige Forsamlingshus*) in Frederiksberg. The Sustainable Community House is located within a former hospital complex from which the café initially operated in the concierge building (Markussen et al., 2025) and later in the former linen facility within the same hospital area (see Picture 6).

Picture 6: Repair Café Frederiksberg in former linen facility Source: *("Repair Café Frederiksberg," 2025)*

In December 2025, the café relocated to KU:BE (see Picture 7: Repair Café Frederiksberg), a culture center situated approximately two kilometers from the previous site. The move followed an internal disagreement concerning rent: According to interviewed volunteers, the former host organization requested payment for the use of the premises, an arrangement that is neither financially viable nor consistent with Repair Café Denmark's operating model (VF2). Consequently, Repair Café Frederiksberg sought a new host organization which resulted in the collaboration with KU:BE.

Picture 7: Repair Café Frederiksberg.

The volunteers described this host organization as highly supportive and accommodating. One volunteer highlighted the practical advantages of the new setting, particularly the provision of large, wheeled metal lockers for storage (VF2). After each session, equipment can be placed inside the lockers and left on site: “then they disappear,” he explained, “and when we come next time – snap! – they are here again” (VF2). He emphasized that this significantly reduces the time and physical effort required for set-up and pack-down compared to the previous location. However, the volunteer responsible for registration expressed a degree of ambivalence about the relocation. While acknowledging the logistical improvements at KU.BE, she preferred the former location, primarily because it was closer to her home. This observation illustrates how distances can function both as an enabling and a constraining factor for sustained volunteer engagement (VF2).

During one of our visits to a repair session at KU:BE, the café was notably busy despite operating with fewer volunteers than usual; the researcher was even asked whether assistance could be provided. The majority of volunteers are older, and several have recently stepped down due to age-related limitations. Although younger volunteers have previously been involved, including two PhD students, they have since transitioned to full-time employment and family life. According to the volunteer who is in charge of registration, recruiting younger participants, particularly parents of young children, is challenging, as evening commitments can be difficult to reconcile with family responsibilities. In terms of observed repair practices, the café primarily handles electronic devices, although it also has four sewing volunteers and thus performs a notable amount of textile repair. In addition to regular repair sessions, RC Frederiksberg participates in external events, including pop-up activities in Frederiksberg Center during the winter holiday of 2025 and Frederiksberg Green Days (VF2). To maintain volunteer cohesion and motivation, the café also

organizes social events for volunteers such as a Christmas party (julefrokost) and a summer gathering, emphasizing the importance of informal social bonding within the volunteer group.

In terms of visitor numbers, the relocation has not yet resulted in increased attendance: The registrar volunteer noted that they are “not at the same level” as before (VF2). At the former hospital location, sessions occasionally attracted up to 45 visitors in contrast to today’s visitor approximately 20. However, she emphasized that attendance tends to grow gradually through word-of-mouth: visitors who have a positive repair experience often share it within their networks, which over time contributes to increased participation.

Observations further indicate that KU.BE attracts a different type of “foot traffic” compared to the former location. The cultural house hosts many family-oriented activities, and children and parents occasionally enter the repair café space out of curiosity. On one occasion, a father was overheard saying to his young son: “There’s a repair café today, shall we go in and look at the engineers?” This suggests that the new location may offer visibility among new demographic groups, even if overall visitor numbers have not yet returned to former levels (VF2).

Overall, Repair Café Frederiksberg illustrates how changes in location can significantly affect operational conditions, volunteer composition, and visitor patterns. While the new host organization provides improved logistical support, the transition has also entailed adjustments in outreach, attendance levels, and volunteer recruitment dynamics.

Repair Practices: Exemplified Through the Repair of a Capsule Coffee Machine

	Volunteer	Visitor
Age	Adult	Adult
Gender	Male	Female
Residence	Sydhavn	Sydhavn
Profession	Working with physics	-

One of the visitors attending Repair Café Frederiksberg is a middle-aged woman who arrives with a capsule coffee machine. She explains that she has lived in the area for more than fifty years and that she learns about the repair café through a local Facebook group.

Upon arrival, her first point of contact is the volunteer responsible for registration. The volunteer greets her and asks about the item and the nature of the problem. The visitor explains that the machine produces an unusual sound when she tries to start it and then stops functioning; under normal circumstances, it dispenses coffee. The registration volunteer briefly inspects the machine

and makes an initial assessment of whether the issue seems technically feasible to address within the remaining time of the session. She concludes that she likely knows a volunteer with relevant expertise who can assist. While the item is registered, the two engage in a short informal conversation about reuse, repair, and sustainability. Their exchange is interrupted by the arrival of another visitor, after which the woman is directed to take a seat in the waiting area along the walls of the room.

The café is busy, and the visitor waits for some time before she is called and guided to a volunteer. The volunteer she meets is a middle-aged man with a background in physics. Together, they try to open the machine in order to diagnose the fault. From the outset, the volunteer suspects the pump, reasoning that “the pump is the only moving part in this machine, so it makes sense that it’s the one that breaks.” They initially struggle to access the interior. As the volunteer remarks, “These cheap products are not always made to be able to open ... they are more made to be quickly assembled.” After some effort, they manage to open the casing.

Throughout the diagnostic process, the volunteer explains the function of different components in a clear and pedagogical manner, while sharing his reasoning about potential failure points. They conclude that the malfunction relates to the water inlet system, likely involving the pump. The volunteer then uses his computer to search for the relevant spare part and finds that a replacement pump can be purchased online for approximately DKK 150. This leads to a discussion about whether the repair is worthwhile given the machine’s relatively low purchase price. Reflecting on whether he would proceed himself, the volunteer comments: “Would I buy a new one and fix it myself? Hmm, I don’t know. It would just be because I think it’s fun. Is it worth the trouble? … It’s not entirely certain that it is, and whether it will work.” The visitor similarly expresses doubt: “Is it worth it for a product that costs DKK 500, especially if it might not even work?” She further considers whether it might be more sensible to bring the machine to a flea market and sell it for around DKK 20 to someone who could repair it.

Although the volunteer explains how the repair could be carried out and encourages her to take a photograph of the pump if she chooses to attempt the replacement, the visitor appears unconvinced and eventually concludes, “we give up.” The volunteer acknowledges her decision, while comparing it to repairing a pump in his own washing machine, an item he describes as more valuable and more explicitly designed for repair. In contrast, he characterizes the capsule coffee machine as “a cheap product” that is often not intended to be repaired.

As the volunteer begins reassembling the machine, the visitor tells him there is no need and offers to let him keep it and try to repair it himself. He declines. Instead, she offers him an alcohol-free beer she has brought as a gesture of thanks.

In this repair practice, the first **material** elements mobilized (beyond the coffee machine itself) are the registration counter and the registration list, which are used to record the case, assign the visitor a queue number, and match the item with a suitable volunteer. The repair attempt then proceeds through the use of basic tools, such as a screwdriver, to open the device and enable inspection of its internal components. Once the fault is assessed as likely relating to the water intake system, a computer becomes a key material resource, used to search for an appropriate spare part (i.e., a replacement pump). However, because this essential component is not available during the session, the repair cannot be completed. Consequently, the practice remains diagnostically productive but does not result in a successful functional repair

The **competencies** activated in this practice primarily involve the volunteer's ability to conduct fault diagnosis and his technical familiarity with similar devices—knowledge he also draws from repair experiences in his own everyday life (e.g., replacing a pump in his washing machine). However, because completing the repair requires the visitor to purchase the missing spare part and undertake the replacement herself, the outcome depends on her willingness and capacity to continue the repair beyond the session. The volunteer does not appear to consider her either sufficiently interested or adequately equipped to do so, and the repair therefore remains unfinished and is unlikely to be completed.

In terms of **meanings,** the practice is characterized by a bundle of partially divergent motivations. For the volunteer, repair is framed as an intrinsically rewarding activity and something he describes as "interesting" and "fun", as reflected in his repair narratives and in his encouragement for the visitor to proceed if she would enjoy the process. For the visitor, by contrast, the decision is primarily shaped by economic considerations: she weighs the cost of purchasing a spare part against the machine's relatively low purchase price and the uncertainty of a successful outcome.

Overall, the interaction can be categorized primarily as a **diagnostic** repair practice that does not culminate in a completed repair, due to the absence of the required spare part and the need for follow-up work beyond the session. At the same time, the exchange contains elements of a transactional practice we haven't previously discovered in our research where the visitor repeatedly seeks to return the volunteer's assistance, first by offering to leave the machine with him so he can continue the repair, and subsequently by offering her preferred non-alcoholic beverage as a token of appreciation.

2.6.4 Repair Cafe Sydhavn

Picture 8: Repair Café Sydhavn.

The Repair Café in Sydhavn (Picture 8) opened in 2018, at the cultural center and library, Karens Minde Kulturhus. From here, it operates every first Thursday of the month from 17:00 to 20:00 (Markussen et al., 2025a; repaircafedanmark.dk, n.d.)

Observations conducted during visits suggest that this café exhibits the least formal organizational structure among the cases examined and generally attracts a lower volume of visitors compared with cafés such as Valby and Frederiksberg. Upon arrival, visitors are not met by a designated coordinator or volunteer responsible for registration, queue management, or initial guidance. As a result, first-time visitors often appear uncertain about the process. Typically, they orient themselves independently by taking a seat in the waiting area or by asking other visitors or volunteers for instructions.

Approximately four volunteers are present during each session, and all communication related to planning and coordination among volunteers is conducted via Facebook Messenger. The volunteers have access to a locked storage room containing tools valued at approximately DKK 5,000–6,000, which were provided through a grant from the local community group (VS1).

In an interview with the coordinator of Repair Café Sydhavn, who is also a regular volunteer, he explained that volunteer recruitment primarily takes place through Facebook. Although he is often in contact with many interested individuals, only a limited number of these ultimately become active volunteers. A recently recruited volunteer described how he initially became aware of the café through Repair Café Denmark's website, because he actively was searching for an initiative through which he could pursue his interest of technical repairs. Through the café's website, he became aware of the Repair Café in his local area and learned of a special opening on 20 April organized in connection with Karen Minde Kulturhus' sustainability day – hosted in collaboration with the local network Green Neighbourhoods (Grønne Nabofællesskaber). He attended this event and has remained involved with Repair Café Sydhavn since. This illustrates how special events organized in collaboration with external actors also can function as an effective channel for recruiting new participants to the cafés.

When asked about changes since our baseline assessment period, the coordinator stated that there have been no significant alterations to the repair café's practices, noting that "we simply repair whatever we receive." According to the coordinator, the café continues to operate at the same location, with the same tools and approximately the same number of volunteers. The only notable development mentioned was an increased focus on issues related to Windows 10 (see section 2.5).

When asked about organizational changes within the café, the coordinator mentions a recently established café located approximately a ten-minute walk away. This new site operates from the so-called Old Post Office, a community center hosting volunteer-based activities, with a newly repair café event every second Wednesday of the month (repaircafedanmark.dk, n.d.) The coordinator explains his ambition to strengthen collaboration between the two sites in order to expand the availability of repair services within the neighborhood. As he explained: "For example, someone came in with a printer, but he did not have it with him - so we could tell him that he could bring it the following Wednesday to the new café, where they could repair it" (IS1). Such cross-site collaboration between cafés was neither observed nor mentioned by actors in relation to the other cases included in this study. Consequently, this aspect constitutes an interesting element to monitor from the midterm to the final assessment. Specifically, it allows for an examination of whether cross-collaborative arrangements among local cafés contribute to repair cafés becoming more stable and integrated actors for local citizens seeking alternatives to replacing broken items with new ones. Furthermore, it enables an assessment of whether increased accessibility and the

broader presence of repair services within the community influence the volume of repairs conducted and the associated CO_2 savings for the individual Repair Café in Sydhavn.

Repair Practices: Exemplified Through the Adjudgment of New Trousers

	Volunteer	Visitor
Age	Senior	Young adult
Gender	Female	Female
Residence	Sydhavn	Sydhavn
Profession	Retired Graphic designer	Youth consultant in the municipality

This visitor was attending the Repair Café for the first time, bringing two pairs of trousers and a blazer to have taken in and shortened (V2S). She reported having attempted the alterations herself but found them difficult and sought assistance, primarily to learn the techniques, and to get a better result by using a sewing machine which she does not own. The attending volunteer, a senior woman who described herself as a “self-taught seamstress”, worked collaboratively with the visitor throughout the repair.

Picture 9: Visitor practicing sewing

They measured the trousers together, marked the desired lengths, and used pins to hold the hems in place. One pair of trousers was positioned on the volunteer for adjustments while the visitor tried on and marked the other pair to fit her height. The volunteer encouraged the visitor to practice on the garment she was wearing in the café to facilitate learning and asked about access to a sewing machine at home (Picture 9). The visitor explained she did not own one.

Their interaction also included brief conversation about volunteering: the visitor described her own volunteer work with an organization supporting young people who self-harm and those with eating disorders, and the volunteer compared this Repair Café initiative to a similar one in her hometown in Jutland (the Western part of Denmark). After this conversation the visitor went to a private place to change into the trousers she was wearing when she arrived at the cafe. Coming back to their workstation with the trousers ready for sewing on the sewing machine, the volunteer instructed her on tailoring technique, noting that trousers should be left slightly longer at the back to accommodate the body's shape – a practice common when "fit was prioritized", she states. The visitor adjusted the trousers in the back, while the volunteer explained about the Repair Café's broader mission:

"In reality, this is not a repair, as the trousers are new, but we are still willing to help. For us, however, the primary concern is to extend the lifespan of products. Therefore, if we were busy with a large number of sewing items requiring repair, we would probably not undertake this kind of task."

The visitor apologized for not being aware of this, to which the volunteer responded that this was perfectly acceptable and that she was, of course, willing to help, nonetheless.

The session concluded with both pairs of trousers successfully altered; the blazer was deferred for a subsequent visit.

A range of **materials** like tools, and spatial resources are required for this refurbishment practice of the trousers. In addition to the garments themselves, the process depends on needles, marking and measuring tools, and the visitor's body as a working reference for fit. A sewing machine is a central shared resource that the visitor comes to the café to use. The organization's infrastructure – scheduling, sessions and available equipment – enables visitors and repair competence to come together, and the physical setting (worktable, chairs, lighting) is also integral to making the practice possible.

Competence transfer is a key element of the encounter. The volunteer's knowledge of sewing-machine operation, hemming technique and fitting is conveyed through demonstration and guided practice. Practical tips – for example, leaving trousers slightly longer at the back to accommodate body shape – exemplify tacit, practice-based knowledge that is passed on to the visitor.

The interaction carries layered **meanings.** Although the café's organizational aim is to extend product life through repair, in this case the activity also functions as teaching and mutual assistance where the volunteer seeks to share her skills and knowhow. The volunteers' ethos of

self-directed learning and experiential know-how are reproduced through the interaction and the conversation among them, while the broader values of volunteerism and sustainability become a meaning that is shared through the conversations in the observed practice.

Overall, this repair practice can be characterized as an **aesthetic repair**, as the visitor brings garments that are already functional but seeks to improve their appearance through a more suitable fit. It is also an **educational repair** because the visitor's stated motivation included obtaining assistance and learning the skills required to perform such sewing practice independently. The encounter acquired a **social** dimension as well as the volunteer and visitor engaged in casual conversation and chat around sustainability and volunteer work.

Based on her motives, the visitor can be classified as a **curious, learning-oriented bringer** who views the Repair Café as an opportunity to develop skills and knowhow also with equipment she does not have access to otherwise (e.g., a sewing machine). She may very well also be regarded as a **pragmatic bringer** who sees the café as an economical alternative to professional tailoring.

The volunteer can be classified as a **craft-based** volunteer as she highlights that she has developed her sewing skills informally, outside her primary profession. There are also signs of **activist** motivation, since she emphasizes the organization's mission to extend product longevity and engages the visitor in informal conversation about sustainability and volunteering.

2.6.5 Repair Café Østerbro

Repair Café Østerbro was the first Repair Café established in Denmark under Repair Café Danmark. It opened in March 2014 at Østerbrohuset (Århusgade) but currently operates at Kildevælde Kulturcenter, a local cultural center, on the third Wednesday of each month from 17:00 to 19:00 (repaircafedanmark.dk, n.d.)

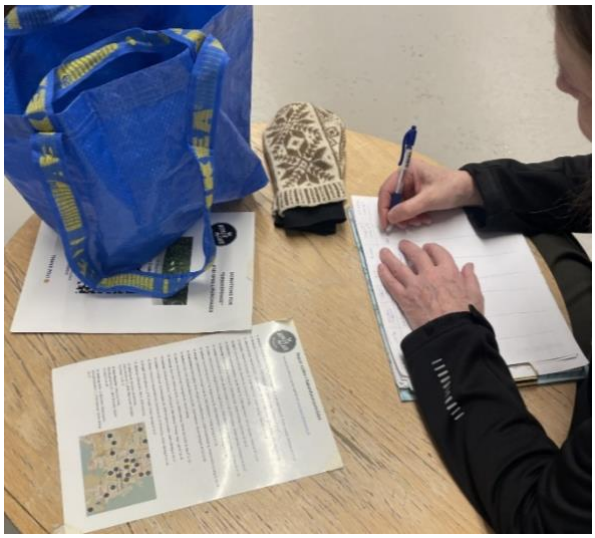
Through repeated site visits, the volunteer base of the café has appeared relatively stable, typically consisting of the same four to five volunteers, and two to three occasionally volunteers. The café is coordinated by the coordinator, who takes on multiple roles that are central for operation of the café. In addition to volunteering (primarily with sewing-related tasks), she coordinates volunteer scheduling, responds to inquiries via Facebook and email, updates the café's information on Repair Café Danmark's platform and in local Østerbro community channels, and manages the registration of visitor data and repair outcomes for reporting to Repair Café Danmark.

The coordinator described the volunteer group as heterogeneous in terms of recruitment pathways. Volunteers include former visitors who initially attended with an item for repair and

subsequently became involved, individuals recruited by Repair Café Danmark's chairman through events and fairs, and people who proactively contact the café after encountering the initiative online or through local media coverage. According to the coordinator, volunteers who self-initiate contact are more likely to remain engaged over time than those recruited directly at the café. She also noted recurring examples of individuals joining for a single session but not returning thereafter. This counts particularly among younger volunteers.

As observed across the other cafés in this case (e.g., Sydhavnen, which more frequently repairs computers, and Valby, which undertakes a substantial number of sewing repairs), the repair practices performed are closely shaped by the competencies available within the volunteer group. For example, the coordinator described an ambition to offer support for updating Windows 10 systems (see Section 2.5) during a "special" repair café session. However, because only one volunteer currently has both the interest and the relevant experience, this initiative has not yet been implemented. She similarly noted a lack of textile and sewing volunteers. As the café's volunteer base is currently dominated by "more technical experts," fewer sewing-related repairs are carried out compared with cafés where such competencies are more strongly represented.

To maintain volunteer motivation and strengthen social cohesion within the group, the café organizes two annual volunteer events: a Christmas lunch and an end-of-season summer gathering, typically held after a repair session and accompanied by a shared meal. These events are partly financed through voluntary donations collected via a QR code linked to a MobilePay account displayed at the registration desk. However, the coordinator noted that she often forgets to inform visitors about the opportunity to donate, suggesting that financial contributions depend largely on informal communication and individual initiative, because it is not expected by either the volunteer or the visitor.



Picture 10: Manual registration of items in Repair Café Valby.

The café faces persistent challenges related to its physical setting. A recurring concern raised by both the coordinator and another volunteer is the lack of a fixed and dedicated space within Kildevælde Kulturcenter. The café does not have permanent access to a specific room and is frequently relocated depending on other scheduled activities in the building. As a result, volunteers spend considerable time setting up and locating tools, which are stored in different places. The coordinator described the situation by noting that the host organization is “not very good at integrating us here.” Although the room used during the observed visits was considered suitable, volunteers emphasized that access is conditional: if the cultural center hosts a paid event, the repair café must relocate, often to smaller and less adequate premises.

Such spatial instability has practical as well as relational consequences. One volunteer recounted an earlier period when the café operated in a room that was too small to accommodate both volunteers and visitors comfortably. Visitors were forced to wait outside, limiting opportunities for dialogue about the items being repaired. As she explained, this made it difficult to involve visitors in the repair process and undermined the café’s ambition to foster shared learning. This example illustrates how appropriate space is not merely a logistical concern but central to enacting the social and educational dimensions of the repair café model.

The lack of stable storage facilities further complicates daily operations. Tools, sewing machines, and the scale used to weigh repaired items are sometimes stored in rooms separate from the space allocated for the event. Consequently, these items are not always retrieved, particularly when time constraints or limited spatial capacity in smaller rooms make setup more demanding. For example, during one of the observed visits, the scale was not brought out. In response to this problem, the coordinator described having issued a “call-out” to identify a new host organization, although no alternative location has yet been secured.

Notwithstanding these challenges, our observations indicate that Repair Café Østerbro maintains constructive relations with other initiatives hosted in the building. During one visit, participants were offered leftover food from a concurrent event organized in collaboration with the local environmental group Miljøpunkt Østerbro (“Forside,” n.d.). On another occasion, attendees from a community dining event visited the café out of curiosity (VØ1). The café is also working on opportunities for more formal collaboration within the venue. A potential partnership with the Fab Lab on the second floor has been discussed, including aligned opening hours and the possibility of 3D-printing spare parts needed for repairs. However, this collaboration remains only partially implemented as Fab Lab members primarily contributed by producing new name tags for the

repair café volunteers. Taken together, these interactions suggest that, despite occasional institutional tensions, the repair café is embedded within a broader local ecosystem of sustainability-oriented activities, which may enhance the overall visitor experience and support recruitment of new visitors and volunteers.

Another development shaping the midterm period is the establishment of a second repair café in Østerbro. Repair Café BK Skjold began operating on 3 May 2025. The chairman, who was involved in its establishment, noted that several volunteers participate in both cafés, indicating overlap in volunteer resources and potential synergies between the two local initiatives. Whether the opening of BK Skjold leads to a measurable increase in the overall number of repaired items, through expanded access to free repair services via additional opening days and a broader volunteer pool constitutes a relevant point for follow-up in our final assessment.

Repair Practices: Exemplified Through the Repair of a Retro Getto blaster

Four young visitors entered the repair café carrying a large retro “ghettoblaster” (V1Ø). One of the women explained that she had found it at a garage sale near her parents’ home north of Copenhagen and bought it because “it was cool and had a nice sound.” While the radio functioned, the tape player produced very low audio that was almost impossible to hear. This issue was the primary reason for their visit. The group emphasized that they had come mainly to access the café’s tools and facilities, although they also welcomed assistance if needed. The owner had brought a printed service manual, including an exploded-view drawing of the components and a circuit overview, which she had retrieved from an online archive that hosts documentation for older electronic devices (see Picture 11: The printed service manual brought by the visitor).

Picture 11: The printed service manual brought by the visitor.

The group's retro device attracted considerable attention, particularly from senior male volunteers with technical interests. Initially, the visitors worked largely independently. The two women took the lead in attempting to open the device, while the two men appeared primarily present for the social aspect of attending together. Nevertheless, both men were engaged and supported the task by searching online for relevant information when needed, using a laptop and a mobile phone. The group began by studying the technical drawings to identify components and determine how the casing could be opened. Considerable time was spent on disassembly, including locating the correct access point and selecting an appropriate screwdriver. Although they identified the relevant screw location, one of the women noted that the recess "was full of dirt," making it difficult to gain access.

Picture 12: Senior volunteer joining the group of visitors.

At this point, a senior volunteer joined them, prompted in part by the exploded-view drawing: "You don't find these kinds of drawings anymore" (Picture 12). The visitors approached the task with a notably enthusiastic and "geeky" orientation. They drew on knowledge from their physics studies, particularly regarding basic principles of electronics and magnetism, while also acknowledging limits to their circuit-level expertise as one of the guys stated: "We don't know so much about electronic circuits". As the session neared its end, they anticipated returning: "We will probably come back again, if we succeed in getting it opened, but do not have time to look at the electronic components," one of the women explained. The senior volunteer encouraged persistence, adding: "One doesn't give up."

With support from the volunteer, who contributed with practical experience in opening older devices, the group succeeded in disassembling the ghettoblaster. However, due to time constraints, they did not proceed to diagnose the internal components or identify the fault. Toward the end of the session, the group shifted attention to a shared meal: a plate of vegetable-based food provided by a volunteer associated with another event in the same building, organized in collaboration with Miljøpunkt Østerbro. This interaction illustrates how the repair café intersects with other community-based sustainability initiatives hosted at the venue.

The volunteers who intermittently joined the activity appeared to have **technical** expertise and a particular interest in older technologies, such as the retro audio player brought by the visitors. The young visitors exhibited characteristics associated with a more **sentimental** and distinctly **curiosity- and learning-oriented** type of visitor. The owner's initial attraction to the device's retro aesthetic, combined with the group's preparation of bringing a manual and technical schematics, suggests an intention not only to restore functionality but also to learn more about electronics. This was further underscored by their own reflection that, although they were familiar with basic principles of electricity and electromagnetism from their studies, they had limited knowledge of electronic circuits in practice.

In terms of repair type, the situation can be understood as a multifaceted bundle of repair types (Markussen et al., 2025b). The engagement was partly **emotional,** as both visitors and volunteers were drawn to the device's nostalgic and aesthetic qualities. It also involved substantial **diagnostic** *work*, as the group sought to identify the source of the malfunction. Moreover, the interaction had a clear **educational** dimension, consistent with both the visitors' learning orientation and the volunteers' interest in sharing expertise. Finally, the case illustrates a distinctly **social** form of repair, particularly among the visitors who appeared to use the repair café as a shared space to pursue a collective interest in understanding and engaging with the inner workings of an electronic device.

2.7 Environmental Assessment of Initiative

Building on the approach used in the baseline report, this section assesses the environmental impact of the four Repair Cafés by estimating the CO_2 savings achieved when products are repaired rather than discarded and replaced (Markussen, et al., 2025).

A key difference between the baseline and the midterm assessment is the time frame considered. The midterm report compares two single years; 2024 (referred to as baseline) and 2025 (referred

to as midterm), whereas the baseline report presented results across multi-year periods streching from 2020–2024.

To enable a clear year-to-year comparison, both for the combined results across all four cafés and for each individual café, the baseline calculations have therefore been disaggregated to isolate results for 2024 only. As these stand-alone 2024 figures were not previously reported, they are presented here as a new analysis conducted specifically to establish a comparable baseline for the 2025 midterm results.

The purpose of this comparison is to provide an indication of whether internal scaling activities within the organisation and changes in practices and organization for the individual cafes together with international lobbying and an increased strategic focus on repair, have influenced the volume of repaired items and, consequently, the associated CO_2 savings.

As in the baseline report, CO_2 savings are estimated primarily using a Life Cycle Assessment (LCA) approach (Markussen, et al., 2025). Within this approach, avoided emissions from the production, transportation, and end-of-life treatment of replacement products are calculated by comparing a repair scenario to a counterfactual scenario in which the item is discarded and replaced meaning the embodied emissions of the discarded product are effectively lost.

The emission factors used in the calculations are based primarily on detailed product-type analyses developed by Aalborg University in collaboration with Repair Café Danmark (Lindeburg, 2022). These analyses draw on SimaPro data and incorporate key parameters such as material composition, energy requirements, transport modes, and potential recycling credits.

However, the emission factors developed by Aalborg University do not cover all item types encountered in Repair Café Danmark. To address these gaps, the chairman has supplemented the AAU factors with additional estimates from external sources, including Restarters (a global network supporting repair communities) (restarters.net, n.d.). The chairman has also used Microsoft Copilot to generate emission factors for mobile phones and computers (repaircafedanmark.dk, n.d.). Together, these sources form the combined set of emission factors presented in.

This table form the basis for converting the registered weight of repaired items into kilograms of saved CO_2, which is then reported for each café on Repair Café Danmark’s website (repaircafedanmark.dk, n.d.)

Category	Emissions/g ($g CO_2e/g$)
Mobile phones / Smartphones	36,35
Furniture	2,25***
Bicycles	3,1**
Tools/Gardening equipment	4,68**
Computers/Tablets	36,35
Toys	5,41
Other Textile Tasks	10,9
Lamps	4,84
Other Items	2,0*
Clothing	10,9
Audio-visual Equipment	9,29
Household Appliances	4,75

*Other items are set to a standard value of 2, (VØ3, Arne Skov)

**Takes a standpoint in the factor for household appliance

***Missing source

Table 5: Emission factors used in Repair Café Danmark.

According to the chairman, the emission factors function as a dynamic tool that can be continuously updated and adjusted. He emphasizes, however, that the calculated CO_2 savings should not be interpreted as precise measurements, but rather as "indicative estimates" (I2). In his view, the CO_2 figures displayed on the website primarily serve a motivational and communicative purpose, and they are intended to illustrate the environmental relevance of repair activities rather than to represent exact savings.

This caution is well founded. It is widely recognized in the LCA literature that assessments based on life cycle thinking are inherently built on assumptions, system boundaries and delimitations, which means that a fully objective or exhaustive result is in practice unattainable (Dorland & Jørgensen, 2024). Simplifications are routinely introduced for practical and economic reasons, so that what cannot readily be calculated tends to be left out, and the modelling of the use and disposal stages in particular relies heavily on assumptions, for example regarding the number of uses, product lifetimes and disposal options (Niero et al., 2021). For this reason, the absolute CO_2

savings reported by Repair Café Denmark should be read as approximations rather than as exact quantities.

Acknowledging these limitations, we nonetheless consider the LCA based data a relevant object of analysis. The critique of LCA concerns above all the reliability of absolute impact figures, whereas comparative applications are considerably more robust. When the same emission factors and modelling assumptions are applied consistently across the cases being compared, the systematic uncertainties affect each case in a similar way, and the comparison therefore rests on an equal basis (Dorland & Jørgensen, 2024). In our case, the emission factors are held constant from one year to the next, which means that the development in calculated CO_2 savings from year to year can be interpreted as a meaningful relative trend, even though the underlying values remain estimates. Analyzing the data on these terms allows us to track and validate the development of the initiative over time, rather than to make claims about the precise environmental savings of any single year.

At present, there is an internal discussion within the organization about whether the calculated CO_2 savings should be divided by two, in line with the practice adopted by "*Restarters",* Repair Café Danmark's Norwegian sister organization (repaircafedanmark.dk, n.d.). The idea behind the adjustment is the assumption that repaired products may not have the same remaining lifespan as newly purchased products. However, as the chairman notes, the actual lifetime extension achieved through repair is inherently uncertain, making it difficult to justify a standardized reduction factor. Consequently, Repair Café Danmark has chosen not to apply such an adjustment.

2.7.1 Comparison of Repair Activities in the Four Repair Cafés (2024 vs. 2025)

This section presents a comparative overview of repair activities recorded across the four participating Repair Cafés in 2024 and 2025. The assessment focuses on the number of products brought to the cafés, the number of successful repairs across different product categories, and the overall repair success rate. The analysis is based on the categories: Mobile phones/Smartphones, Furniture, Bicycles, Tools/Gardening equipment, Computers/Tablets, Toys, Other Textile Tasks, Lamps, Other Items, Clothing, Audio-visual Equipment, and Household Appliances.

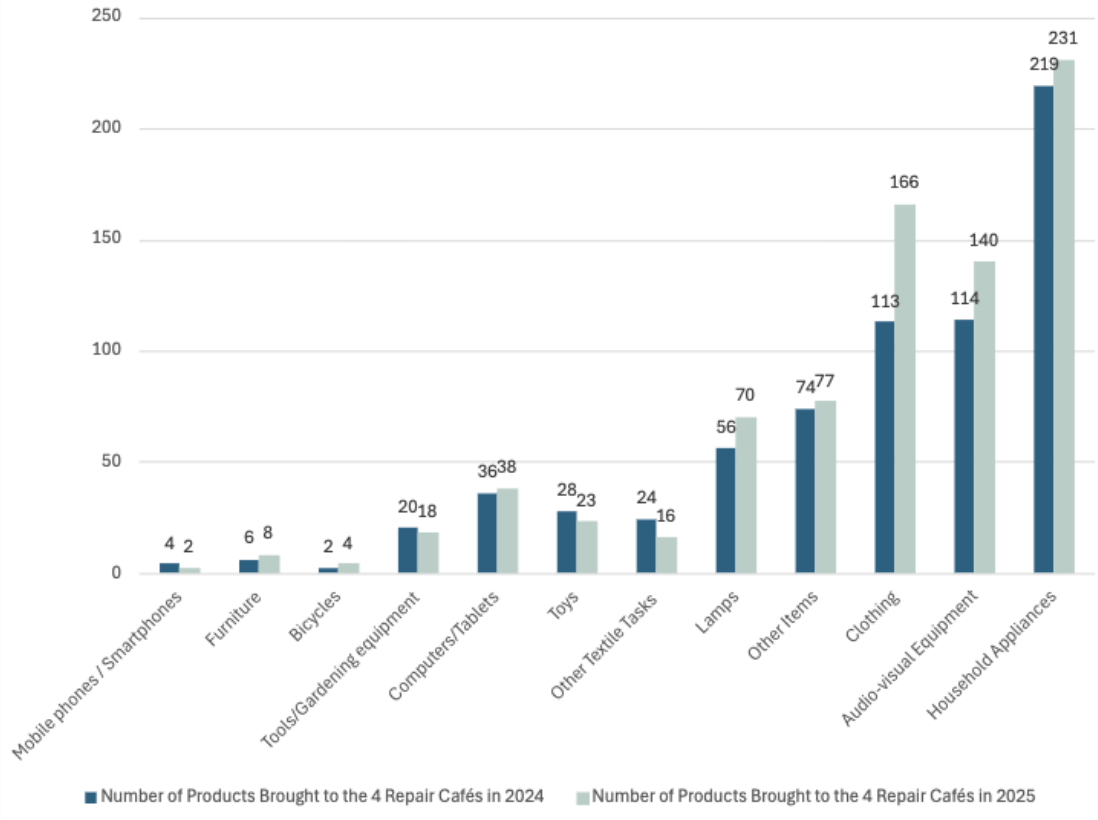


Figure 6: Number of products brought within each category in total between the four cafés in 2024 and 2025

Across the two years, Household Appliances represented the largest category of products brought to the Repair Cafés (see Figure 6: Number of products brought within each category in total between the four cafés in 2024 and 2025). In 2024, approximately 219 household appliances were brought in, increasing slightly to around 231 in 2025. Clothing also constituted a significant share of the total items, rising from approximately 113 items in 2024 to around 166 items in 2025. A similar increase was observed for Audio-visual Equipment, which rose from about 114 items in 2024 to roughly 140 items in 2025. Several categories showed moderate growth between the two years. Lamps increased from approximately 56 items in 2024 to around 70 items in 2025, while Other Items rose from roughly 74 to 77 items. Tools and Gardening Equipment also increased from about 20 to approximately 36 items. In contrast, some categories experienced slight declines, including Toys (from around 28 items in 2024 to approximately 23 in 2025) and Other Textile Tasks (from about 24 to roughly 16 items). Categories such as Furniture, Bicycles, and Mobile Phones/Smartphones remained relatively small in both years.

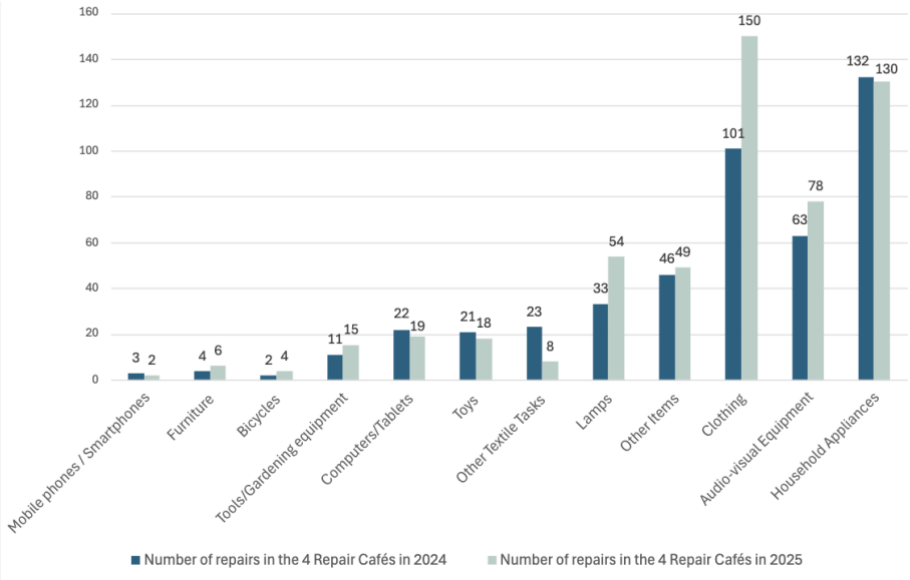


Figure 7: Number of successful repairs in the 4 cafés (2024 vs. 2025)

The distribution of repairs across product categories changed somewhat between 2024 and 2025 (see Figure 7: Number of successful repairs in the 4 cafés (2024 vs. 2025)). Household Appliances accounted for the highest number of repairs in both years, with approximately 132 repairs recorded in 2024 and around 130 in 2025. Clothing repairs increased substantially, rising from approximately 101 repairs in 2024 to around 150 repairs in 2025.
Repairs of Audio-visual Equipment also increased, from roughly 63 in 2024 to about 78 in 2025. Lamps showed a similar increase, rising from approximately 33 repairs in 2024 to around 54 in 2025. The category Other Items increased slightly from about 46 repairs in 2024 to approximately 49 repairs in 2025. A number of smaller categories showed modest increases. Furniture repairs increased from approximately 4 repairs in 2024 to around 6 in 2025, while Bicycles increased from about 2 to around 4 repairs. Tools and Gardening Equipment repairs also rose from approximately 11 repairs in 2024 to around 15 in 2025.

Some categories experienced a decrease in the number of repairs. Computers and Tablets declined from approximately 22 repairs in 2024 to around 19 in 2025. Repairs related to Toys decreased from about 21 to around 18, and repairs in the category Other Textile Tasks declined from roughly 23 to about 8 repairs. Mobile Phones/Smartphones showed a slight decrease from around 3 repairs in 2024 to about 2 in 2025.

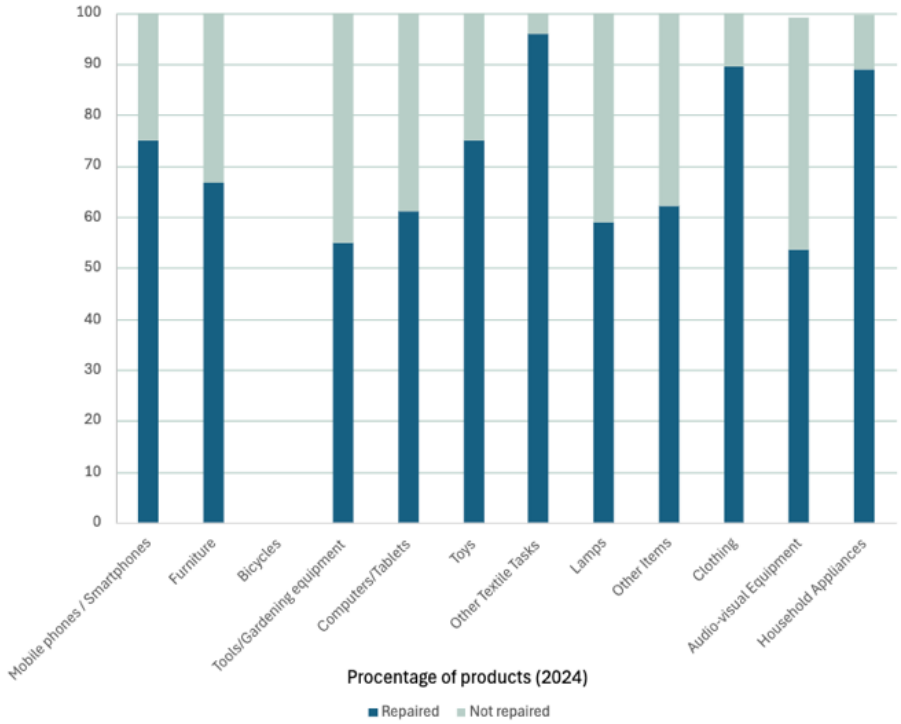


Figure 8: Percentage of products repaired/not repaired based on category in 2024

The proportion of products successfully repaired varied across the different categories (see Figure 8 and Figure 9). In 2024, relatively high repair proportions were observed for categories such as Other Textile Tasks, Clothing, and Household Appliances (Figure 8). Moderate repair proportions were recorded for categories including Furniture, Toys, and Lamps.

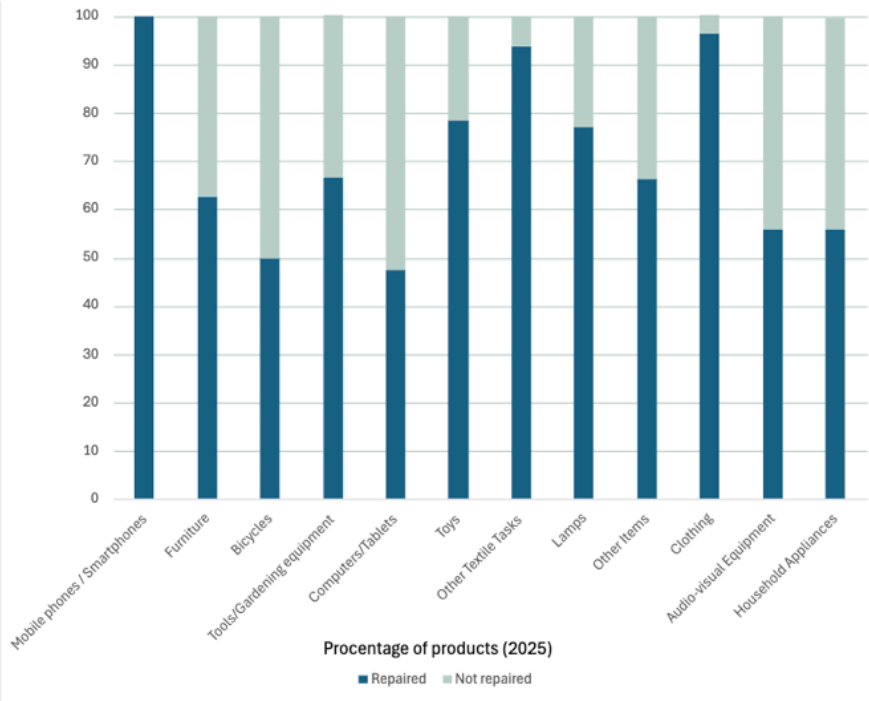


Figure 9: Percentage of products repaired/not repaired based on category in 2025

In 2025, similar patterns were observed across several categories, although variations appeared in certain areas (Figure 9). Clothing, Lamps, and Other Items continued to represent categories with comparatively high numbers of successful repairs relative to the number of products brought in. Other categories, such as Bicycles and Computers/Tablets, showed lower repair proportions in comparison with the number of items presented for repair.

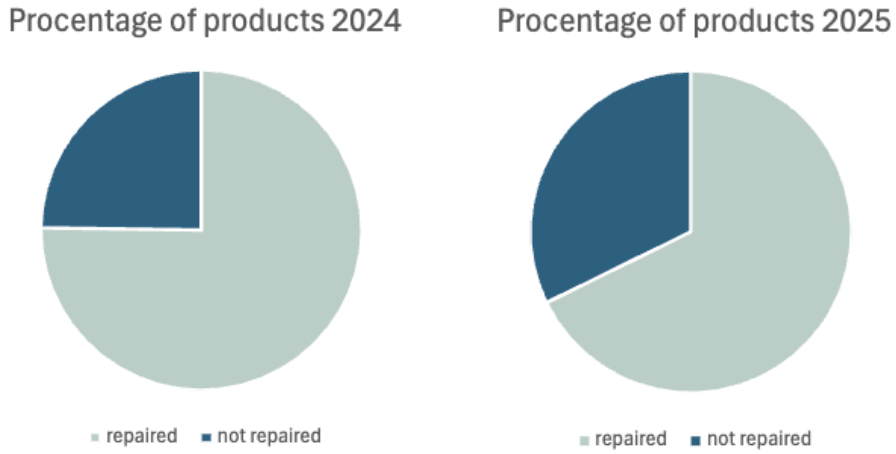


Figure 10: Percentage of products repaired/not repaired in 2024 vs. 2025

When examining the overall distribution of repaired and non-repaired products, the majority of items brought to the Repair Cafés in both years were successfully repaired (see Figure 10). In 2024, approximately three quarters of all products were repaired, while in 2025 the share of successfully repaired items was somewhat lower but still represented the majority of items handled during the repair sessions. The increase in the number of products brought to the cafés in 2025 also resulted in a higher number of items that could not be repaired during the events. This development highlights a potential area for further repair activity, as the larger volume of non-repaired items indicates opportunities for additional repair capacity, skills, or resources that could enable a greater share of these products to be successfully repaired in future repair sessions.

2.7.2 The Repair Activity and Environmental Impact of Repair Café Valby

This section presents a focused overview of repair activities and the associated environmental outcomes recorded at Repair Café Valby in 2024 and 2025. The analysis examines the number of repaired products across categories, the weight of repaired items, and the estimated CO_2 savings generated through repair activities. The assessment is based on the same product categories used earlier (i.e., Mobile phones/Smartphones, Furniture, Bicycles, Tools/Gardening equipment, Computers/Tablets, Toys, Other Textile Tasks, Lamps, Other Items, Clothing, Audio-visual Equipment, and Household Appliances).

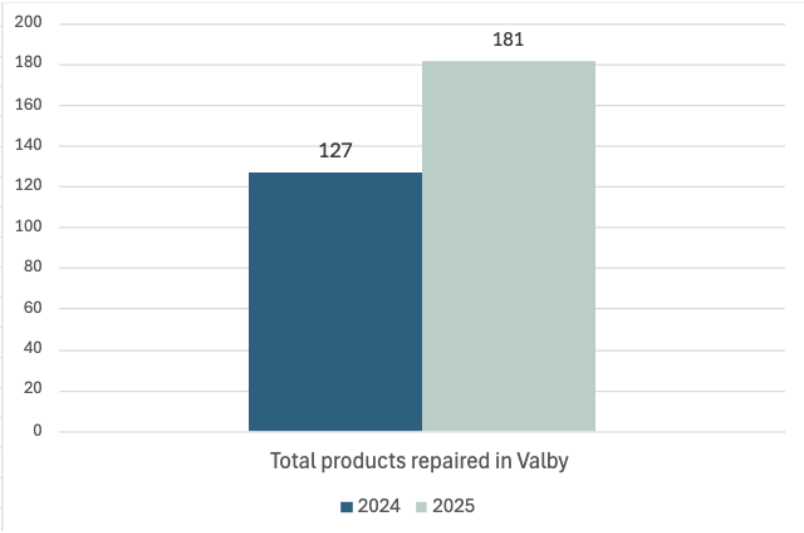


Figure 11: Total products repaired in Repair Café Valby (2024 vs. 2025)

The total number of repaired products in Repair Café Valby increased from 127 repairs in 2024 to 181 repairs in 2025 (see Figure 11: Total products repaired in Repair Café Valby (2024 vs. 2025)). This increase was primarily driven by growth in several product categories, most notably Clothing, Audio-visual Equipment, Lamps, and Other Items (see Figure 12: Number of repairs in Repair Café Valby based on category (2024 vs. 2025).

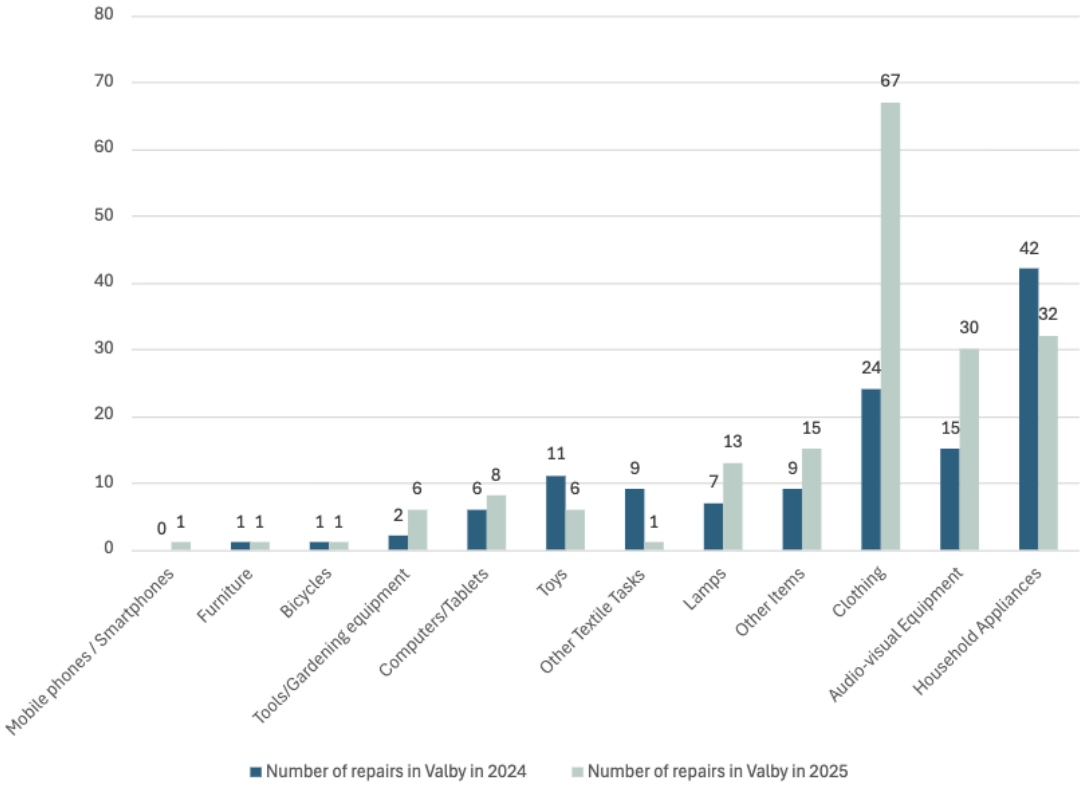


Figure 12: Number of repairs in Repair Café Valby based on category (2024 vs. 2025).

As seen in Figure 12 clothing repairs showed the largest increase, rising from approximately 24 repairs in 2024 to around 67 repairs in 2025. Audio-visual Equipment repairs also increased from roughly 15 to about 30 repairs. Lamps increased from approximately 7 repairs in 2024 to around 13 repairs in 2025, while repairs in the category Other Items increased from about 9 to around 15 repairs.

At the same time, several categories experienced declines in the number of repairs. Toys declined from about 11 to around 6 repairs, while Other Textile Tasks also decreased from approximately 9 repairs in 2024 to around 1 repair in 2025. Repairs of Household Appliances declined from around 42 repairs in 2024 to approximately 32 in 2025, although this category still represented a substantial share of the total repair activity. Categories such as Furniture, Bicycles, and Mobile Phones/Smartphones accounted for relatively few repairs in both years.

Changes in the weight of repaired products partly reflect the shifts observed in repair activity across product categories. Household Appliances accounted for the largest share of repaired product weight in both years, although the total weight decreased from approximately 184 kg in 2024 to around 170 kg in 2025 (see Figure 13: Weight of products repaired in Repair Café Valby, based on category (2024 vs. 2025). This reduction corresponds with the lower number of repaired appliances in 2025 (see Figure 12 and Figure 13).

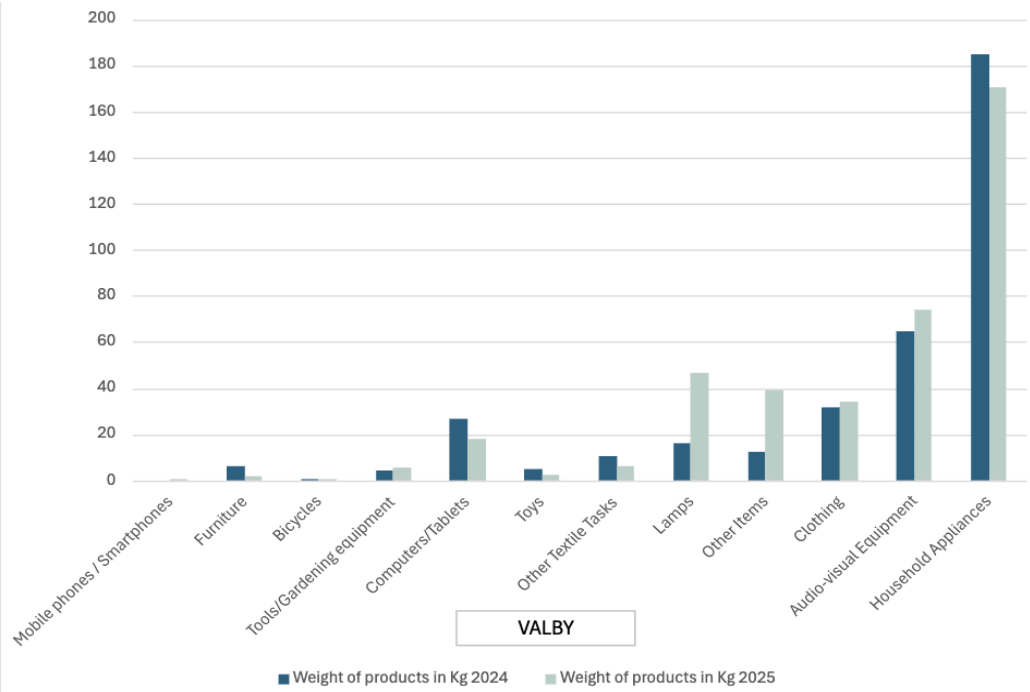


Figure 13: Weight of products repaired in Repair Café Valby, based on category (2024 vs. 2025)

Other categories showed notable increases in weight despite moderate changes in the number of repairs. The weight of repaired Lamps increased from approximately 16 kg in 2024 to around 46 kg in 2025, corresponding with the increase in the number of repaired lamps. Similarly, the weight of items categorized as Other Items increased from approximately 12 kg to around 39 kg. Clothing repairs also showed a slight increase in weight, rising from roughly 31 kg in 2024 to around 34 kg in 2025, reflecting the larger number of repaired clothing items. Audio-visual Equipment increased from approximately 64 kg in 2024 to around 74 kg in 2025, which corresponds with the higher number of repairs within this category. Conversely, categories with fewer repairs also showed reductions in weight. Computers/Tablets declined from approximately 26 kg in 2024 to around 18 kg in 2025, while Other Textile Tasks decreased from roughly 10 kg to about 6 kg. Toys also recorded a small decrease in repaired weight during the same period.

The estimated CO_2 savings generated through repair activities at Repair Café Valby reflect the combined effects of both the number of repairs and the weight of the repaired products. Product categories with either higher numbers of repairs or larger product weights therefore contributed more substantially to the overall environmental impact (see Figure 14: CO2 kg saved in Repair Café Valby, based on category (2024 vs. 2025)).

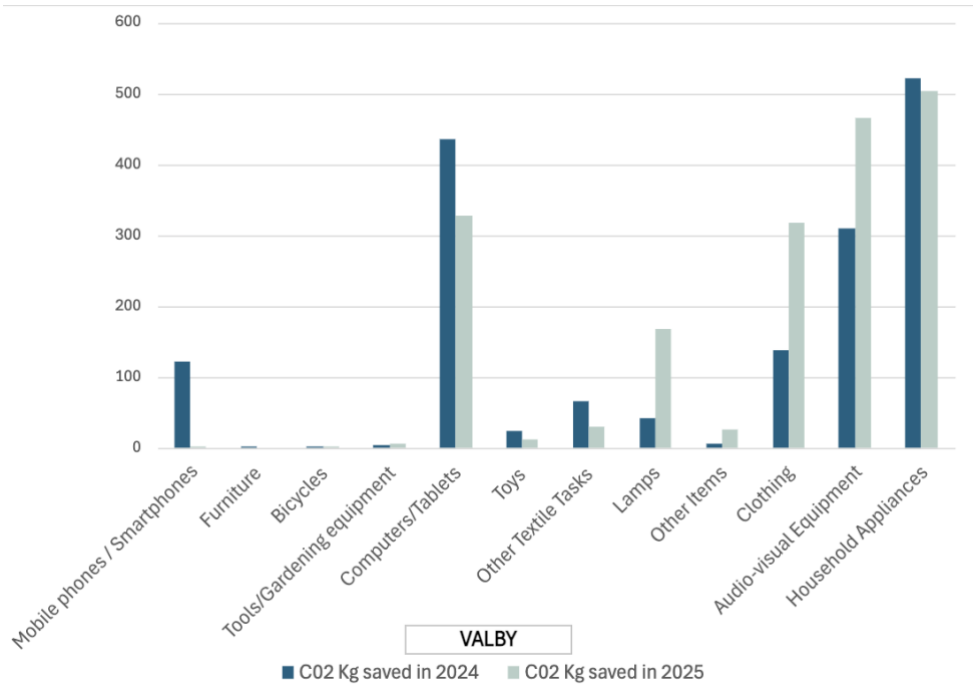


Figure 14: CO_2 kg saved in Repair Café Valby, based on category (2024 vs. 2025)

Household Appliances accounted for the largest share of estimated CO_2 savings in both years (Figure 14). In 2024, repairs in this category generated approximately 522.5 kg CO_2 saved, while

in 2025 the estimated savings were slightly lower at approximately 504.5 kg CO_2 saved. Despite a reduction in the number of repaired appliances in 2025, this category remained the largest contributor to total CO_2 savings due to the relatively high weight and environmental impact associated with these products. Audio-visual Equipment represented the second largest contributor to CO_2 savings. Estimated savings increased from approximately 309.4 kg CO_2 saved in 2024 to around 465.1 kg CO_2 saved in 2025. This increase corresponds with the higher number of repaired items within this category as well as the associated product weight. Clothing also showed a notable increase in environmental impact. Estimated CO_2 savings rose from approximately 137.9 kg CO_2 saved in 2024 to around 318.2 kg CO_2 saved in 2025, reflecting the substantial increase in the number of repaired clothing items recorded during the same period. Computers and Tablets contributed significantly to CO_2 savings in both years, although the environmental impact decreased between the two years. In 2024, repairs in this category generated approximately 436.2 kg CO_2 saved, while the estimated savings declined to around 329.0 kg CO_2 saved in 2025. This reduction corresponds with the lower number of repaired computers and tablets in 2025. Several smaller categories also demonstrated noticeable changes between the two years. Lamps showed a substantial increase in estimated CO_2 savings, rising from approximately 43.6 kg CO_2 saved in 2024 to around 168.9 kg CO_2 saved in 2025, corresponding with increases in both the number of repairs and the combined weight of repaired lamps. Similarly, Other Items increased from approximately 6.3 kg CO_2 saved to around 26.4 kg CO_2 saved. Other categories recorded decreases in environmental impact. Toys declined from approximately 25.8 kg CO_2 saved in 2024 to around 12.3 kg CO_2 saved in 2025, while Other Textile Tasks decreased from approximately 67.8 kg CO_2 saved to around 30.3 kg CO_2 saved.

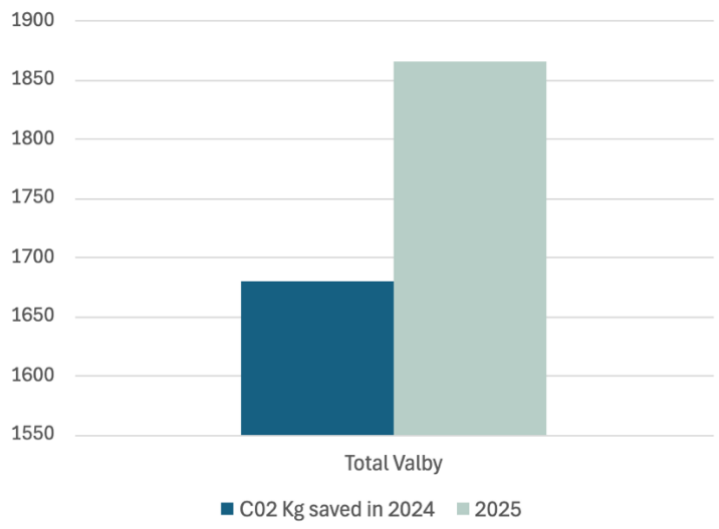


Figure 15: Total CO_2 kg saved in Repair Café Valby (2024 vs. 2025)

Overall, the total estimated environmental benefit generated by Repair Café Valby increased between the two years (see Figure 15: Total CO2 kg saved in Repair Café Valby (2024 vs. 2025)). In 2024, repair activities were estimated to have saved approximately 1.679 kg CO_2, while in 2025 the estimated savings increased to approximately 1.865 kg CO_2. This increase reflects the combined influence of higher repair activity in several categories, particularly Clothing, Audio-visual Equipment, and Lamps. At the same time, categories such as Household Appliances continued to represent a significant share of the total environmental impact due to the relatively high weight and associated production emissions of these products.

2.7.3 The Repair Activity and Environmental Impact of Repair Café Frederiksberg

This section provides an overview of repair activity and the associated environmental impact recorded at Repair Café Frederiksberg in 2024 and 2025. The total number of repaired products in Repair Café Frederiksberg increased from 132 repairs in 2024 to 184 repairs in 2025 (see figure 16).

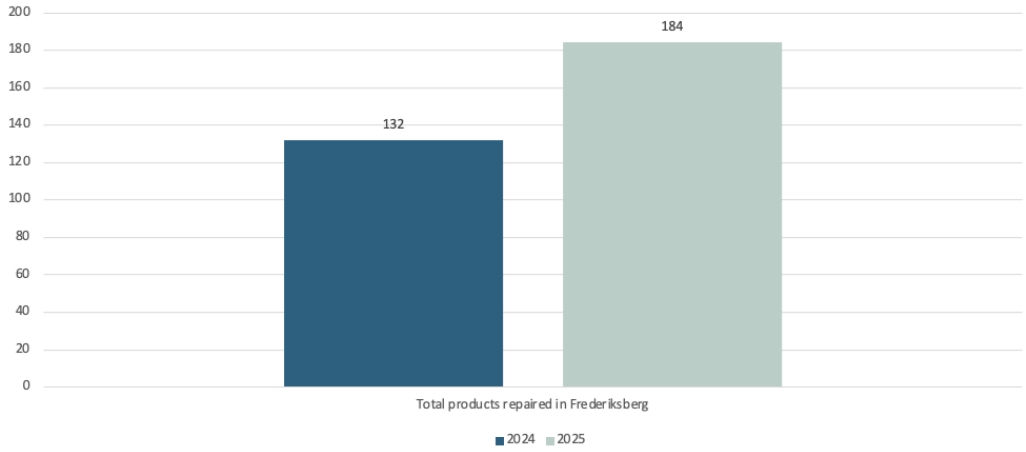


Figure 16: Total products repaired in Frederiksberg

We see on Figure 17 how the repair activity in Frederiksberg increased across several categories between 2024 and 2025. Household Appliances represented the largest repair category in both years, increasing from 47 repairs in 2024 to 54 repairs in 2025. Clothing also accounted for a considerable share of the repairs and showed a noticeable increase, rising from 35 repairs in 2024 to 49 repairs in 2025.

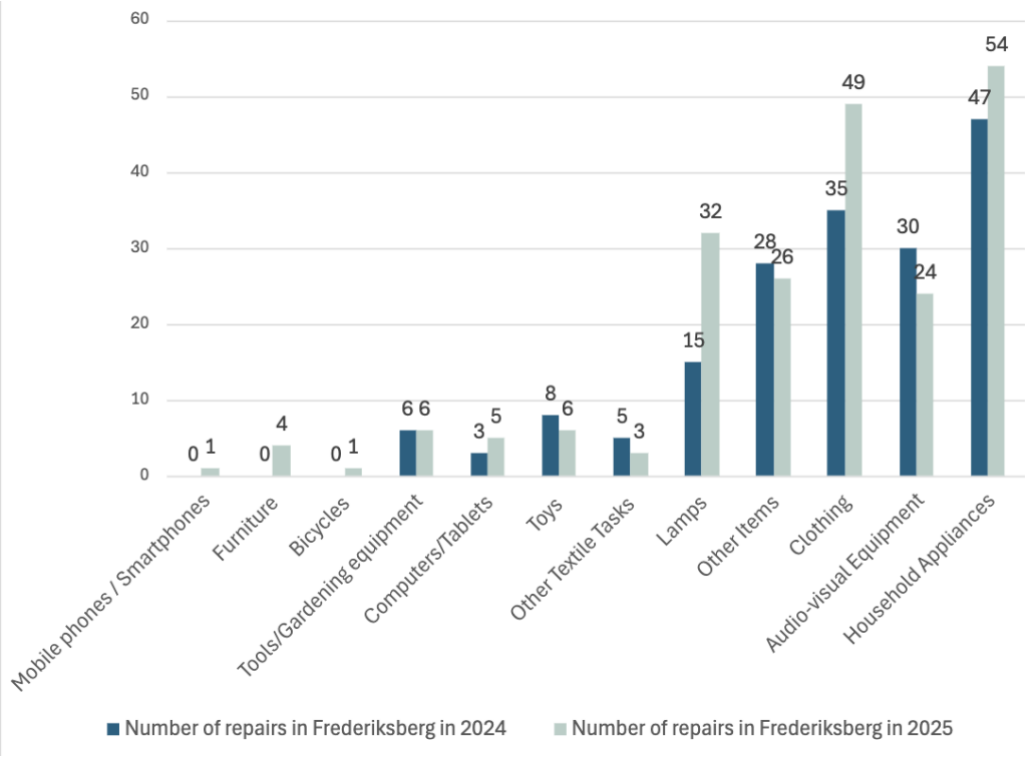


Figure 17: Number of repairs in Repair Café Frederiksberg, based on category (2024 vs. 2025).

A number of medium-sized categories also experienced growth. Repairs of Lamps more than doubled, increasing from 15 repairs in 2024 to 32 repairs in 2025. Computers and Tablets increased slightly from 3 repairs to 5 repairs, while Tools and Gardening Equipment remained stable at 6 repairs in both years. Some categories experienced small reductions in activity. Repairs categorized as Other Items declined slightly from 28 repairs in 2024 to 26 repairs in 2025, while Toys decreased from 8 to 6 repairs. A similar decline was observed for Other Textile Tasks, which decreased from 5 repairs in 2024 to 3 repairs in 2025. Furniture, Bicycles, and Mobile Phones/Smartphones accounted for only a small number of repairs, although minor increases were observed in 2025 compared with 2024.

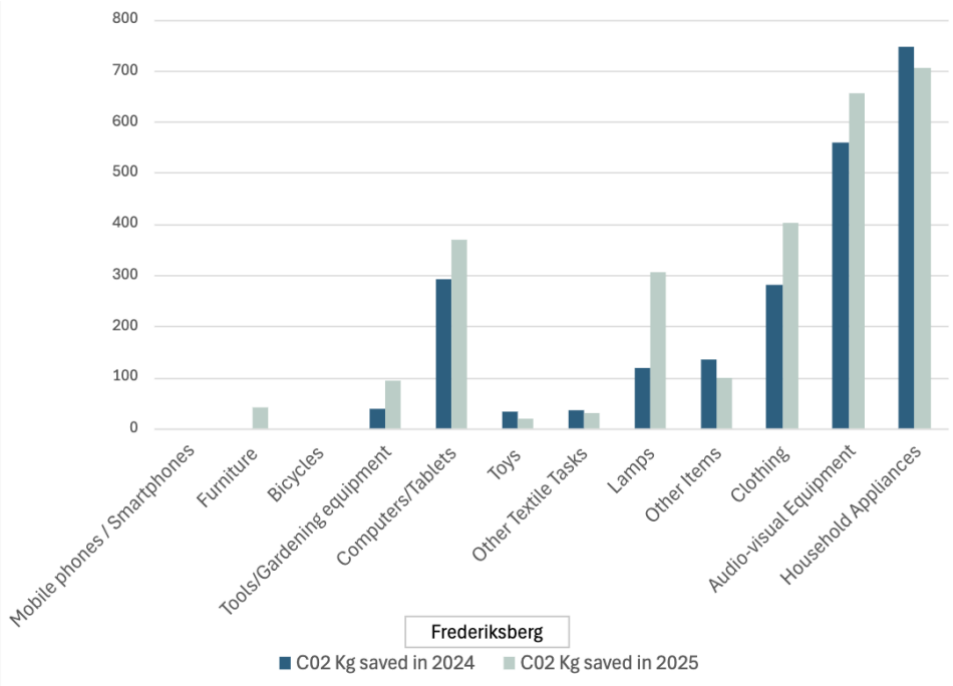


Figure 18: CO_2 kg saved in Repair Café Frederiksberg, based on category (2024 vs. 2025).

Figure 18 shows hoe the environmental impact of repair activities at Repair Café Frederiksberg varies across product categories, reflecting both the number of repaired items and the environmental footprint associated with each type of product. Household Appliances generated the highest CO_2 savings in both years, with 747 kg CO_2 saved in 2024, while the estimated savings were slightly lower in 2025 at 705 kg CO_2 saved. Despite this decrease, the category remained the largest contributor to the total environmental impact. Audio-visual Equipment also accounted for a substantial share of the estimated CO_2 savings. The estimated impact increased from 560 kg CO_2 saved in 2024 to 656 kg CO_2 saved in 2025. This category therefore represented one of the most significant contributors to the overall increase in environmental benefits observed between the two years. Clothing repairs also contributed notably to CO_2 savings. Estimated savings increased from 281 kg CO_2 saved in 2024 to 403 kg CO_2 saved in 2025, reflecting the higher number of repaired clothing items during the period. Computers and Tablets represented another category with a considerable environmental impact. Estimated CO_2 savings increased from 293 kg CO_2 saved in 2024 to 369 kg CO_2 saved in 2025, despite the relatively small number of repairs recorded in this category.

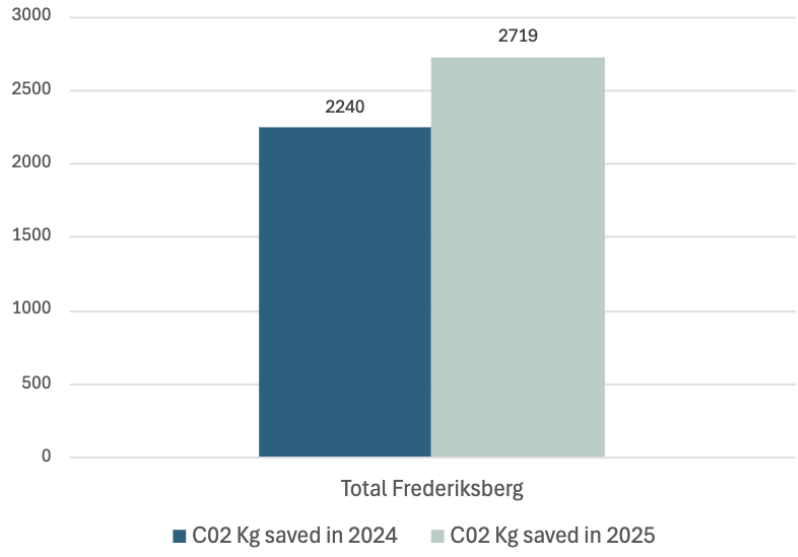


Figure 19: Total CO_2 kg saved in Repair Café Frederiksberg (2024 vs. 2025)

Taken together, repair activities at Repair Café Frederiksberg resulted in a measurable environmental benefit in both years (see Figure 19: Total CO2 kg saved in Repair Café Frederiksberg (2024 vs. 2025)). The estimated total CO_2 savings increased from 2240 kg CO_2 in 2024 to 2719 kg CO_2 in 2025. This overall increase reflects a combination of higher repair activity in several categories and the relatively high environmental impact associated with certain repaired products. In particular, Household Appliances, Audio-visual Equipment, Clothing, and Computers/Tablets represented the categories contributing most significantly to the total CO_2 savings generated through repair activities at the Frederiksberg Repair Café.

2.7.4 The Repair Activity and Environmental Impact of Repair Café Sydhavn

This section presents an overview of repair activity and the associated environmental impact recorded at Repair Café Sydhavn in 2024 and 2025. The total number of repaired products at Repair Café Sydhavn increased from 60 repairs in 2024 to 74 repairs in 2025 (see figure 20).

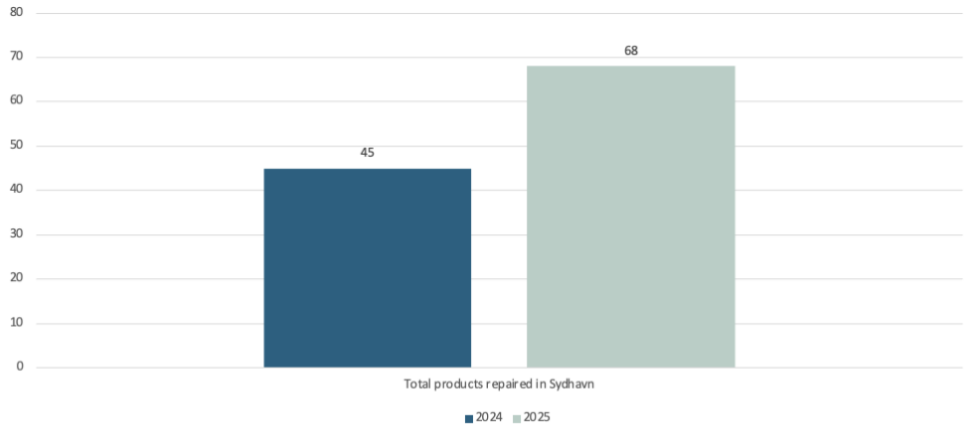


Figure 20: Total products repaired in Sydhavn

Several categories contributed to this increase (see Figure 21: Number of repairs in Repair Café Sydhavn, based on category (2024 vs. 2025).

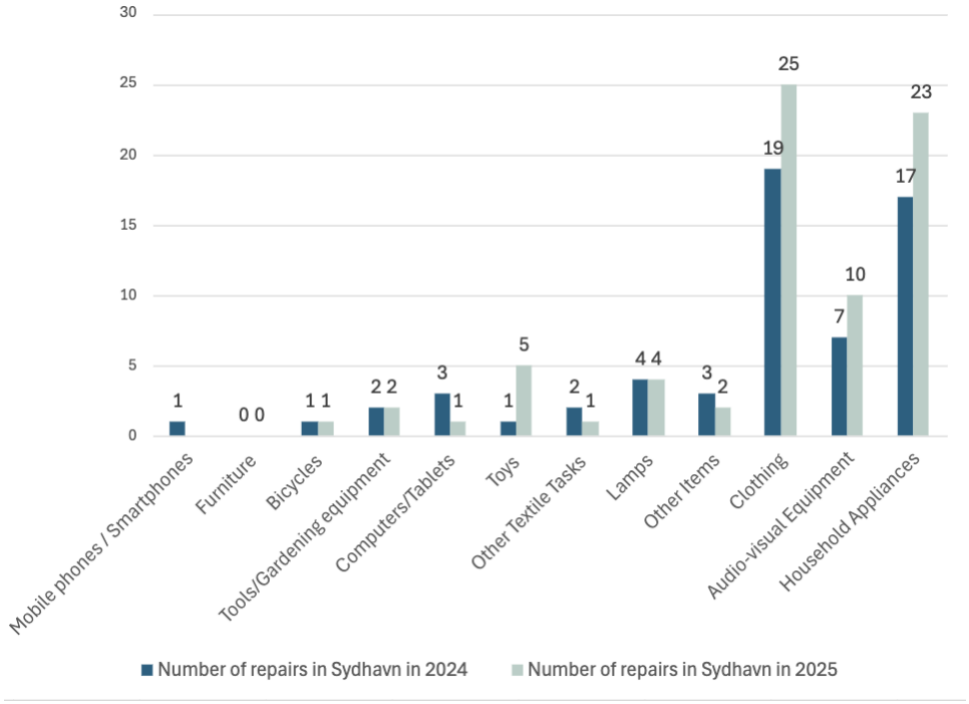


Figure 21: Number of repairs in Repair Café Sydhavn, based on category (2024 vs. 2025).

Clothing represented the largest repair category in both years, increasing from 19 repairs in 2024 to 25 repairs in 2025. Household Appliances also showed a notable increase, rising from 17 repairs to 23 repairs during the same period. Repairs of Audio-visual Equipment increased from 7 repairs in 2024 to 10 repairs in 2025, while the category Toys increased from 1 repair to 5 repairs. A number of categories remained relatively stable between the two years. Tools and Gardening Equipment recorded two repairs in both years; Bicycles also remained unchanged at one repair per year. So did Lamps with 4 repairs in both years, indicating a stable level of repair activity within these categories. Some categories experienced small decreases in repair activity. Computers and Tablets declined from 3 repairs in 2024 to 1 repair in 2025, while Other Textile Tasks decreased from 2 repairs to 1 repair. Repairs categorized as Other Items also declined slightly from 3 repairs in 2024 to 2 repairs in 2025. Furniture did not record any repairs in either year, and Mobile Phones/Smartphones decreased from one repair to no repairs. Overall, repair activity at the Sydhavn café remained concentrated within a few product categories, particularly Clothing, Household Appliances, and Audio-visual Equipment.

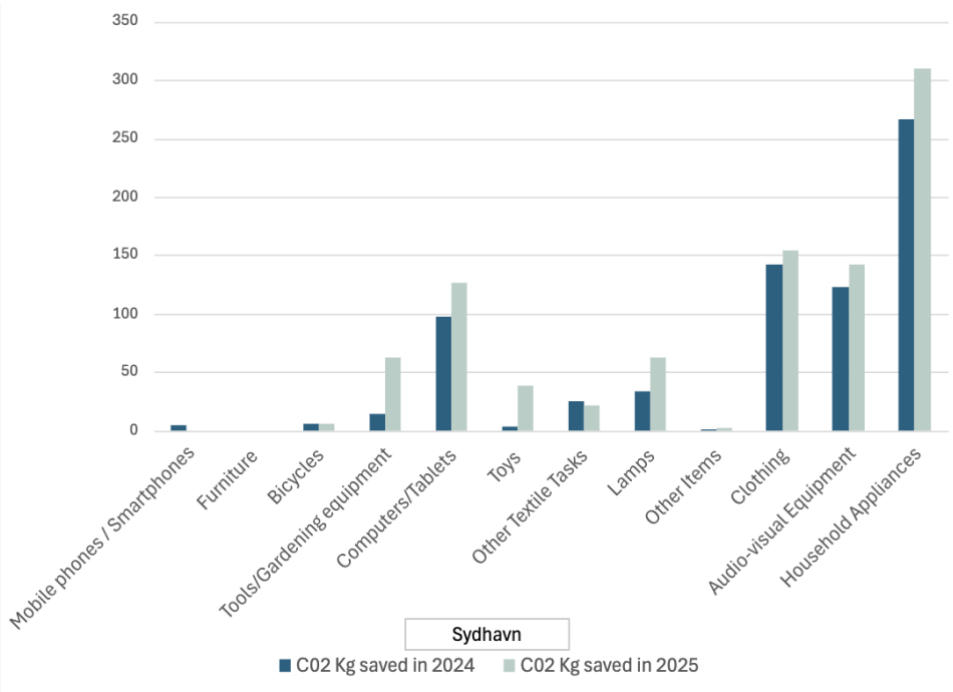


Figure 22: CO_2 kg saved in Repair Café Sydhavn, based on category (2024 vs. 2025)

The estimated CO_2 savings generated by repair activities at Repair Café Sydhavn reflect both the number of repaired products and the environmental impact associated with different product types. As seen on Figure 22, household Appliances generated the largest share of CO_2 savings in both years. Savings increased from 266 kg CO_2 saved in 2024 to 310 kg CO_2 saved in 2025. This increase corresponds with the higher number of repaired appliances recorded during the same period. Computers and Tablets represented another category with a notable environmental impact with CO_2 savings increased from 98 kg CO_2 saved in 2024 to 127 kg CO_2 saved in 2025, despite the relatively small number of repairs in this category. Clothing also contributed significantly to the environmental impact generated through repairs, with CO_2 savings increasing from 142 kg CO_2 saved in 2024 to 154 kg CO_2 saved in 2025, reflecting the increased number of repaired clothing items. Audio-visual Equipment showed an increase in environmental contribution, rising from 123 kg CO_2 saved in 2024 to around 142 kg CO_2 saved in 2025. Similarly, Lamps increased from 34 kg CO_2 saved to 63 kg CO_2 saved. Several smaller categories also showed changes in environmental impact. Tools and Gardening Equipment increased from 14 kg CO_2 saved in 2024 to 62 kg CO_2 saved in 2025, while Toys increased from 3 kg CO_2 saved to 38 kg CO_2 saved, a relatively high increase. Categories with fewer repairs generally contributed smaller shares to the total environmental impact. Other Textile Tasks declined slightly from 25 kg CO_2 saved in 2024 to 22 kg CO_2 saved in 2025, while Other Items remained relatively small contributors in both years.

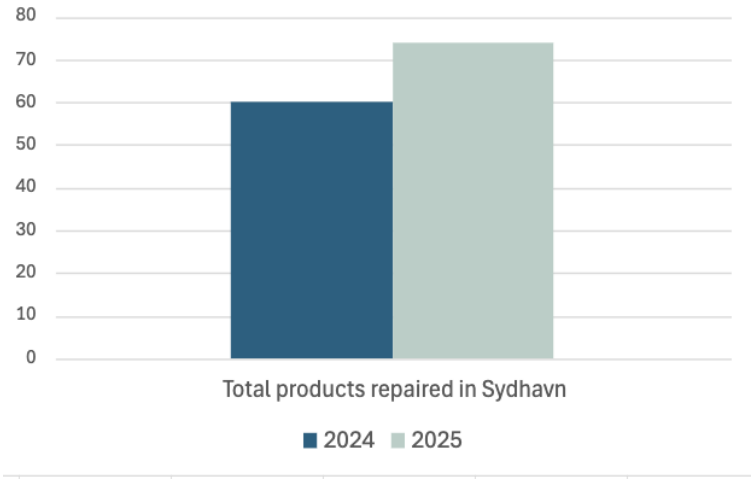


Figure 23: Total CO_2 kg saved in Repair Café Sydhavn (2024 vs. 2025)

Overall, repair activities at Repair Café Sydhavn generated measurable environmental benefits in both years. The estimated total CO_2 savings increased from 717 kg CO_2 in 2024 to 926 kg CO_2 in 2025 (see Figure 23: Total CO2 kg saved in Repair Café Sydhavn (2024 vs. 2025)).

2.7.5 The Repair Activity and Environmental Impact of Repair Café Østerbro

This section presents an overview of the repair activity and the associated environmental impact recorded at Repair Café Østerbro in 2024 and 2025. We see on figure 24 how Repair Café Østerbro had a Decrease in the number of products with 74 in 2024 to 67 in 2025.

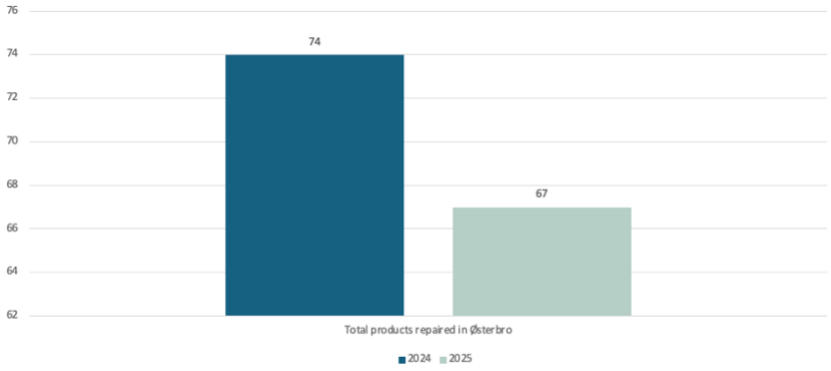


Figure 24: Total number of repaired products in Østerbro

The analysis considers both the number of repaired products and the estimated CO_2 savings generated through repair activities.

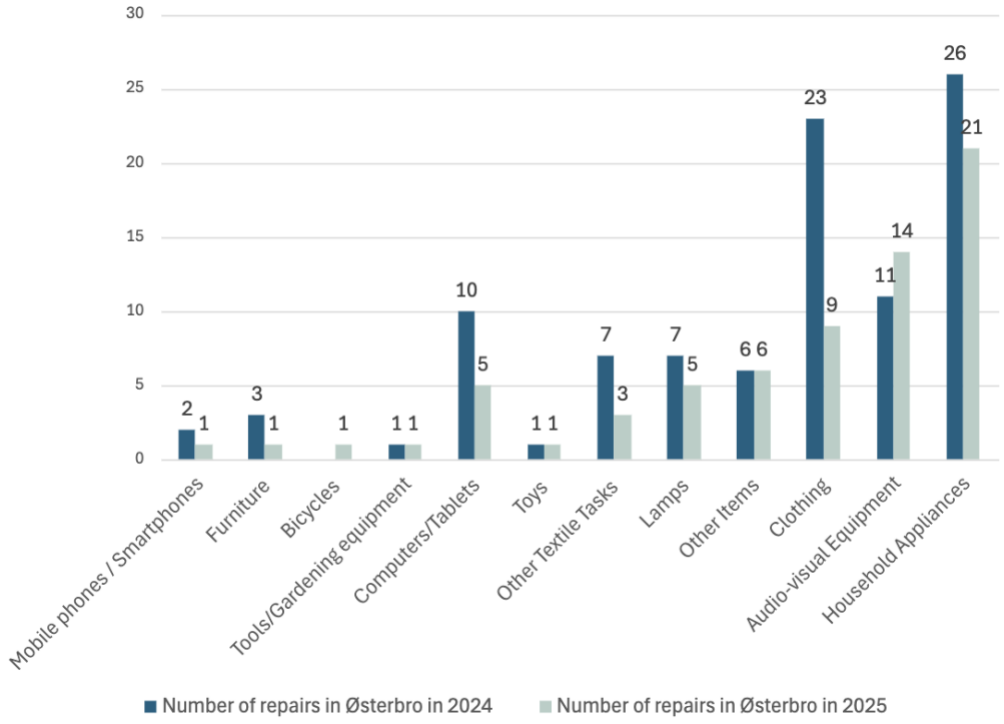


Figure 25: Number of repairs in Repair Café Østerbro, based on category (2024 vs. 2025)

Repair activity at Repair Café Østerbro was distributed across several product categories, with Household Appliances and Clothing representing the largest shares of repairs in both years (see Figure 25: Number of repairs in Repair Café Østerbro, based on category (2024 vs. 2025)). In 2024, 26 household appliances were repaired, decreasing to 21 repairs in 2025. Clothing also experienced a noticeable decline, with repairs decreasing from 23 in 2024 to 9 in 2025. Audio-visual Equipment represented another category with several repairs, increasing from 11 repairs in 2024 to 14 repairs in 2025. For Computers and Tablets the overall number of repairs declined from 10 in 2024 to 5 in 2025. Several medium-sized categories recorded moderate changes between the two years. For example, Lamps decreased slightly from 7 repairs in 2024 to 5 repairs in 2025, while Other Textile Tasks declined from 7 repairs to 5 repairs. The category Other Items remained stable with 6 repairs in both years. Smaller categories showed only limited repair activity. Mobile Phones/Smartphones declined from 2 repairs in 2024 to 1 repair in 2025 and Furniture decreased from 3 repairs to 1 repair. Tools and Gardening Equipment remained unchanged with 1 repair in both years, and Toys also recorded one repair in each year. Bicycles recorded no repairs in 2024 and one repair in 2025. Overall, the distribution of repairs indicates a relatively small number of repair activities at the Østerbro café.

The estimated CO_2 savings generated by these repair activities vary across product categories and reflect both the number of repaired products and the environmental impact associated with their production.

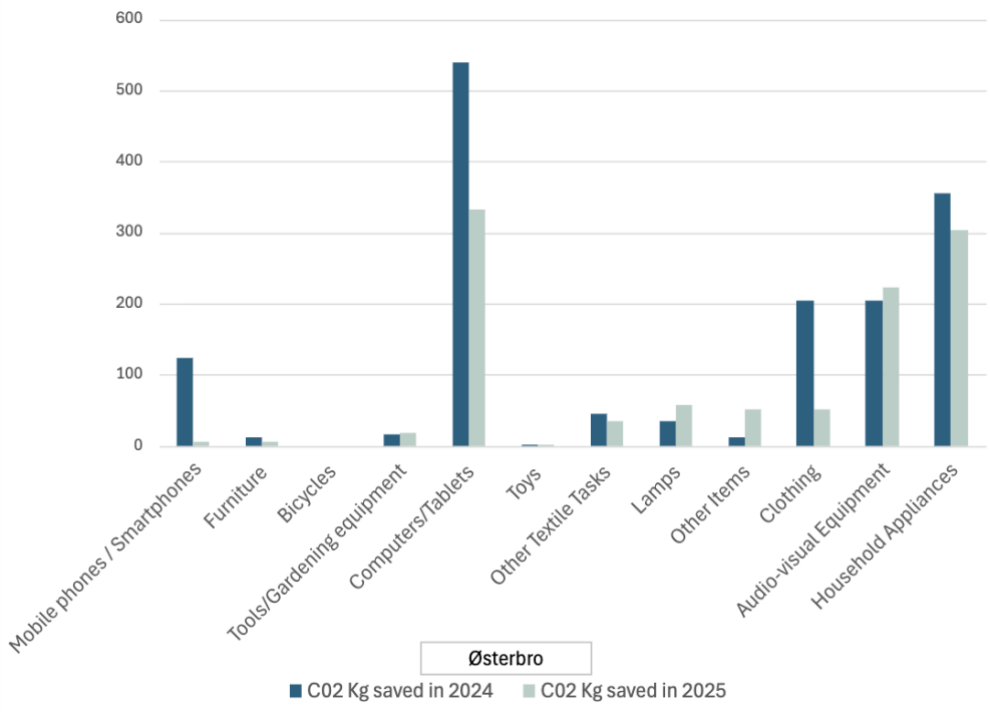


Figure 26: CO_2 kg saved in Repair Café Østerbro, based on category (2024 vs. 2025).

Computers and Tablets represented the category with the highest estimated CO_2 savings in both years (see Figure 26: CO2 kg saved in Repair Café Østerbro, based on category (2024 vs. 2025). In 2024, repairs in this category resulted in 539 kg CO_2 saved, while in 2025 the estimated savings declined to around 333 kg CO_2 saved, corresponding with the lower number of repaired devices. Household Appliances also generated a significant share of the total environmental impact, with estimated savings decreased from 355 kg CO_2 saved in 2024 to 304 kg CO_2 saved in 2025, reflecting the lower number of repaired appliances. Audio-visual Equipment accounted for another substantial portion of CO_2 savings. The estimated impact increased from 204 kg CO_2 saved in 2024 to 222 kg CO_2 saved in 2025, corresponding with the increase in the number of repaired products within this category. Clothing showed a considerable reduction in environmental contribution between the two years, with estimated CO_2 savings declining from 204 kg CO_2 saved in 2024 to 52 kg CO_2 saved in 2025, which corresponds with the decrease in the number of repaired clothing items. Lamps increased from 34 kg CO_2 saved in 2024 to 58 kg CO_2 saved in 2025, while Other Items increased from 12 kg CO_2 saved to 52 kg CO_2 saved. The rest of the categories represented smaller contributions to the total environmental savings.

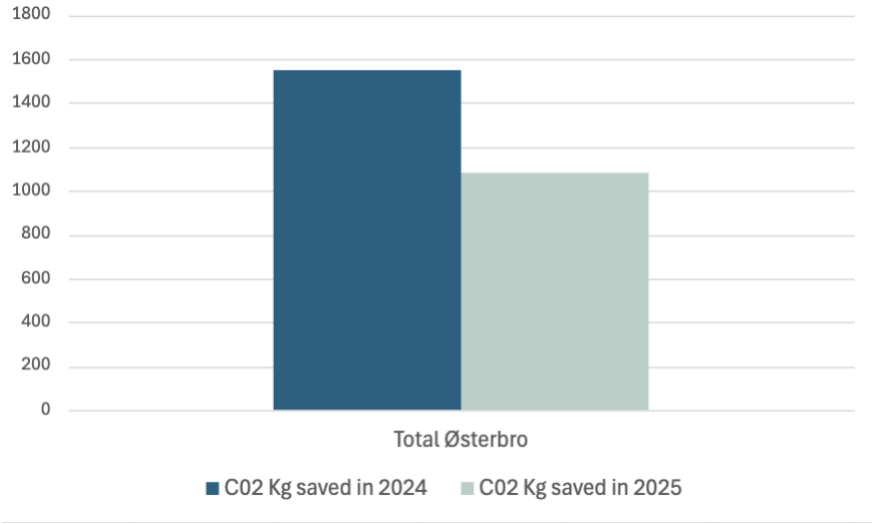


Figure 27: Total CO_2 kg saved in Repair Café Østerbro (2024 vs. 2025).

The total estimated environmental benefit generated by repair activities at Repair Café Østerbro decreased between the two years. In 2024, repair activities were estimated to have saved 1546 kg CO_2, while in 2025 the estimated savings declined to approximately 1085 kg CO_2 (see Figure 27: Total CO2 kg saved in Repair Café Østerbro (2024 vs. 2025). This reduction reflects the lower number of repairs in several product categories with relatively high environmental impact, particularly Computers/Tablets and Clothing. Despite this decrease, categories such as Household Appliances and Audio-visual Equipment continued to contribute substantially to the environmental benefits generated through repair activities at the Østerbro café.

2.7.6 Trends in Repair Activity and Environmental Impact Across the Four Cafés

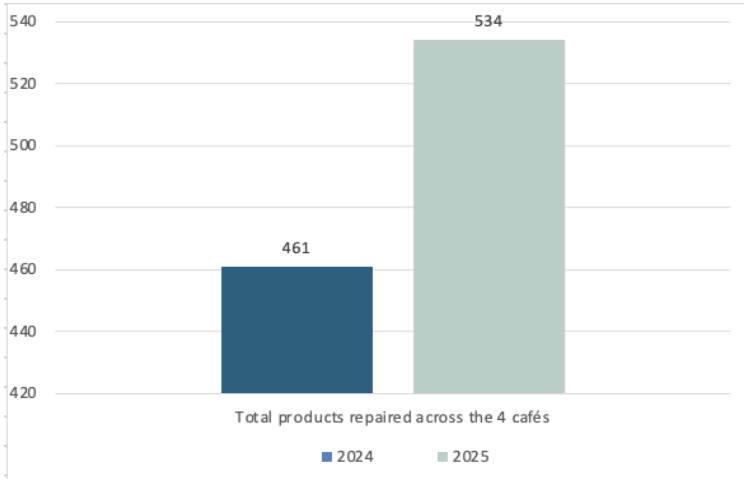


Figure 28: Total repairs across the 4 repair cafés (2024 vs. 2025)

When comparing the repair activity across the four cafés between 2024 and 2025, several broader trends can be observed. As illustrated in Figure 28 and Figure 29, both the total number of repairs

and the estimated CO_2 savings increased across the cafés during the midterm period. The total number of repaired products rose from 461 repairs in 2024 to 534 repairs in 2025, indicating a growing engagement with repair practices among visitors and volunteers. This increase is also reflected in the environmental impact, where the estimated CO_2 savings increased from approximately 6182 kg CO_2 in 2024 to around 6596 kg CO_2 in 2025, corresponding to an increase of roughly 8.3%.

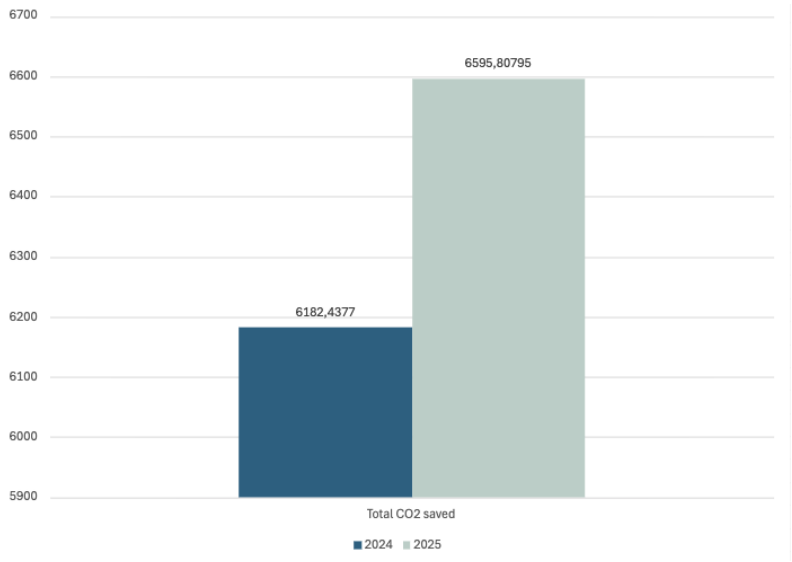


Figure 29: Total CO_2 kg saved in the 4 repair cafés (2024 vs. 2025)

These developments suggest that the repair cafés continue to attract a stable or growing number of visitors bringing items for repair. In several cases, the increase in repairs may also reflect the role of social networks and word-of-mouth communication among visitors and volunteers, which can contribute to raising awareness of repair cafés as accessible spaces for extending the lifespan of everyday products.

Across the cafés, repair activity remained concentrated within a limited number of product categories, particularly household appliances, audio-visual equipment, electronics, and textiles. These categories also accounted for a substantial share of the estimated CO_2 savings, which reflects the relatively high environmental impact associated with the production of such products. As a result, successful repairs within these categories generate comparatively large environmental benefits. One important consideration concerns the registration practice, particularly how items are categorized in the cafés. This is especially relevant in categories with relatively few registered products, such as bicycles, mobile phones, or furniture. In such categories, even one or two items can produce a visible change in the dataset. Moreover, because different categories are assigned different emission factors, categorization does not only shape the number of repairs recorded

within a given category but also affects the estimated CO_2 savings. Thus, changes in the data may partly reflect shifts in classification practices rather than actual changes in repair activity. A similar issue arises in relation to heavy items. A single repair involving a relatively heavy product can substantially raise the total recorded weight in that category and thereby produce a notable increase in estimated CO_2 savings.

Volunteer competencies constitute another significant factor. Many of the most skilled volunteers are seniors, and coordinators note that some competencies may be lost when volunteers age out of participation or pass away. In some cases, this means that very specific forms of expertise disappear from the café. At the same time, skills are also developed within the cafés through knowledge sharing and repeated repair practice. Coordinators in both Valby and Østerbro describe how volunteers learn from one another and become increasingly familiar with the types of products they encounter, enabling them to diagnose faults and carry out repairs more effectively over time. From this perspective, a stable and experienced volunteer group may itself contribute to gradual growth in repair activity. Interviews with visitors and volunteers suggest that local visibility and reputation may also influence repair volumes.

Furthermore, our cross-café comparison reveals that Østerbro is the only café experiencing a decline in the number of repaired items during the observed period (see Figure 30: Total number of products repaired across the 4 repair cafés (2024 vs. 2025)). In contrast, cafés such as Valby and Frederiksberg recorded higher repair volumes and corresponding increases in estimated CO_2 savings. According to the chairman, such a decline is atypical, as repair cafés generally tend to show stable or increasing activity over time.

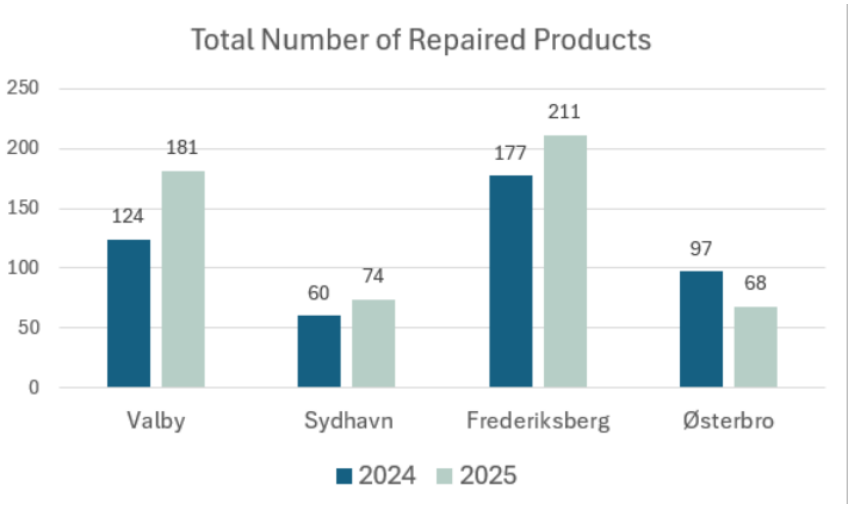


Figure 30: Total number of products repaired across the 4 repair cafés (2024 vs. 2025)

Notably, data from 2022 indicate that Repair Café Østerbro had previously experienced a consistent increase in the number of repairs (see Table 6)

Years	Repaired/error found	Not repaired	N/A	Didn't have enough time.	Blank	Total
2022	59	15	1	1		76
2023	68	33	4			105
2024	97	58	5	1		161
2025	68	34	6	4	1	113
Total	292	140	16	6	1	455

Table 6: Repair data from Østerbro 2022-2025.

For Repair Café Østerbro, the decline lies in certain product categories, particularly in computers/tablets and clothing, which contributed to a lower total environmental impact compared to the previous year. Several factors may account for these differences. They may reflect variation in the number of items brought to the cafés within each category, changes in how products are categorized during registration, or shifts in the availability of relevant repair skills across one or more cafés. Concrete resources at the individual café are also likely to affect the number of repairs performed. These include access to appropriate facilities, stable working conditions, tools, and spare parts. Such conditions have been challenging at Repair Café Østerbro, where difficulties related to space and storage may help explain the decline in recorded repairs. This suggests that the material and organizational infrastructure surrounding the cafés is an important precondition for sustaining repair activity over time.

The decrease in computer repairs is particularly noteworthy given that, during the midterm period, Repair Café Denmark ran an internal campaign linked to the broader European Right to Repair agenda encouraging support for Windows 10 updates in order to prolong the life of otherwise functional computers. As discussed earlier in this chapter, Repair Café Denmark has engaged with this issue through both advocacy and practical repair initiatives aimed at extending the lifespan of computers through software updates or alternative operating systems. Several interpretations may explain why this initiative is not yet reflected in increased computer repair numbers. The campaign may not have translated into measurable changes in repair activity during the midterm period, and awareness of this opportunity may remain limited among visitors bringing computers for repair. Another possible explanation relates to volunteer capacity. As noted at Repair Café Østerbro, implementing software-related "repairs" depends on having volunteers with the relevant competencies and interest, and the café reported that it had not yet secured sufficient volunteer

resources to offer this type of support consistently, although it remained an ambition for future sessions. but at this stage, it is not possible to determine which of these explanations is most significant. A more detailed examination of category-specific practices and registration procedures is required to assess these underlying causes.

These developments nevertheless illustrate how repair cafés in general are not only involved in hardware repairs but increasingly engage with forms of software-related obsolescence, reflecting an expanding scope of repair practices. Taken together, this suggests that the cafés continue to function as active local hubs for repair practices, where both technical skills and emerging forms of digital repair knowledge are gradually being integrated into the repair activities.

2.8 Concluding Remarks of Initiative

This midterm assessment of the Danish case has examined the continued development of Repair Café Denmark and the activities of four repair cafés located in the Copenhagen area (i.e., Valby, Sydhavn, Frederiksberg, and Østerbro). Building on the baseline assessment, the analysis combines qualitative insights into organizational development and repair practices with quantitative data on repair activities and environmental impact. Our findings indicate a continued strengthening of repair activities within the four cafés between 2024 and 2025. The total number of repaired products increased from 461 repairs in 2024 to 534 repairs in 2025**,** reflecting growing engagement with repair among visitors and volunteers. This development aligns with the broader expansion of Repair Café Denmark, which has continued to grow as a national network and now includes around 145 cafés across the country up from around 130 at the time of the baseline assessment. The increase in repair activity is also reflected in the environmental outcomes of the cafés. Across the four cafés, the estimated CO_2 savings increased from approximately 6182 kg in 2024 to around 6596 kg in 2025**.** These findings support the conclusions of the baseline assessment, which demonstrated that repair cafés generate measurable environmental benefits by extending product lifetimes and thereby avoiding emissions associated with the production of new goods (Lindeburg, 2022). Across the cafés, repair activity continues to be concentrated within a limited number of product categories. Household appliances, audio-visual equipment, computer/tablets, and clothing account for a substantial share of both repair activity and the associated CO_2 savings. But although the overall trends across the cafés indicate increasing repair activity and environmental benefits, some variation exists between individual locations. Repair Café Valby and Repair Café Frederiksberg recorded relatively high repair volumes and environmental benefits, reflecting their capacity to attract visitors and volunteers and the types of

products brought in for repair. In contrast, Repair Café Sydhavn generally operated at a smaller scale, which corresponds with observations of a more informal organizational structure and a lower number of volunteers. Østerbro showed moderate repair activity but experienced a decline in some categories between the two years, particularly in product groups such as computers/tablets and clothing that are associated with relatively high environmental impacts because of their respective emission factors (Lindeburg, 2022).

Taken together, these reflections suggest that the observed increase in repairs and estimated CO_2 savings should not be understood as the result of a single causal factor. Rather, it appears to emerge from an interaction between registration practices, the material characteristics of repaired items, the stability of local organizational conditions, the accumulation and loss of volunteer competencies, and the gradual embedding of repair cafés within their local communities. The recorded number of repairs, and especially the calculated CO_2 savings, should not be treated as exact measurements, but rather as indicative estimates. Their value lies not only in documenting the environmental relevance of repair practices, but also in functioning as motivating tools for the cafés themselves and as concrete evidence that can be mobilized in support of a political repair agenda at municipal, national, and, to some extent, international levels in collaboration with other repair-oriented organizations in the Danish Alliance for Product Lifetime Extension (see Section 2.5).

Beyond their measurable environmental effects, the findings in the midterm assessment also illustrate how repair cafés operate as social sites where repair practices are reproduced and developed. From a Social Practice Theory perspective, this can be understood as an interaction between materials, competences, and meanings that together sustain the practice of repair. The availability of tools, spare parts, and repairable products represents the material elements of the practice, while the technical skills and craft knowledge of volunteers constitute the competence element. At the same time, participants attach particular meanings to repair activities, including environmental responsibility, economic pragmatism, learning opportunities, and the preservation of items with sentimental value. Together, these elements shape the performance and development of repair practices within the cafés.

The analysis also highlights how repair cafés operate through bundles of practices, where different forms of repair activities intersect. The different types of repair: **diagnostic**, **functional**, **creative** and **aesthetic** repair, as well as **educational** interactions, often occur simultaneously during repair sessions. These bundles are supported by the social setting of the cafés, where volunteers and

visitors collaborate, exchange knowledge, and collectively experiment with repair solutions. As a result, repair cafés function not only as spaces for technical repair but also as sites of social repair, where learning, community-building, and sustainability values are reinforced through practice. From this perspective, the environmental outcomes observed in the midterm assessment can be understood as emerging from the stabilization and expansion of these repair practices. As more visitors bring items for repair and volunteers continue to share their competences, the practice becomes more widely reproduced, resulting in higher repair volumes and increasing CO_2 savings.

Taken together, the results of the midterm assessment suggest that Repair Café Denmark continues to play a meaningful role in supporting circular economy practices at the local level. The observed increase in repair activity and environmental impact indicates that the initiative is capable of generating tangible environmental benefits while simultaneously showing signs of contributing to the cultivation of a broader culture of repair. At the same time, the variation between cafés highlights how local infrastructure, volunteer engagement, and organizational conditions influence how repair practices are performed and sustained in different contexts. Continued efforts to support volunteer recruitment, strengthen knowledge sharing, and improve data collection practices may further enhance the social impact of repair cafés in Denmark while making more accurate environmental assessments possible.

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3. CSE Initiative in Norway: Reusing Furniture Initiative in Asker Municipality

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3.1 Presentation of Initiative

Reuse of Furniture is an initiative developed in Asker municipality in Norway to increase the reuse of furniture and various inventory internally within the municipality. The main elements of this initiative are a physical warehouse where furniture is stored, a digital platform developed through an innovation partnership to organize and keep track of inventory, and a person employed as Norway's first, and to this day only, furniture manager to organize the initiative.

Within the innovation partnership agreement with Loopfront (the company working with digital tools for the reuse of building materials and inventory), there are 14 follow-on municipalities from Asker's surrounding municipalities (former Viken County). Thus, in this initiative, they have thought very specifically about scaling, but an important question is how this should be organized in the various municipalities, and not least success factors and obstacles for the various municipalities. In the mid-term assessment, we have therefore looked into the reuse of furniture in three of these municipalities. Throughout this report, we highlight changes in practice consequence of the including of these follow-on municipalities in this project. By doing so we have mapped changes in these municipalities as well, comparing the situation from winter/spring 2025, their "baseline", with September 2025.

3.2 Case Specific Methodology

This case study applies the general methodological framework outlined in Chapter 1.4. It assesses the Reuse of Furniture initiative through qualitative and quantitative approaches, integrating Social Practice Theory and Life Cycle Assessment.

3.2.1 Contextualization of Methods

The methodology was tailored to account for the characteristics of the Reuse of Furniture initiative and available data. We have operationalized the questions as set out in document *D5.1 Methodological Guidelines for WP5. Environmental Impact Assessment* (Markussen et al., 2024).

3.2.2 Selection and Implementation

We have used a combination of quantitative and qualitative data. The quantitative data was primarily used to create the environmental mid-term assessment, and consists of material flow retrieved by the furniture manager in Asker from the reuse platform Loopfront from two periods.

- From January 24th, 2025, to September 1st, 2025 (between baseline assessment and mid-term assessment)
- From September 1st, 2025, to September 28th, 2025.

The qualitative data consists of three in-depth interviews (45 minutes to 1 hour), conducted in September 2025 with representatives from three of the follow-municipalities (referred to with their first letter, as municipality B, L and R). While these municipalities have different prerequisites for reuse of furniture, they are all connected to the initiative in Asker and to using the digital platform. They are all inspired by Asker's work in this area, and in this mid-term assessment, we look at the practices in the follow-municipalities as a sort of extension of the practices in Asker – as examples of scaling across municipalities. The descriptions given by the informants in the different follow-on municipalities can furthermore act as accounts of user experiences for working with the reuse of furniture. The informants all have various lengths and levels of experience in this field. In addition, the furniture manager in Asker provided written descriptions of current practices and eventual changes in the operation of the initiative in Asker since the baseline assessment was conducted.

3.2 Case Activities/Flow

3.2.1 Furniture management in Asker Municipality

Upon the question on whether there have been any internal changes in the operation of the initiative in Asker since January 2025, and eventual the reasons for this, the furniture manager explains that there has been little activity due to her having limited capacity (one person in a 50% position). During the first half of 2025, the warehouse for furniture has been closed, because of the limited capacity, as well as the prioritizing of other tasks in the role of furniture manager.

There is no one else in the municipality who can help keep the furniture warehouse open. This means that the storage has become full during 2025. Starting in September 2025, a substitute was hired to manage the furniture warehouse in a 20% position to help clear out furniture from the warehouse. As a result, the warehouse is open one afternoon a week and is actively visited each

week. There are now several larger furniture reuse projects in Asker Municipality that are collecting furniture from the warehouse for kindergartens, schools, and office workspaces.

The position of the furniture manager has not been duplicated, in Asker, nor the other follow-on municipalities as a consequence of the Reuse of Furniture Initiative. The furniture manager explains that it is currently a poor economic situation in Norwegian municipalities, and that only the larger municipalities may have similar roles, meaning employees having reuse of furniture as a part of their position. Also, these municipalities have already had people with these types of responsibilities for some years.

The furniture manager in Asker describes the current situation where one employee in Asker municipality decides to begin the process of acquire furniture until the furniture is in place within the organization, as well as her role in the process, in the following way:

"Asker has routines for furniture procurement. First, the employees should assess their actual *needs* in their workplace. Then, they can contact the furniture warehouse or check Loopfront to see if those needs can be met there. The person managing the furniture warehouse responds to emails and reserves the furniture in the warehouse. The organizations book their own transportation or pick up the furniture themselves, depending on budget, size of the furniture, and vehicle availability. If we do not have the furniture they need internally, they can purchase used items from one of the suppliers on the framework agreement for the procurement of used furniture."

It is the same furniture warehouse (600 sqm) as in January 2025, located a few minutes by car from the center of Asker. There is still no data on the average distance the furniture travels. Asker is a relatively large, and not least, elongated municipality, and the products are transported from the warehouse to sites over the entire municipality. Most sites are, however, close to Asker city centre.

3.2.2 Development and Use of Loopfront's Digital Platform

The furniture manager further explains that the digital platform developed by Loopfront has seen increased usage since the baseline assessment. In January 2025, there were 270 internal Loopfront users in Asker Municipality, while by September 2025, this number had risen to 442.

There have been several requests regarding the need for furniture reuse, and there is a desire among employees to use Loopfront more actively, making it easier for them to see what is

available in the warehouse. This will also benefit those who do not work close to the warehouse, as Asker is a large municipality with significant travel distances.

However, there are currently no established routines for the employees in Asker Municipality on how to use the platform. Thus, there is potential for more active use. According to the furniture manager, this will require significant supervision, or follow-ons, which she (and the municipality) currently lacks the capacity to provide. As of September 2025, the number of external users is still 6, the same as in January 2025.

Loopfront launched a new version of the platform available from September 4, 2025. Several of Loopfront's users, including Asker Municipality, have contributed feedback during the development process. The updates include smart, AI-driven mapping using image recognition, an overview of products across locations including the condition and potential repair needs of items, a simple marketplace for all organization employees (developed in collaboration with, among others, Asker Municipality), and planning status so that project managers or architects can gain an overview and reserve products for various projects.

3.2.3 Waste Management, Work Training, and Redesign

There is still no overview of what furniture is discarded in Asker Municipality or how this type of waste is managed. The furniture manager received questions in both January and September 2025 regarding the number of products, types of products, and/or weights of products that end up at the recycling station from the furniture warehouse or from the organizations in Asker Municipality. Unfortunately, neither she nor anyone else in the municipality has had the capacity to record this information, as she notes.

The furniture reuse initiative is not significantly focused on job training, aside from transportation services provided by NAV Modus (job training for youth). In the baseline assessment, the initiative included repairing and redesigning worn or broken furniture in collaboration with municipal work centres. For the mid-term assessment, we asked the furniture manager to document the number of hours dedicated to job training as a result of the initiative. As of September 2025, it was reported that 0 hours had been spent on job training related to the furniture warehouse.

The furniture manager explains this as a result of her capacity working with the furniture storage, which again is the base for potential work training. This is also, according to her, a consequence of the financial situation in the municipality, and prioritizing of funding internally. She describes her role as multifaceted, and that it can therefore be challenging to distinguish between the work she does for one project, and the work she does for another. However, she stresses that although

work training in relation to repairs has been reduced, they still have used work training for moving project. There is no data on how many hours this entails. Furthermore, there are furniture carpenters present at one of the work centres in the municipality, and they take on several smaller assignments, including making smaller furniture, sewing cushions, bags, and other minor tasks on behalf of the property department in the municipality.

In January 2025, there were few repair or redesign efforts involved in this initiative because the municipal enterprises did not have the budgets for it. In January, the furniture manager mentioned that they had plans to invest more in this area in 2025, with a framework agreement in place from December 1, 2024, with several actors in the field of repair/redesign. As of September 2025, they are undertaking some redesign in projects and have a framework agreement for redesign, upholstery, and furniture carpentry. The framework agreement consists of two contracts.

One contract is for "Redesign/Upholstery/Furniture Carpentry": This contract includes several suppliers of varying sizes in each category, based on their expertise. Within this contract, the scope can range from reupholstering a single chair to redesigning 50 cabinets.

The other contract is for "Redesign in Projects." In this contract, suppliers are tasked with developing a new product from surplus furniture/materials within the municipality and creating a new product that meets a different need. They handle the entire process, including assessing the needs, designing the new product, and producing and delivering it. However, the municipality's budget allows for repairs and redesigns only in investment projects.

3.2.4 Follow-on Municipalities in the Project

A significant change in the furniture reuse project is that the partner municipalities have become more active in their efforts. The furniture manager explains that two partner municipalities (municipality B and L) have adopted Loopfront following their inclusion in the innovation partnership. There is not yet any formal collaboration among the follow-on municipalities, but they are engaging in some knowledge exchange. After a couple of conversations with the furniture manager in Asker, representatives from municipality B realized that they could be a follow-on municipality, which they viewed very positively. The interviewee from municipality B described the collaboration among the partner municipalities in the following way:

"I feel that everything is actually going through the furniture manager in Asker. We have had some meetings with several municipalities, and we are working closely with Oslo, and we talk a lot with Bergen and Trondheim, but I don’t get the impression that we are working very much across the

board in this agreement [for the follow-on municipalities], and I haven't kept track of who else has signed onto the agreement" (municipality B).

The three follow-on municipalities we have interviewed for the mid-term assessment operate furniture reuse in different ways. Municipality B, a neighbouring municipality to Asker, explains that their reuse pilot also involves the reuse of building materials and that they have a total of three warehouses (an outdoor stone storage, an indoor materials warehouse, and an indoor furniture warehouse). Everything is recorded in Loopfront. Reuse is described as time-consuming work: "There is always a lot to do. And there is a lot of logistics involved. There are a lot of phone calls and a lot of emails." (B)

Furthermore, the representative from municipality B elaborated on how the municipality, by becoming a follow-on municipality over the past year, has built a new system for reuse:

"We have built a system for this over the last year, which I am super proud of, because it has really been a bit like this: I have a coffee maker, do you want it and can you come and pick it up? That has been reuse in the municipality. So, it has been a simple 'person-to-person' reuse, not a system for it. The 'hub' for this is that we have set up a furniture warehouse [1000 sqm] in an old school, where we receive used furniture from places that are closing down (schools, nursing homes, etc.). We go in, assess everything that is reusable, bring it into the warehouse, register it in Loopfront, and make it available to schools, housing, nursing homes, kindergartens, etc. There are over 200 service locations in the municipality. The warehouse is open between 12 and 14 every Wednesday, and everyone can drop by. Everyone in the municipality has an email address with access to Loopfront so they can see what is available" (Municipality B).

The informant (B) notes that broad access to Loopfront has likely been the biggest difference since they became a follow-on municipality in the spring of 2025, with over 700 users from the municipality having accessed the platform.

As part of this effort, municipality B has established a standard for how to vacate a building within the municipality. Previously, a waste management company would empty and discard everything, but now the municipality first organizes one or two open days at the site, where all service locations in the municipality can come and take what they need for their own service sites. After that, the reuse team evaluates the remaining items to determine what is reusable and can be sent to the furniture warehouse. The rest goes to waste, but this is relatively minimal. According to the representative from municipality B: "So, there is both a system and a routine for vacating buildings,

combined with a warehouse and a digital system, and that's how we have built it up. It's a success to see that so much less waste is being sent to disposal from municipal services" (Municipality B).

Since the furniture warehouse is new since the baseline assessment, the informant from municipality B notes that the biggest challenge is raising awareness among people about the existence of this initiative and that it is easy to use. Another challenge is managing the warehouse alone. Although the municipality has agreements with work centres that provide labour, the informant indicates that she needs more physical assistance in the warehouse during the limited opening hours (when it tends to get busy) and for organizing and maintaining oversight.

Nevertheless, she emphasizes that municipal employees are utilizing the warehouse, and everyone who comes in to see what is available is "…enthusiastic and grateful and excited about this opportunity" (Municipality B).

The informant representing municipality L reports that becoming a follow-on municipality requires little resources on their part, as they do not need to conduct their own procurement processes for reuse, but rather follow the offerings selected by Asker Municipality. Municipality L is currently in an early testing phase where they are working to identify pilot projects, test solutions, and access the reuse platform, thereby laying the foundation for conducting this reuse work. There are various access levels to the platform, but in theory, everyone in the municipality should have access. Municipality L plans to create a framework that will first be tested on furniture, with plans to extend it to building materials in the future.

The informant further described how the reuse journey looks in practice today: "We can start where we have something, and at a school, we have a lot of furniture. So, we know that we will be rehabilitating this school, and then a new school will be built. Therefore, an assessment must be done regarding what is in the building and what can be reused. It is legally required to conduct a reuse assessment when you are demolishing or rehabilitating a building. Some have jokingly said in the municipality that a reuse assessment is a report typically prepared by a consultant that outlines the reuse potential of the current school. It becomes a PDF that ends up in a drawer. Typically, you would then engage a supplier or an interior designer who will indicate what we need for the new school. Jumping to buying new is very easy. Often, the specifications for the new school are formulated in such a way that it is difficult to meet them by using existing furniture or by purchasing used furniture from other sources."

In municipality R, we interviewed the system administrator for the municipal reuse platform. This person explained that they had been offered the opportunity to participate as a follow-on

municipality through a municipal network for climate transition. Municipality R is also in an early phase of systematic reuse and was waiting for overarching guidelines for reuse as of September 2025. The informant explained how the municipality envisions working on reuse as a follow-on municipality. They have access to an old building that was intended to be used as a temporary storage space for furniture, but until now, they have lacked a good system for managing the furniture in the building. Currently, the reuse process occurs on a person-to-person basis via Teams.

When asked whether becoming a follow-on municipality has changed any routines or tasks within the municipality, the informant explained that the awareness that the municipality would eventually use a digital reuse platform has already impacted their work tasks: “I have had it in the back of my mind that a platform like this is coming; when I have worked on the Teams platform, when I have set up the temporary furniture storage, and when I have worked on the guideline that will eventually be approved” (Municipality R).

3.3 Practices of Initiative

In a Social Practice Theory perspective, the Reuse of Furniture initiative involves three key elements (additional elements added since the baseline is marked in red):

- **Materials:** Used office furniture, materials for refabrication or fixing broken furniture; reference projects and numbers; municipality's furniture warehouse**;** physical labour to organise the furniture warehouse; public procurement frameworks favouring reuse; framework agreements for redesign; municipal sustainability strategies; financial support; users, Loopfront digital platform; reuse assessments.
- **Competences:** Knowledge about existing furniture and the shape of these; skills in managing the digital platform efficiently; navigating the policy-administrative municipal system; project management; knowledge on climate friendly purchasing and procurement processes; subsequent competences within repairs or refabrication of furniture.
- **Meanings:** For these initiatives to be implemented in the daily activities of the municipalities it has to prove to be financially responsible. This aspect is particularly important to document effects and legitimize further efforts. Moreover, the initiatives are rooted in an environmental objective, with consequences for both *carbon emissions* and *resource depletion*.

Together, all three elements are essential for the continuation of the Reuse of Furniture initiative and are elaborated below.

3.3.1 Materials

Different types of furniture and inventory play the main role in this initiative, and the sheer number of furniture and inventory in circulation has increased in the period since the baseline. The furniture manager in Asker also points out that numbers are still important drivers for keeping such projects going. Municipality B confirms this, explaining that documentation is key for being able to defend spending public resources on working with reuse initiatives, being able to argue economic savings and using the numbers to assert the importance of these initiatives:

"We have to use these numbers because our municipality needs to save one billion kroner in the coming years. To justify that we are running a project like this, we need to show that we are saving money with it. CO_2 reductions and waste saved are part of that, but the fact that we can actually 'make a strong point' by demonstrating that we have saved over 7 million kroner in avoided purchases is truly priceless. Because we face a lot of resistance. This is an old organization. It is hierarchical. People have many opinions about what municipalities should spend time and resources on, both internally and externally, so it is important that we can present some solid numbers; otherwise, this project might have been terminated a year ago." (Municipality B).

In this area, Municipality L differed from Asker Municipality and Municipality B in that L lacked a baseline for savings. The informant knew that there was some small-scale reuse taking place in the municipality but looked forward to utilizing the reuse platform through a few pilot projects to demonstrate concrete results. This would be part of the effort to quantify the work related to climate and the environment in the municipality. The numbers could be used to track their own progress but also as arguments to continue the reuse efforts, to hire an environmental advisor, or to establish a furniture warehouse.

Municipality R is facing similar challenges. The informant from this municipality explained that it was impossible for them, accounting wise, to extract municipal costs for furniture, as all investments in the municipality were bundled into the same investment budget: “So when Asker Municipality points out that we have cut the procurement budget for furniture by this much, we can't say anything similar because we do not have that type of overview” (Municipality R).

However, the informant noted that he didn’t attach much importance to quantification and that it likely wasn’t very practical to spend so much time and resources on it: “There may not be a need for everyone to sit down and purchase systems and train their own staff to calculate exactly that—especially if it’s not a very significant amount for us.” Instead, he wanted to communicate that

reuse, in itself, had a positive effect, showcasing concrete examples of furniture and other equipment that were not discarded but given new life in other organizations.

Moreover, **financial support** is important for reuse. The representative from municipality B applied for and received funding (1.8 million NOK) from a program called Klimasats. Municipality L mentioned that his temporary three-year position was financed by Klimasats funds combined with internal climate fund resources. His position was linked to the purchasing department in the municipality, but the goal was to integrate the reuse work into the operations department. The informant questioned what would happen to the work then, and what the number of positions and the required percentage of those positions would be.

Municipality R highlighted the importance of **overarching guidelines** for the municipality before they could properly begin their reuse efforts – a so-called reuse hierarchy. The top priority here was to reuse items internally within the municipality. If that was not possible, it would be evaluated whether the item could be sold, or further, given away to volunteer organizations, private individuals, or businesses, in that order. The lack of such guidelines resulted in a buildup of furniture in the warehouse, as the municipality had not received the green light to sell or give away items externally. The absence of guidelines also meant that processes moved quickly: “Then it often happens like this: we are going to sell this building here; it is going to be listed for sale in two weeks, and it has to be emptied *now*.”

Furthermore, Municipality R also lacked **framework agreements for redesign**, which made it challenging to give old furniture a more modern appearance and thus easier to sell. Municipality L pointed out that the **requirements for furniture** in, for example, a new school needed to be formulated in a way that did not lock furniture choices into specific forms, colours, and materials:

“It is difficult to meet those requirements that do not necessarily pertain to technical specifications or performance, but simply because we cannot find, for example, ten red chairs with wooden legs, but we find ten blue chairs with metal legs in the used market – or perhaps that’s what we have internally” (Municipality L).

Geography, area, and opportunities for storage were other important material prerequisites for reuse, according to the informant from Municipality L. They pointed out that although many Norwegian municipalities face similar challenges, they vary greatly in size and have different budgets and capacities for engaging in reuse. Municipality L and Asker are roughly of similar size, but municipality L does not have access to a furniture warehouse. They had explored the

possibility but had not found suitable premises, and the informant assumed that cost was also a factor. This difference made it challenging to "copy" the model from Asker Municipality.

Regarding **personnel resources** for engaging in reuse, municipality R is significantly smaller compared to the other municipalities. The informant from this municipality noted that there was little flow of furniture within the municipality, and as a result, they could not employ someone in a position similar to the furniture manager in Asker. Nevertheless, the informant had taken on a sort of furniture manager role in the early phase of the reuse work, as part of the tasks related to climate and environmental efforts in the municipality.

Municipality R currently has a framework agreement for used furniture, but this also meant in practice that the municipality was locked into purchasing furniture from the agreed supplier, limiting their choices regarding the types of used furniture they could procure. Furthermore, the informant raised concerns that each municipality needed their own guidelines for purchasing used items, and that this should be standardized at the state or county level.

3.3.2 Meanings

The furniture manager in Asker explained that working with this was still very rewarding, and she was especially happy to see that the municipality now had larger reuse projects (also with 100% reuse) and had saved a lot of money.

The informant from municipality B emphasized that the municipality aims to be a **pioneer in circular economy**, and that this commitment carries obligations. However, the significance of climate and environmental considerations in sustainability often falls short when it confronts demands for **economic savings**: “It [circular economy] becomes less important as economic savings gain traction and focus.” Moreover, she stressed the importance of stories for driving reuse: “It helps that we have metrics on tons of CO_2 and waste, but also that we have some good ambassadors out there who say, ‘Yes, but I had a completely empty classroom, and instead of spending 80,000 Norwegian kroner to fill that classroom, I just went to the furniture warehouse and picked up desks and chairs for all my students’. Such stories also help” (B).

On the personal level, the interviewee from municipality B explained that she very much enjoyed seeing things having long lives and that this was one of her core personal values. Also, she personally found it very rewarding:

“Working with reuse is incredibly rewarding. It’s a lot of fun. Building a system that actually works has been very exciting. And what I find most enjoyable is seeing all those who have worked for a long time in the municipality—like all these maintenance technicians, for example—when

they come in and say, ‘You have no idea how much we’ve thrown away in recent years: this is absolutely fantastic.’ That makes me think that this is worth it” (B).

The informant from municipality L also experienced that reuse had **great personal significance** for them: “I made a career shift because I wanted to work, perhaps not specifically with reuse, but with sustainability, and thus also reuse. My area of interest is mainly the construction industry. For me, this work has great personal value. I find reuse very exciting. I approach it with great enthusiasm, and I can carry the motivation forward. There are many who work with sustainability who find it a bit challenging. But I have found this to be very rewarding in a municipality, especially when I have a strong mandate behind my position to work on it” (L).

The informant from municipality L described that he was working in a municipality that was recently merged with another, and that the newfounded municipality was grounded in **sustainability goals**, which provided some momentum for reuse efforts, regardless of local political leadership. The interviewee found the reuse work rewarding. According to him, there were two main drivers for reuse: **economics or climate and environment**. As a sustainability advisor, he was more focused on the climate and environmental aspect but acknowledged that the potential for cost savings was a governing factor at the municipal level, especially in a time of limited budgets. Nevertheless, he emphasized that these were not always conflicting aspects:

“At the same time, I have spent some time emphasizing that the understanding many have that sustainability or climate and environmental considerations cost money is not necessarily true. Because many times, climate, environment, and economy go hand in hand” (L).

The same municipality also worked on linking the reuse initiative to a **social sustainability** profile by collaborating with employment initiative organizations.

The informant from municipality R worked as a climate and environmental advisor and primarily entered the municipality to work on the Norwegian eco-certification Miljøfyrtårn, and other environmental management. According to him, everyone in the municipality, including the leadership team, understood that there was potential in reuse, and that although the municipality had not yet managed to extract precise economic savings in this area, the assumption was that the municipality could save a lot. The digital reuse platform was also inexpensive compared to the use of consultants for similar services. This, combined with the fact that there were no financial obligations associated with being a follow-on municipality, made it relatively easy to participate in these types of processes.

3.3.3 Competencies

Upon the question if there was anything additional types of competencies for this initiative to run today as compared back in January 2025, the furniture manager in Asker pointed to the development of solid routines for employees to use the digital reuse platform. Furthermore, she argues it will demand significant follow-ups for them to be able to use the platform as originally intended. So far in 2025, there had not been sufficient time for this work, but the manager hoped they would be able to establish this by winter 2026. In the baseline interview conducted in January of 2025, she stressed the importance of learning to use the platform *properly*, while in September, the focus was using the system as part of *regular activities*. Developing routines for using the platform is one strategy to mainstream the practice of reusing furniture throughout the municipality.

In municipality B, the interviewee reflected upon the differences between working with reuse in a small start-up company (with which she had previous experience) compared to working with similar issues in a municipality. This required of her to adopt a new set of skills and competencies. She explained that: “working in a municipality is very different than working at a start-up company, where the distance between idea and reality is very short. I work in a big municipality with a clearly defined hierarchy. Adapting to this has maybe been the biggest challenge for me” (B).

All the informants emphasized the importance of effective project management to systematize reuse through proper planning, logistics, the ability to motivate, and collaboration across different departments within the municipality. Municipality L summarized the competence aspect in the following way:

“Learning about reuse, it involves thinking in a very holistic and somewhat complex way, and you are challenged—I don’t know if it’s so much for my own sake—but you encounter many planning approaches that don’t align with the principles of reuse. So, one has to adjust, not necessarily attitudes, but the way we do things, because reuse is not considered early enough in projects, and that is a significant issue. In that sense, it challenges me, but also those who are supposed to implement reuse in practice. One may need to change how things have been done for 20 years?”

Utilizing used furniture, or repairing/redesigning, in new projects may be more **time consuming** than it would be ordering new furniture. This may prove a barrier from reusing furniture in some projects. The informant in municipality L elaborated that furniture orders were often placed too late in municipal projects, leaving insufficient time to incorporate used furniture, for example, into a new school where everything needed to be in place for the start of the school

year. This was also related to the importance of **knowledge about environmentally friendly procurement and procurement processes**. By being a follow-on municipality, they could benefit from Asker Municipality's expertise in this area.

Furthermore, municipality L highlighted the need for very broad competence overall to assess reuse potential or condition. The informant pointed to the competence needed to conduct a reuse mapping (identifying which materials and furniture are suitable for reuse – this is mandated by law during the demolition or rehabilitation of buildings) and noted that this type of work was often outsourced to consulting firms due to a lack of time and internal competence within the municipality. The digital reuse platform was helpful in this regard, as it can generate a mapping report that meets the same requirements.

Municipality L explained that, although collaborating on reuse across municipalities was perceived as very time-consuming, it was beneficial to gain insights into project-specific experiences from other municipalities. This sharing of experiences took place through webinars organized by Loopfront.

Municipality R highlighted the need for overarching guidelines on how employees should utilize the reuse platform, as well as the development of routines for implementing this new system. The informant further emphasized the need for **competence in redesign and aesthetics**, and not least, that **attitude was an important competency**—that one must be positive about reuse and open to the idea that furniture could indeed be reused.

The informants also reflected on which parts of the municipality had the best prerequisites for managing reuse when it would transition from a pilot phase to operational phase, and what types of municipal positions were most aligned with the competencies related to reuse work. Municipality L pointed to the service department within the municipality, while according to municipality B, it would be advantageous to incorporate reuse work into the job description of someone already employed in the municipality who had shown enthusiasm for the reuse project and could take ownership of it going forward—ideally in a type of maintenance role.

3.4 Environmental Assessment of Initiative

The environmental impact of the Reuse of Furniture initiative is primarily assessed through the CO_2 savings generated by reusing furniture and inventory instead of discarding them. All numbers in this section are retrieved from Asker municipality. Loopfront's digital reuse platform estimates savings in three different values: financial savings, CO_2-emissions savings, and waste savings. The financial savings are operationalized through the sum of the estimated cost to buy the

materials. Savings of waste is estimated by the sum of the weight of the material. Loopfront estimates climate footprint in CO_2-equivalents. The number emissions savings is the sum of the manually registered values for category and weight and automatically estimates which are generic extracts gotten from the open resource EPDs and the one Click LCA Database. See baseline assessment for more details on the Loopfront platform.

There are several product types registered in the Loopfront database (new products for mid-term assessment marked in red):

- Acoustic furniture
- Lighting
- Tables
- Ergonomic equipment
- Wardrobe and closet
- Shelf and chest of drawers
- Desks
- Sofas and armchairs
- Data & Accessories
- Audio and video
- Telephony equipment and accessories
- Carpets and textiles
- Kitchen
- Outdoors
- Tools

The total number of products registered as of January 2025 was **18 089** products, including furniture, ICT equipment and building materials. In September 2025 this number had increased to **26 081.**

The database also contains number of orders for chosen periods. Note: it is not possible to get the number of products per order, therefore, orders can contain multiple products. Here are the

number of orders for the baseline and the mid-term assessment, including the period in between the assessments:

- January 1st to January 23rd, 2025: 6 orders
- January 24th to September 1st, 2025: 515 orders
- September 1st to September 28th, 2025: 140 orders.

Further, the database can provide information about the weight of goods sold. We have selected the same periods here:

- January 1st to January 23rd, 2025: 355 kg
- January 24th to September 1st, 2025: 22 412 kg
- September 1st to September 28th, 2025: 1 616kg

The database gives reports on savings in CO_2, money and waste. For the whole inventory, the following savings in CO_2 were extracted for the same selected periods:

- January 1st to January 23rd, 2025: 1.12 tonnes
- January 24th to September 1st, 2025: 78.5 tonnes
- September 1st to September 28th, 2025: 5.7 tonnes

Moreover, the following financial savings were reported (again, these are calculated as savings compared to a newly purchased product):

- January 1st to January 23rd, 2025: NOK 52 600
- January 24th to September 1st, 2025: NOK 2 567 249
- September 1st to September 28th, 2025: NOK 135 245

3.5 Concluding Remarks of Initiative

In the baseline assessment, the conclusion pointed to an expectation of a growing number on savings (CO_2 emissions, money and waste) as more people, including those in the follow-on municipalities, started using the platform. In Asker Municipality, significant reuse projects have been carried out through 2025, demonstrating a large volume of reuse and resulting in substantial

cost savings for the municipality. They can also point to projects with 100% reuse. In the baseline interview conducted in January 2025, the furniture manager emphasized the importance of employees learning to use the platform properly, while by September, the focus shifted to integrating the system as part of regular activities.

Many Norwegian municipalities find themselves in a challenging economic situation, and this influences the conditions for investing in reuse initiatives. As one of the informants emphasizes, the focus on measures for circular economy diminishes when under economic pressure. Many view climate initiatives as costly. Access to data on the economic savings resulting from reuse projects is therefore highlighted as crucial for ensuring the continuation and also the scaling of these projects. Having access to digital tools, such as Loopfront, simplifies these processes and, in turn, strengthens the work with reuse.

Further work focused on developing effective routines for employees to utilize the digital reuse platform. There had been insufficient time for this so far in 2025, but the furniture manager hoped to establish these routines during the winter of 2026. Municipality B also emphasized that the main goal was to institutionalize reuse by mainstreaming it into daily operations, and that this would be the primary focus in 2026.

We find that whilst there has been great progress since the baseline at the beginning of the year, the progress has primarily taken in Asker Municipality, where the routines and culture for reuse have already been in place for some time. In the follow-on municipality, this development is slower. However, the involvement of the municipalities in the Reuse of Furniture Initiative has led to some changes in the municipalities that might have been more difficult to achieve in the absence of the initiative. The informants all emphasize the importance of being a part of this project, and how its characteristics, with Asker being a forerunner municipality and doing much of the planning, have made it easier for the other municipalities to be on board. Furthermore, we find that the situation currently observed in these municipalities serves as a solid foundation for further commitment in reuse on a larger scale.

4. CSE Initiative in Latvia: Analysis of Nomales

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Picture 13: Apmaiņas punkts Vietalvas ielā 5. Autors: ZWP

4.1 Summary and Context

The construction waste exchange point Nomales continues to operate as a local hub for the reuse of construction materials and selected household items. Established within the Waste to Resources LIFE project and operated by the private waste management company CleanR, the initiative aims to promote material reuse, reduce waste generation, and encourage residents to participate in circular economy practices.

In 2025, CleanR expanded the reuse infrastructure by opening a second exchange point at Vietalvas iela 5, located within a modern waste sorting facility in Riga. The addition of this site represents an important step toward scaling the reuse model and improving accessibility for urban users. While Nomales continues to function as the original exchange location serving primarily renovation-related material flows, the Vietalvas site operates as a more accessible and visible reuse space integrated into daily waste disposal activities.

Both exchange points are maintained under the LIFE project framework and are planned to remain operational until 2028, followed by a five-year post-project monitoring period to assess long-term outcomes and environmental impacts.

This midterm assessment reviews developments since the baseline evaluation conducted in 2024. It examines changes in infrastructure, operational practices, material flows, and community engagement at both sites. The assessment also analyses emerging challenges related to monitoring, governance, and accessibility, while identifying opportunities for improving

environmental assessment and scaling construction material reuse initiatives within the broader circular economy transition.

4.2 Changes Since Baseline

Since the baseline assessment conducted in 2024, several developments have taken place in the operation and context of the construction waste exchange initiative managed by CleanR. These changes reflect both incremental improvements to the existing Nomales exchange site and the expansion of the reuse infrastructure through the establishment of a second exchange point at Vietalvas iela 5 in Riga. Together, these developments illustrate how the initiative is evolving in terms of infrastructure, governance arrangements, data practices, and public engagement, while also revealing emerging challenges related to monitoring, accessibility, and operational capacity.

One of the most visible developments since the baseline period is the expansion of the physical infrastructure supporting reuse activities. The Nomales site has remained operational and has undergone several minor improvements aimed at enhancing its usability and year-round functionality. These improvements include the installation of electric heating, as well as enhanced cleaning and winter maintenance to address practical issues such as mud, moisture, and the deterioration of materials during colder months. While these upgrades do not fundamentally change the structure of the site, they contribute to improving the quality of the space and making it more suitable for continued operation. The most significant infrastructural development, however, is the establishment of a second exchange point at Vietalvas iela 5, which opened in March 2025 within one of Latvia’s most modern waste sorting centres. This new location benefits from higher visibility and a more integrated position within the city’s waste management infrastructure. In addition, the site is significantly better connected to public transport networks, which increases its accessibility for urban residents who do not rely on private cars.

Digital tools supporting the initiative have also been gradually improved. The online platform lietovelreiz.lv, which is run by Zero Waste Latvia and serves as the main digital interface for listing available materials and facilitating exchanges (products from Vietalvas iela site are not accounted for and thus not listed), has been updated to allow partial pick-ups of listed items. This feature enables users to indicate when only part of a donated material batch has been collected, improving the accuracy of listings and making it easier for users to understand what materials remain available. Despite this improvement, several functionalities remain limited. Most notably, the platform still does not support an online reservation system, meaning that materials cannot be formally booked or temporarily reserved by users before visiting the site. This limitation reduces

the predictability of exchanges and may discourage potential users who are unsure whether materials will still be available upon arrival.

In terms of human resources, the operational structure of the two exchange points differs significantly. The Nomales site continues to be managed by a single part-time staff member employed by CleanR. This employee works primarily at the adjacent waste sorting yard and supervises the exchange area alongside other responsibilities. Their role includes overseeing the condition of materials, maintaining order in the exchange containers, and providing occasional guidance to visitors. In contrast, the Vietalvas site operates without dedicated personnel responsible specifically for the exchange point. Instead, the space functions largely as a self-service area where visitors can leave or collect items independently. While sorting facility staff may occasionally direct visitors toward the exchange area, they are not directly responsible for managing the reuse activities. This model significantly reduces operational costs but also creates challenges for monitoring, coordination, and ensuring that materials are used appropriately.

Data collection practices represent another area where differences between the two sites have emerged since the baseline assessment. At the Nomales location, visitor numbers and material exchanges continue to be tracked through the online platform and internal reporting. Between January and October 2025, approximately 157 visitors were recorded at the site. This provides at least a partial quantitative basis for assessing activity levels and identifying patterns of use. However, the newly established Vietalvas exchange point does not currently collect systematic quantitative data on visitors, materials deposited, or items collected. Because the space operates without dedicated staff and functions as part of a larger sorting centre, monitoring material flows has not yet been integrated into the operational procedures. As a result, it is currently difficult to compare the performance of the two sites or to assess the overall environmental impact of the reuse initiative across both locations.

Community engagement activities have also evolved during the reporting period. While the Nomales site did not host any dedicated public events during 2025, the launch of the Vietalvas exchange point was accompanied by several outreach initiatives aimed at increasing public awareness of reuse practices. Two public events were organised at the site during the year: an official opening event in March 2025 and a graffiti art activity in June that aimed to attract younger audiences and introduce creative approaches to reuse. In addition, the Vietalvas facility has hosted a number of guided visits from different organisations, including representatives from the CleanTech sector, the Ministry of Climate and Energy, and academic institutions. These visits have

helped position the exchange point as a demonstration site for circular economy practices and have increased its visibility within professional and policy networks.

Partnership structures surrounding the initiative have remained largely stable since the baseline period. Cooperation with Zero Waste Latvia continues, primarily through the maintenance and development of the lietovelreiz.lv platform, which provides visibility for the reuse activities and allows materials to be listed online. However, formal collaboration with the Riga municipality remains limited. Although the exchange points contribute directly to broader municipal goals related to waste prevention and circular economy development, the initiative currently operates largely as a private-sector and civil-society collaboration rather than as a fully integrated municipal program.

Finally, accessibility has emerged as an important differentiating factor between the two sites. The Nomales exchange point is located in an area that is primarily accessible by private car, which tends to attract users who already have access to vehicles, such as small contractors or individuals undertaking renovation projects. In contrast, the Vietalvas location is accessible by public transport and is situated closer to densely populated urban areas. This improved accessibility may broaden the user base by enabling participation from residents who rely on public transport, including students and other urban users who may not otherwise engage in construction material reuse initiatives.

4.3 Product and Material Flow

The exchange points operated by CleanR function as local hubs where construction materials and household items can be deposited for reuse rather than being discarded as waste. The material flows observed at the two sites – Nomales and Vietalvas – reflect differences in their operational setup, user patterns, and monitoring systems.

At the Nomales exchange point, visitor activity and material exchanges are partially documented through internal reporting and the associated online platform. Between January and October 2025, approximately 157 visitors were recorded at the site. The materials donated and collected primarily consist of construction-related items originating from small-scale renovation or repair activities. Typical materials include tiles, wooden boards and panels, wallpaper rolls, leftover paint, insulation materials, and other building supplies remaining after household renovation projects.

In addition to construction materials, the exchange point occasionally receives furniture, household electronics, lighting fixtures, tools, and other functional items that can be reused by other users.

According to site staff, materials are removed only when they become damaged, hazardous, or unsuitable for further use.

Material flows at the Vietalvas exchange point show a somewhat different pattern. Located within a modern waste sorting facility, the site functions as a largely unmanned exchange area where visitors can leave or take items without direct supervision. As a result, the range of items observed at the site is somewhat broader and often includes smaller household objects such as dishes, books, decorative items, and consumer goods, alongside construction materials and occasional electronic devices.

Many users encounter the exchange point while visiting the sorting facility for other waste disposal purposes and may decide spontaneously to leave reusable items there. However, because the site operates without dedicated monitoring systems, systematic data on material quantities, categories, or turnover rates is currently unavailable. This limits the ability to compare material flows between the two sites.

4.4 Operational Data

The operational characteristics of the Nomales and Vietalvas exchange points differ in several important aspects, reflecting their distinct management approaches, integration within waste infrastructure, and levels of operational oversight.

The Nomales exchange point operates with the support of one part-time CleanR employee who also works at the adjacent waste sorting yard. This staff member oversees the condition of materials placed in the exchange containers, maintains order at the site, and occasionally assists visitors. The shared staffing arrangement allows the exchange point to operate with minimal additional personnel costs while maintaining a basic level of supervision.

The Vietalvas exchange point operates without dedicated staff responsible specifically for the reuse area. Instead, the exchange space functions as a self-service area integrated within the waste sorting facility. Visitors independently deposit or collect items, while sorting facility staff may occasionally direct visitors toward the reuse zone. Although this model reduces operational costs, it also limits the level of direct monitoring and management of reuse activities.

Energy use at both sites is relatively limited. At the Nomales site, electricity is used during winter months to heat the containers and protect materials from moisture and freezing temperatures. However, this energy consumption is not measured separately from the surrounding facility. At the

Vietalvas site, no additional energy use is associated specifically with the reuse area beyond the existing lighting of the sorting facility.

The opening hours of both exchange points correspond to the operating hours of the waste sorting facilities. This integration simplifies management and allows users to access reuse opportunities during routine waste disposal visits.

Maintenance practices differ slightly between the two sites. At Nomales, regular cleaning and maintenance are performed by the supervising staff member, with additional attention required during winter to manage mud and moisture. At the Vietalvas site, maintenance is incorporated into the general operations of the sorting facility.

4.5 Waste Management

Waste management practices at both exchange points focus on maximising the reuse potential of materials that would otherwise enter the waste stream. Items that remain functional are kept available for redistribution rather than being discarded.

Most materials originate from small-scale renovation projects and household repair activities. These items often retain functional value and can be reused in similar applications by other users. Disposal occurs only when items become damaged, degraded by environmental conditions, or identified as hazardous.

At present, no systematic data collection exists that would allow precise measurement of how much donated material eventually becomes waste. Monitoring currently focuses on visitor numbers and online listings rather than measuring the weight or volume of materials circulating through the exchange points.

Based on internal estimates and staff observations, the initiative diverts several tons of materials from the waste stream annually. However, these estimates should be considered indicative because they are not supported by consistent quantitative monitoring. Improving data collection will therefore be essential for verifying waste diversion levels and assessing environmental impacts more accurately.

4.6 Infrastructure and Accessibility

The infrastructure and spatial organisation of the two exchange points differ significantly and influence how the sites operate and who uses them.

The Nomales exchange point consists of two containers equipped with an electricity connection and located within the area of an existing waste sorting yard. The containers provide a compact but functional space where construction materials and household items can be deposited and collected. Although the infrastructure is relatively simple, it allows the site to operate efficiently with minimal operational costs.

The Vietalvas exchange point is integrated into one of Latvia's most modern waste sorting facilities. This location provides greater visibility, improved spatial organisation, and more opportunities for public engagement activities such as guided visits and educational events.

Accessibility represents a key operational difference between the two sites. The Nomales exchange point is primarily accessible by private car and therefore tends to attract users transporting construction materials, including homeowners and small contractors. In contrast, the Vietalvas site is reachable by public transport and located closer to densely populated urban areas. This improved accessibility broadens the potential user base and increases the visibility of reuse practices among city residents.

4.7 Social Practice Findings

The reuse activities at the Nomales and Vietalvas exchange points can be interpreted through the lens of Social Practice Theory, which highlights the interaction between materials, competences, and meanings in shaping everyday practices.

The primary users of the exchange points include private citizens, small contractors, and hobbyists engaged in renovation or repair activities. These users contribute to the circulation of reusable materials by depositing leftover materials or collecting items needed for their own projects.

Operational support is provided by CleanR staff and employees at the waste sorting facilities. At the Nomales site, the supervising staff member ensures basic oversight of the exchange containers and occasionally advises visitors. At the Vietalvas site, reuse activities are largely self-organised by users.

The material dimension of reuse practices is shaped by the physical infrastructure of the exchange points and the digital platform lietovelreiz.lv, which allows materials to be listed online. These tools make reuse practices more visible and accessible.

Competences develop as users gain practical experience in identifying reusable materials and adapting them for new purposes. Staff occasionally support this learning process through informal guidance.

The meaning dimension relates to how reuse is perceived socially. Among active users, reuse is increasingly viewed as a practical and environmentally responsible behaviour. Events organised at the Vietalvas site have further helped frame reuse as a creative and community-oriented activity.

However, several barriers remain. Public awareness of the exchange points remains limited outside existing reuse communities. Digital tools remain incomplete, particularly due to the absence of reservation functionality. Municipal involvement is limited, and systematic monitoring of material flows is lacking.

4.8 Environmental and Resource Assessment

Assessing the environmental impact of the exchange initiative remains challenging due to the absence of unified monitoring across the two sites.

While Nomales records visitor numbers and material listings through the digital platform, detailed data on material quantities or environmental impacts are not systematically collected. The Vietalvas site currently lacks quantitative monitoring altogether due to its self-service operational model and are therefore not represented in Table 7 and Table 8.

Internal estimates suggest that the initiative diverts a moderate but growing amount of materials from the waste stream, particularly from small-scale household renovation projects. However, without consistent monitoring, the scale of waste diversion and associated greenhouse gas emission reductions cannot yet be quantified reliably.

Future environmental assessment could benefit from improved data protocols between CleanR and Zero Waste Latvia. Integrating monitoring functions into the digital platform could allow users or staff to record categories and approximate quantities of materials exchanged.

Proxy indicators and digital tools could also support environmental impact estimation. Approximate material weights or categories could be used to estimate avoided waste volumes and potential CO_2 savings.

A key step forward will be the inclusion of the Vietalvas site within systematic monitoring, enabling more comprehensive environmental evaluation.

Table 7 below summarizes the waste streams, their total weight, and their corresponding CO_2 footprints registered during baseline and midterm:

BASELINE

Waste stream*	**Sum of weight (kg)****	**CO_2 – footprint per Kg. according to ***	**Total sum of CO_2 footprint (kg)**
Construction waste	8218,5	0,292	2399,802
Electronics (E-waste)	184,2	13,2	2431,44
Furniture Waste (Bulky)	285,95	0,802	229,3319
Total	8688,65	-	5060,5739

* Numbers and waste stream categorization; source: Executive summary of waste analysis by Metabolic, n.d.

** Source: Nomales24_with_classification (excel sheet), n.d.

Table 7: Baseline CO_2 Impact of Normales

MIDTERM			
Waste stream*	**Sum of weight (kg)****	**CO_2 – footprint per Kg. according to ***	**Total sum of CO_2 footprint (kg)**
Construction waste	2595,9	0,292	758,0028
Electronics (E-waste)	38,3	13,2	505,56
Furniture Waste (Bulky)	0	0,802	0
Total	2634,2	-	1263,5628

* Numbers and waste stream categorization; source: Executive summary of waste analysis by Metabolic, n.d.

** Source: Nomales24_with_classification (excel sheet), n.d.

Table 8: Midterm CO_2 impact of Normales.

The apparent decrease shown in Table 7**,** Table 8**,** Figure 31 and Figure 32 is primarily explained by a change in CleanR's operating setup, as the company now operates two construction material exchange sites: **Nomales** and **Vietalvas**. However, the data presented in these tables and figures covers only the original site in Nomales, which was monitored during both the baseline and midterm periods.

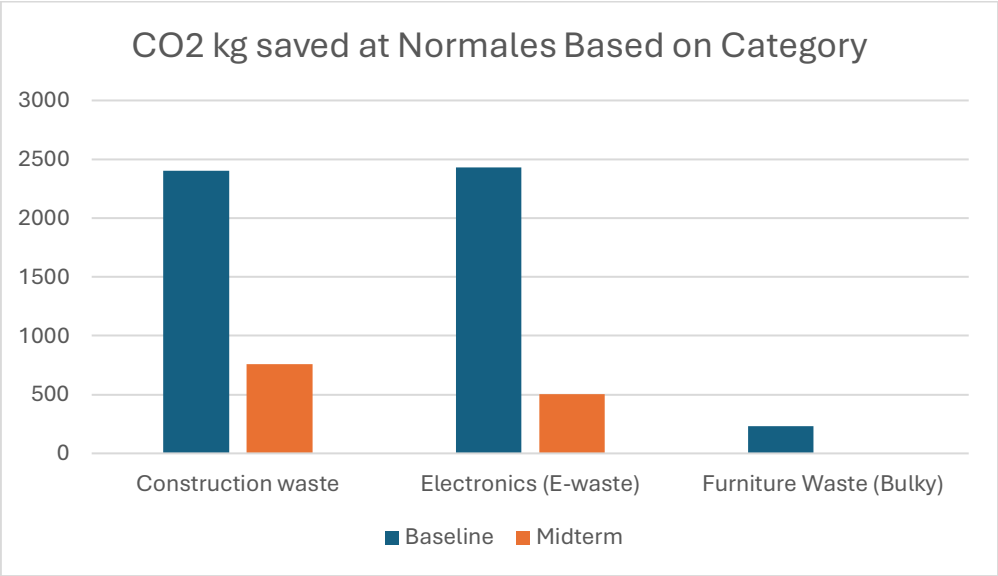

Figure 31: CO_2 kg saved at Normales

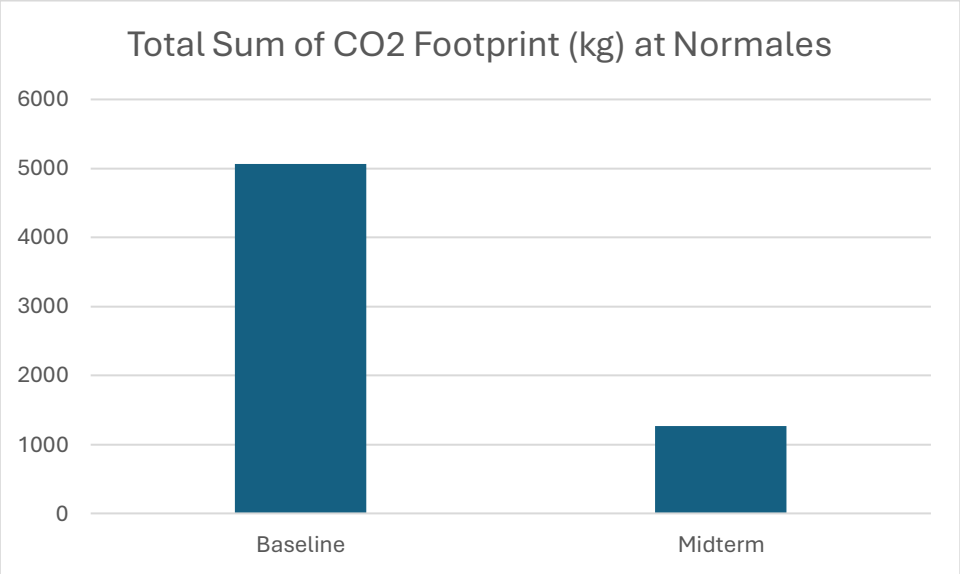

Figure 32: Total sum of CO_2 footprint at Normales

According to interviews with CleanR representatives, part of the material flow that previously passed through the Nomales site has shifted to the newer Vietalvas site. As a result, the amounts presented appear substantially lower, even though interview evidence from CleanR staff suggests that the total quantity of reused or exchanged materials across both locations may in fact have increased. At present, however, this cannot be verified quantitatively.

This issue relates directly to the broader limitation noted in the report regarding the lack of unified monitoring systems. For this reason, direct comparisons between baseline and midterm data should be treated with caution, as the figures do not reflect the same operational setup across the two periods.

4.9 Changes in Mobility Patterns

Differences in accessibility between the two sites have resulted in distinct mobility patterns among users.

Visitors to the Nomales exchange point typically arrive by private car, often transporting construction materials either for donation or collection. This reflects the nature of the materials exchanged, many of which are bulky or heavy.

The Vietalvas exchange point, located closer to urban areas and accessible by public transport, has the potential to attract a broader range of users, including students and residents without private vehicles.

These accessibility differences influence participation patterns. Nomales primarily serves users who arrive with a specific purpose, such as depositing leftover construction materials or collecting items for renovation projects. In contrast, Vietalvas often attracts more spontaneous users who encounter the exchange point while visiting the sorting facility for other waste disposal activities.

4.10 Governance and Partnerships

The exchange initiative is managed by CleanR under the Waste to Resources LIFE project, which is co-funded by the European Union. CleanR is responsible for the operational management of the exchange points and the integration of reuse activities within existing waste sorting facilities.

The project framework requires the exchange points to remain operational until 2028, followed by a five-year monitoring period.

Cooperation with Zero Waste Latvia supports the digital platform lietovelreiz.lv, which provides online visibility for reusable materials and connects users with exchange opportunities.

Formal cooperation with Riga Municipality remains limited. Although the exchange points contribute to municipal circular economy objectives, the initiative currently operates primarily through private-sector and civil-society collaboration. Stronger municipal involvement could support long-term scaling and integration into urban waste management strategies.

4.11 Key Findings and Reflections

The midterm assessment highlights several key insights regarding the development of construction material reuse infrastructure.

The establishment of the Vietalvas exchange point demonstrates the scalability of the reuse model when integrated within existing waste management facilities. Its accessibility and visibility increase opportunities for broader public participation.

However, the lack of standardized monitoring systems remains a major limitation. Without reliable data on material flows, it is difficult to quantify environmental benefits or compare the performance of different sites.

Social engagement also differs between the sites. The Vietalvas location offers greater potential for public interaction due to its accessibility and outreach events. The Nomales site primarily serves users with specific renovation needs.

Operational sustainability remains a concern, particularly due to limited staffing and unclear responsibilities for monitoring and data collection.

From a policy perspective, the initiative supports waste prevention and circular economy goals but would benefit from stronger integration with municipal waste management strategies.

4.12 Recommendations

Several actions could strengthen the long-term performance and impact of the reuse initiative.

First, a unified monitoring system should be developed for both exchange sites. Integrating data collection with the lietovelreiz.lv platform could allow recording of visitor numbers, material categories, and approximate quantities of exchanged items.

Second, visibility and public awareness should be increased through regular events, outreach activities, and cooperation with municipal communication channels.

Third, alternative financial models such as social enterprise approaches could be explored to support partial self-financing of the initiative.

Fourth, once consistent monitoring is established, environmental impacts could be assessed using analytical tools such as the AAU CO_2 calculator.

Finally, stronger knowledge exchange between the Nomales and Vietalvas sites could help standardise operational practices and support future scaling of reuse infrastructure.

5 CSE Initiative in Poland: Food Sharing Initiative Długi Stół (The Long Table)

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Note: In the baseline report, the food-sharing initiative "Jadłodzielnia" was described. However, since then, the case has changed and now involves the initiative described below.

5.1 Presentation of Initiative

Długi Stół (The Long Table) Poznań is a grassroots initiative that brings together volunteers and activists around the practice of shared food redistribution. Its core aim is to reduce food waste by recovering unsold but edible food overstocks and redistributing them collectively, while simultaneously fostering a sense of local community. The initiative operates through open, free, and inclusive events, conceived as invitations for neighbours, friends, and strangers alike. Activities are based primarily on voluntary engagement. Organisationally, Długi Stół is closely linked to Stowarzyszenie Zielona Grupa (The Green Group Association), which is often identified as its formal organiser, while also relying on the involvement of independent activists and local residents.

The initiative emerged in spring 2020 as a direct response to the COVID-19 crisis and its socio-economic consequences. These included job losses and sudden food insecurity but also reduced working hours that enabled some participants to devote time to collective support activities. From the outset, the guiding idea was mutual aid in access to food combined with the prevention of food waste. The initiative focused on rescuing edible food that would otherwise be discarded and redistributing it to people facing material hardship.

Over time, Długi Stół developed into a node within a broader local ecosystem of mutual support in Poznań. It has collaborated with, or maintained close ties to, a range of civic and cultural actors and institutions. Key partners and allies have included the Rozbrat social centre (associated with autonomist and anarchist groups), Food Not Bombs Poznań (Jedzenie Zamiast Bomb), the Fundacja Pomocy Wzajemnej "Barka" (Mutual Help Foundation "Barka"), and Centrum Kultury Zamek (Castle Cultural Centre). These relationships have contributed to the initiative's capacity to operate across different urban settings and reach diverse groups.

The scale and intensity of operations have varied over time. During the initial phase of the pandemic, the initiative operated at its highest capacity. According to different sources, between approximately 20 and 30 tonnes of food were rescued between March and September 2020. At that time, food collection took place three times a week: on Tuesdays at the *Jeżycki* market with distribution supported by local community networks; on Thursdays, when food was collected by beneficiaries of the Barka Foundation; and on Saturdays, when larger collections were organised at the *Jeżycki, Łazarski*, and *Dębiecki* markets, with parcels distributed both directly and via Food Not Bombs. In recent years, activities have become less intensive but more regularised, with food collection and sharing currently maintained once a week at the *Jeżycki* market, in cooperation with Food Not Bombs activists.

In its current mode of operation, the initiative continues to collect food at the local market. The recovered food is subsequently transported by car to the headquarters of the Green Group Association in the Dębiec district, located approximately seven kilometres from the collection site. There, the food is sorted, packed into parcels, and prepared for redistribution. The coordination of distribution is supported through internal communication groups established on messaging platforms such as WhatsApp or Messenger, where recipients register their needs, including, for example, the expected volume of food parcels (with larger parcels intended for families).

Distribution takes place directly to individuals and households, including families, older people, and those experiencing housing precarity. Recipients most frequently include seniors, large families, migrants, and people affected by homelessness or sudden economic crisis. Despite changes in scale and organisational intensity over time, the initiative retains its original commitment to mutual aid, inclusivity, and the collective reclamation of food that would otherwise be wasted.

5.1.1 Contextualization of Methods

Since the WP5 is interrelated with WP2 (case study approach), we integrated the research. While investigating the initiative, we adopted the case study in-depth interviews methodology (WP2) as well as participatory / action-research approach along with. In this summary report we refer to the latter only with assumption that additional knowledge and the understanding of the operational logic of the initiative comes also from IDIs.

Hence, the informal and largely non-institutionalised nature of Długi Stół necessitated a flexible understanding of “research access” and “field entry”. Rather than relying on formal gatekeepers or

organisational hierarchies, engagement with the initiative was based on personal contacts, trust-building, and repeated presence during food collection, sorting, and distribution activities. Collaborative research and systematic data collection on the volume of recovered food began in early August 2025 and have continued on a weekly basis, with measurements conducted each Saturday, unless unexpected disruptions result in the cancellation of a given collection.

Participant observation and practice-based analysis were also partly adopted and proved central to the contextualisation of methods. Given the importance of logistical routines – such as food collection at the Jeżycki market, transport, sorting, and redistribution – systematic attention was directed towards material arrangements, coordination mechanisms, and everyday problem-solving practices. This included observation of communication infrastructures, particularly the use of messaging applications to coordinate distribution and match food parcels with recipients' needs in the absence of formal management structures.

Within this framework, specific attention was paid to key resources that condition the initiative's capacity to operate. One crucial resource is access to cars with sufficient loading capacity to transport food; these vehicles are not institutionally owned but belong to private individuals and supporters of the initiative and are therefore not always reliably available. In crisis situations, alternative private vehicles are mobilised on an ad hoc basis. During the research process, the research team provided private cars on four occasions in order to enable food collection and distribution to take place. A second critical resource concerns the availability of volunteers simultaneously in two locations: at the Jeżycki market during collection and at the Association's headquarters during sorting and packing. The necessity of coordinating human and material resources across these sites constituted both a practical constraint for the initiative and an important analytical dimension for understanding its everyday functioning.

5.1.2 Selection and Implementation

We adopted product (fruit and vegetables in this case) flow measurements as our data collection method. This method of measurement is the most accurate and is based on the actual weighing of plant products by researchers over a given period of time. Since the initiative under study did not keep a detailed inventory of the quantities of fruit and vegetables collected from local markets, our measurements, based on a standardized procedure, provide a reliable basis for the quantities of products recycled and distributed.

5.1.3 Collected Data Overview

Participatory research, as outlined in the **5.1.1 Contextualization of Methods** section, took form of three methods: combined participant observation and action approach as well as food flows measurement.

1. Observation and action research – each week (occasional disruptions and/or bank holidays resulted in the cancellation of 3 collections), Saturday, ca. 14:30-16:30
2. Measurements – weighting of collected food each Saturday

Saturdays when measurements were conducted (2025): 12.07 (pilot), 30.08, 06.09, 13.09, 20.09, 27.09, 04.10, 11.10, 18.10, 25.10, 15.11.

01.11.2025 - cancelled due to bank holiday

23.11.2025 - cancelled due to venue unavailability

The detailed data on the food volume and types of food (specified vegetables and fruits) has been attached as an excel file.

5.2 Case Activities/Flow

Data on product flow: each week the food is weighed.
Transportation data: each week the food is collected at Jeżycki market (https://maps.app.goo.gl/pLzZEVN7LePGswNs8) and transported to The Green Group Association headquarters (https://maps.app.goo.gl/bwEtFsWEsawobhr7A) – which is around 8 km. We do not have data to estimate the whole driving distance of the car commuting to place and from place, but estimating the size of the city, it can be around 25 km each week.
Human resources: each week ca. 3-4 volunteers gather food and pack the car with boxes (up to 1 hour of work without commuting to site data); each week ca. 2-3 volunteers deal with sorting food (around 1-1,5 hour each week to receive, sort, share the food and clean the place).

5.3 Practice(s) of Initiative

The initiative is driven by food waste prevention goals, ensuring that the waste is to be minimized. Food-sharing units and food waste prevention activities help foster the living culture of sharing basic goods and reinforcing values aligned with the principles of the sharing economy and responsible consumption.

5.3.1 Behavioural and Social Practices

The activities of *Długi Stół* constitute a coherent set of social practices centred on food waste prevention, community solidarity, and responsible consumption. Core practices include:

1. Redistribution of surplus food, involving regular recovery, sorting, and circulation of edible produce.
2. Mutual aid and community support, expressed through informal cooperation between volunteers and recipients.
3. Promotion of resource-conscious consumption, enabled by practical knowledge of food handling and plant-based eating.
4. Adaptive management, whereby volunteers adjust to fluctuating resources, varying food volumes, and diverse household needs.

Together, these practices form an alternative mode of provisioning that challenges consumerist norms and fosters local resilience.

5.3.2 Engagement and Community Participation

The *Długi Stół* initiative relies on a dense network of volunteers whose participation is based on trust, informal coordination, and repeated involvement in weekly food-sharing routines. Roles are distributed across three main areas: collecting food from traders at the Jeżycki market, transporting products to the *Długi Stół*'s (Green Group Association's) headquarters, and sorting and packing food parcels for recipients. Coordination takes place through messaging applications, allowing volunteers to match parcel composition to the needs of families, older adults, migrants, and individuals experiencing housing precarity. Engagement is sustained through regular weekly activities and the ability of participants to respond collectively to unforeseen disruptions such as volunteer shortages or the unavailability of vehicles.

5.3.3 Cultural and Institutional Factors

The initiative is shaped by cultural norms associated with plant-based diets and pro-environmental values, reflected in the exclusive focus on fruit and vegetables. Many initiators are engaged in vegan or ecological advocacy, which reinforces the ethical framing of food redistribution. Institutionally, *Długi Stół* operates within a loose ecosystem of grassroots organisations, activist groups, and cultural institutions. Its low level of formalisation requires adaptive management of resources such as workspace, vehicles, and volunteer labour. Cultural sensitivity also plays a role,

as volunteers take into account the culinary practices of recipients, including migrants from Ukraine, when preparing food parcels.

5.3.4 Practical Knowledge and Technical Expertise

The initiative depends on practical, experience-based competencies. Volunteers assess the quality of collected produce, restore partially wilted vegetables, and apply knowledge of preservation techniques such as freezing or fermenting. They manage logistical tasks including loading vehicles, sorting products efficiently, and coordinating distribution in response to real-time needs communicated through digital platforms. The initiative has also developed educational practices, such as workshops on how to use shared food, which strengthen recipients' ability to incorporate rescued produce into everyday cooking.

5.3.5 Elements of Social Practice Theory (SPT) in the Initiative:

Materials

Among physical and infrastructural arrangements enabling the practice, we would list:

- Food containers and packaging (re-usable boxes)
- Transport infrastructure (private cars, fuel)
- Market surplus food (fruit and vegetables)
- Sorting and storage spaces (association headquarters)
- Digital infrastructure (smartphones, messaging apps)

Competencies

Embodied know-how and practical skills:

- Communication skills and relationship-building with food merchants
- Practical knowledge for assessment of food edibility and waste
- Logistical coordination (collection, transport, distribution)
- Adaptive problem-solving under resource constraints
- Practical food knowledge (preservation, plant-based cooking)

Meanings

Normative orientations, cultural values, and shared understandings:

- Food waste as a social and moral problem

- Sharing as mutual aid rather than charity
- Responsibility for sustainable consumption
- Community solidarity and inclusivity
- Resistance to consumerist and wasteful provisioning systems

Carriers of Practice

Actors who enact, reproduce, and stabilise the practice:

- Core volunteers and activists
- Food market traders
- Beneficiaries/recipients (families, seniors, migrants)
- Grassroots organisers (Green Group Association)
- Partner organisations and/or informal allies (at different time points of the initiative operation)

Some of the carriers of practice can be understood as key actors who collectively create, reproduce, and stabilise value through the ongoing organisation of food-sharing activities. Core volunteers and activists constitute the central carriers of the practice, as they regularly contribute time, labour, and practical competencies to the processes of food collection, sorting, and redistribution. Their sustained temporal engagement represents an important mechanism of value creation, in which time is redistributed from individuals with greater temporal availability to collective activities that contribute to food waste prevention and resource efficiency.

Food market traders act as complementary carriers of the practice by allocating time and organisational attention to cooperation with the initiative, thereby enabling surplus food to be redirected from disposal streams into redistribution circuits. This reconfiguration of routine market practices reduces material losses and contributes to the mitigation of environmental impacts associated with food waste management.

Grassroots organisers, i.e. the Green Group Association, provide organisational continuity and coordination over time, ensuring the regular operation of the initiative while maintaining a deliberately low level of formalisation. This approach supports flexibility, limits administrative and infrastructural overheads, and contributes to the environmental efficiency of the initiative.

Taken together, these carriers of practice co-produce social and environmental value by reorganising temporal, material, and organisational resources into a locally embedded, labour-

intensive, and low-carbon mode of food redistribution. This configuration supports food waste reduction while aligning environmental impact mitigation with alternative, practice-based economies of time and care.

5.4 Environmental Assessment of Initiative

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This particular section (5.4 including sub-sections) is written by the AAU team, since the calculations are their responsibility. This section quantifies the climate benefit of the food rescued by Długi Stół during the measurement period. The initiative recovers fruit and vegetables, which otherwise would have been discarded at the Jeżycki market, and redistributes them to households. The central environmental contribution is the greenhouse gas emissions that are avoided when this food is eaten rather than thrown away. The assessment applies the Life Cycle Assessment approach set out in the work package guidelines (Markussen et al, 2024), combining the weight of food recorded each week with published emission factors for each type of produce. First, the method is described, then the findings are presented, and finally the main assumptions and limitations are discussed.

5.4.1 Emission factors and data source

The climate benefit of the rescued food was estimated using emission factors from The Big Climate Database, published by CONCITO together with 2. 0 LCA consultants, version 1.2, Danish (DK) market version (Schmidt et al., 2024). For each food item, the database reports a single figure: the Total kg CO_2e emission per kg, to produce one kilogram of product at net weight at the point of retail sale. This figure is the sum of emissions from six life cycle stages, namely *agriculture*, *indirect land use change* (referred to as iLUC), *food processing*, *packaging*, *transport* and *retail*. The indirect land use change contribution is included in the headline value. Every factor was taken directly and without alteration from the database, so that no value was independently modelled or invented.

The database is a consequential life cycle assessment, built on marginal suppliers and a marginal electricity mix. This means that each factor expresses the future global climate consequence of a change in demand for that food item, rather than an average of existing emissions. The framing is well suited to the present purpose of the initiative, because rescuing surplus food from waste is precisely such a change in demand. The food is eaten instead of discarded, so an equivalent

quantity does not have to be produced and brought to market, and the benefit being claimed is exactly the production and supply burden that this change avoids.

5.4.2 Calculation procedure

The food rescued by Długi Stół consists almost entirely of fresh fruit and vegetables, which were weighed box by box by the research team on each collection day, as described in Section 5.1.2. Each food recorded on a box was matched to the corresponding raw item in the Danish database. For example, onion was matched to the database item Onion, raw, with a factor of 0.275 kg CO_2e per kg, and pepper was matched to Pepper, sweet, red, raw, with a factor of 1.071 kg CO_2e per kg. The complete list of every recorded food and the exact database item used to represent it is provided in the accompanying spreadsheet (Appendix 1), on the sheet named Mapping and sources.

The calculation then proceeded in a sequence of steps. First, each box was assigned a factor in kilograms of CO_2e per kilogram of food, taken from the database. Next, the climate benefit of each individual box was calculated by multiplying the weight of that box by its factor, so that the benefit of a box equals its weight multiplied by its factor. The benefits of all boxes collected on the same day were then added together to provide an overall benefit for that day, and the weights and benefits of the particular days were each summed to give the totals for the whole period.

A single box often contained several foods recorded under one combined weight, with no measurement of how much of each food was present. In these cases, the factor for the box was taken as the equal average of the factors of the food items named on it, because equal weighting is the only assumption the available data can support. A box recorded only as a “mix” or as “mixed vegetables” was given the average factor of all the distinct vegetable items in the dataset. Similarly, a box recorded as “mixed fruits” was given the average of the distinct fruit items, and a box recorded as greens was treated as a leafy herb and given the value for parsley and dill. Two foods that were collected do not appear in the database and were each represented by their closest relative that is present, with the substitution documented: kohlrabi was represented by white cabbage, because the two are the same species, and horseradish by radish, because both are root crops in the same plant family.

5.4.3 Findings

Over the eleven collections measured between 12 July and 15 November 2025, the initiative rescued just under 1,250 kilograms of fruit and vegetables. Applying the emission factors to these quantities gives an estimated avoided climate burden of approximately 679 kilograms of CO_2e for

the period. This is equivalent to an effective average of about 0.54 kilograms of CO_2e for every kilogram of produce rescued. The results for each collection are shown in Table 9 and in Figure 33.

Collection date	Weight rescued (kg)	Avoided CO2e (kg)	Intensity (kg CO2e/kg)
12.07.2025 (pilot)	167.8	87.9	0.52
30.08.2025	99.3	52.3	0.53
06.09.2025	131.1	62.5	0.48
13.09.2025	137.7	79.8	0.58
20.09.2025	86.7	43.6	0.50
27.09.2025	140.3	73.3	0.52
04.10.2025	84.0	43.9	0.52
11.10.2025	86.1	51.0	0.59
18.10.2025	67.6	39.9	0.59
25.10.2025	131.3	78.3	0.60
15.11.2025	118.1	66.4	0.56
Total	**1,249.9**	**678.7**	**0.54**

Table 9: Weight of food rescued and avoided CO_2e for each collection of Długi Stół, 2025. Intensity is the avoided CO_2e divided by the weight for that collection.

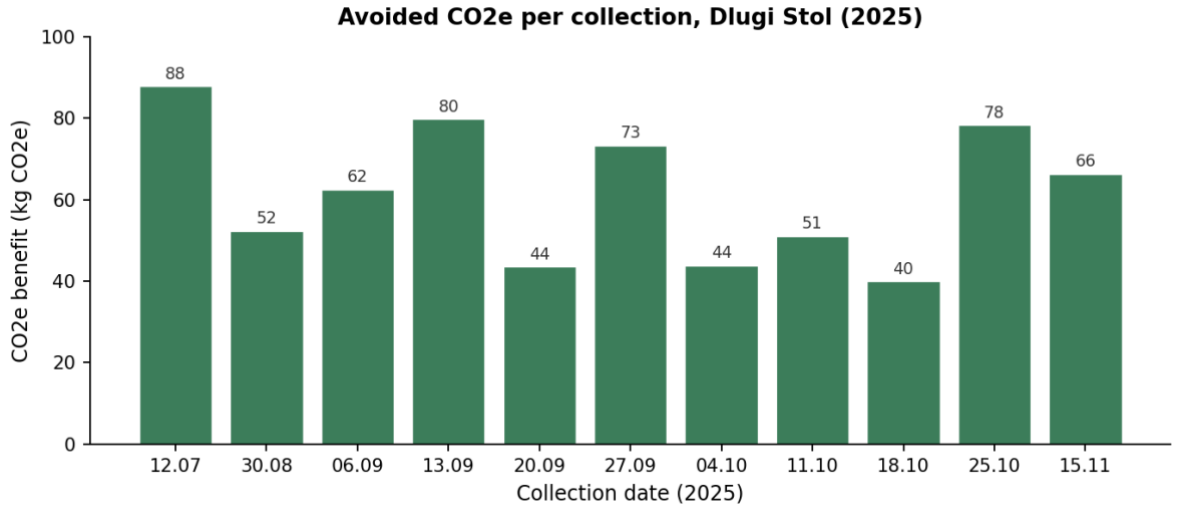

Figure 33: Avoided CO_2e per collection of Długi Stół, 2025.

The avoided emissions for a single collection ranged from about 40 kilograms of CO_2e on 18 October to about 88 kilograms of CO_2e on 12 July, which was the pilot collection day and also the largest by weight. The collections on 12 July, 13 September, 27 September and 25 October were the largest contributors to the total.

The rescued food was composed almost entirely of common fruit and vegetables. The items recorded most frequently were apples, tomatoes and cauliflower, followed by cucumbers, broccoli, cabbage, carrots, lettuce and radishes, while a number of boxes were recorded only as a mix of vegetables. Because these foods are low to moderate in carbon intensity, the benefit per kilogram is modest in comparison with what would be expected if the rescued food had included meat or dairy products. The significance of the result therefore lies less in the intensity of any single item than in the weekly volume of food kept out of the waste stream over the measurement period.

5.4.4 Accuracy, assumptions and limitations

The estimates presented here should be read as an order of magnitude indication of the climate benefit rather than a precise inventory. The main sources of uncertainty are outlined below.

Geographical transfer to Poland. "The Big Climate Database" does not include a Polish market version, so the Danish version was used as the closest documented proxy. The country versions differ mainly in the location of retail and food processing, and therefore in the electricity mix applied to those stages, as well as in the distance over which food is transported to retail. The Danish factors assume a Danish marginal electricity mix that contains very little coal (Schmidt et al., 2024), whereas Poland operates the most carbon intensive power sector in the European Union (Ember, 2024). In 2025, fossil fuels supplied roughly 69 percent of Polish electricity, of

which coal alone accounted for about 51 percent (Ember, 2026). As a result, the parts of the footprint that depend on electricity, namely retail and any food processing, are underestimated for the Polish context. The size of this bias is limited, however, because for raw fruit and vegetables the footprint is dominated by the *agriculture* and *land use* stages, which are sourced from global agricultural markets independently of the country where the food is eaten, while retail is only a small share of the total. The likely overall effect is therefore a modest underestimate of the true benefit in Poland.

System boundary. The reported benefit therefore captures only the embodied emissions of producing the food and bringing it to the retail market. The calculation does not include the local transport and redistribution carried out by the initiative, in which recovered food is driven around eight kilometres each way by private car from the Jeżycki market to the premises of the Green Group Association for sorting and distribution. This activity is estimated as roughly twenty-five kilometres in total each week. If the full trip was included, as described in Section 5.2, it would reduce the climate benefit slightly. However, the calculation neither includes the emissions from landfilling that are avoided when food is not discarded as waste, which can be considerable when organic waste is sent to landfill and generates methane (FAO, 2013). This disposal route remains common in Poland, which still sends a substantial share of its municipal waste to landfill and is assessed as being at risk of missing the European Union target to reduce that share to ten percent or less by 2035 (European Environment Agency, 2025). All in all, it is assumed that the estimated figures presented here are conservative with respect to the climate benefit of the initiative.

Mixed and unlabelled boxes. Averaging the foods named on a box equally ignores the real division of weight between them, and the use of category averages for general labels such as “mix” and “greens” introduces further uncertainty at the level of an individual box. Because these errors go in both directions and the dataset contains many boxes, they largely cancel out in the total, although the value for any single box should not be read too closely.

Functional unit. The database factors refer to one kilogram of product at net, edible weight at retail, whereas the field measurements are gross weights as collected at the market, which may still include trimmings or spoiled portions that are removed during sorting. This may slightly overstate the edible mass that is finally redistributed.

Single impact category. The database reports greenhouse gas emissions only, expressed as carbon dioxide equivalents using a global warming potential measured over a one-hundred year horizon. Other environmental effects, such as impact on water consumption, eutrophication and biodiversity, lie outside its scope.

Taken together, these points highlight that the estimate and figure presented here are best understood as a transparent and reproducible approximation of the climate benefit of the initiative, derived entirely from published CONCITO factors and from clearly stated assumptions, rather than as a measurement that is specific to a single country. Given that several of the omitted elements, in particular the avoided emissions from landfill, would tend to increase rather than decrease the benefit. The benefit of approximately 679 kilograms of CO_2e over the measurement period can reasonably be regarded as a low estimate of the initiative's contribution.

5.4.5 References for 5.4

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5.5 Concluding Remarks of Initiative

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The investigated initiative provides:

Food waste reduction through practice-based redistribution

The initiative contributes to environmental impact mitigation by recovering edible surplus food and redirecting it from waste streams into local redistribution circuits, thereby reducing material losses and potential emissions.

Value creation through the redistribution of time and labour

Central to the initiative is the reallocation of voluntary time and practical work toward collective food-sharing activities, demonstrating how alternative economies of time might underpin low-carbon, labour-intensive modes of provisioning.

Low-infrastructure, low-overhead organisational model

The initiative operates with minimal formalisation and limited material infrastructure, which supports flexibility and environmental efficiency by avoiding resource-intensive institutional arrangements.

Practice-based coordination of material flows

Regular routines of food collection, transport, sorting, and distribution stabilise the initiative as a social practice, effectively reorganising local food flows through informal coordination rather than formal logistics systems.

Integration of environmental and social value creation

The initiative links environmental objectives—such as waste prevention and reduced food-system impacts—with social outcomes including mutual aid, community solidarity, and inclusive access to food.

6. Comparative Analysis of Initiatives

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The TransScale project investigates how Circular Sharing Economy (CSE) initiatives develop the capacity to scale their activities across institutional and geographic contexts. The baseline assessment (Markussen et al., 2025) established an initial understanding of the four CSE initiatives across Denmark, Norway, Latvia, and Poland, focusing on their organizational structures, practices, and environmental impacts. The midterm assessment evaluates developments since the baseline in 2024. The four initiatives examined in the TransScale project demonstrate distinct pathways for scaling circular sharing economy practices. Although all four initiatives share the overarching objective of reducing waste and promoting more sustainable resource use, their scaling dynamics differ significantly due to variations in organizational structure, institutional context, and available resources.

This chapter compares the initiatives across three analytical dimensions:

1. **Scaling dynamics** (including both scaling-out and scaling-up processes)
2. **Social practices and modes of participation**
3. **Environmental data and impact assessment**

Across these dimensions, particular attention is given to the institutional conditions, enabling factors, and challenges that influence scaling processes.

6.1 Patterns of Scaling Across Initiatives (Baseline vs. Midterm)

This section provides an overview of scaling efforts within each initiative between the baseline and midterm assessments. The purpose is to identify and compare key scaling activities. The scaling activities of each initiative is summarized in the tabel 10 below:

Initiative	Baseline scaling position	Scaling-out trajectory (midterm)	Scaling-up trajectory (midterm)	Overall scaling pattern

Repair Café Danmark (Denmark)	Established national repair network	Continued replication of repair cafés; diversification of hosting environments (e.g. private actors, cooperatives)	Increased advocacy, policy engagement, and national and international positioning	Grassroots network scaling with growing institutional influence
Reuse of Furniture (Norway)	Municipal pilot initiative	Diffusion to "follow-on" municipalities adopting the reuse model and platform	Strong integration into municipal operations and administrative routines	Institutional scaling through public-sector embedding
Normales (Latvia)	Reuse initiative (Nomales)	Expansion to second site (Vietalvas), increasing accessibility and reach	Increased visibility, stakeholder engagement, and networking activities	Infrastructure-based scaling with emerging institutional links
Food Sharing Initiative – The Long Table (Poland)	Early-stage grassroots initiative (baseline case differs)	Limited evidence of replication or geographical expansion	Limited institutional integration; continued reliance on local partnerships	Local network-based activity with weak scaling dynamics

Table 9: Scaling activities for each CSE initiative

6.1.1 Repair Café Denmark

The Danish initiative represents a community-based repair network coordinated by Repair Cafe Denmark. The baseline report already identified a substantial national network of repair cafés and emphasized the role of volunteer-driven repair practices in supporting circular economy objectives. Between the baseline and midterm assessments, scaling developments can be observed both in terms of geographical expansion and institutional engagement. The most visible scaling-out development is the continued expansion of the repair café network. At the time of the baseline report, approximately 130 repair cafés were operating in Denmark. By the midterm assessment, this number had increased to around 145. This growth reflects a continuation of the replication process that characterizes repair café initiatives. During the baseline period, 28 cafés were opened, followed by an additional 12 during the midterm period. This replication process is primarily driven by local volunteers and community organizers. The national organization functions mainly as a coordinating body that provides guidance, visibility, and organizational support for local initiatives. Scaling-out therefore occurs mostly through decentralized replication rather than through centralized organizational expansion. But scaling-out has also occurred through diversification of hosting venues, including collaborations with private companies and housing cooperatives, which is done the national secretariat of Repair Cafe Denmark.

Institutional scaling-up activities have expanded since the baseline. The organization has strengthened its national structure by establishing a small secretariat and increasing its participation in policy activities and public events. Activities include:

- Participation in national media and public forums
- Lobbying related to repair-friendly product regulation
- Involvement in the European 'Right to Repair' movement
- Engagement with national actors involved in waste regulation

These activities illustrate how the initiative is moving beyond local repair practices towards influencing broader institutional frameworks. Scaling-up in this context therefore occurs through *political engagement and advocacy* rather than the formal institutional integration that we see in the Norwegian case.

6.1.2 Reuse of Furniture (Asker Municipality)

The Norwegian initiative differs from the others in that it is embedded within a municipal governance structure rather than a grassroots network. The initiative is a furniture reuse system in Asker municipality supported by a digital platform (Loopfront), a physical warehouse, and a municipal "furniture manager".

Between the baseline and the midterm assessment, the most significant scaling-out development also differs from the other initiatives. The model developed in Asker municipality has begun to spread to other municipalities engaged in similar reuse activities. Several partner municipalities have adopted or begun using the Loopfront platform and are implementing their own reuse systems inspired by Asker's approach. These municipalities function as so called "follow-on municipalities", demonstrating the transferability of the reuse model as demonstrated in Asker municipality (see chapter 3. CSE Initiative in Norway). Scaling-out in this context therefore occurs through *institutional diffusion* within the public sector rather than through *volunteer-driven replication* as seen in the Danish case.

The Norwegian initiative demonstrates a scaling-up strategy. The furniture reuse system is embedded within municipal governance structures and supported by Loopfront and administrative procedures. The initiative therefore operates within the existing public-sector framework rather than as an external community-based initiative. Scaling-up occurs primarily through the further

integration of reuse practices into municipal procurement, logistics, and facility management processes. Reuse projects involving schools, offices, and public buildings have increased, and routines for using the digital platform are gradually being integrated into everyday administrative practices across municipalities. However, scaling has been constrained by capacity limitations, particularly because currently the initiative relies heavily on single municipal employees to manage the system.

6.1.3 Nomales (and Vietalvas iela)

The Latvian initiative focuses on the reuse of construction materials and household items through a material exchange point operated by the private waste management company CleanR. In the baseline assessment, Nomales functioned as a single physical site supporting reuse practices among residents. But since the baseline, the establishment of the second exchange point at Vietalvas iela scales out the reuse infrastructure to another location in Riga. This expansion increases the initiative's geographical reach and accessibility, particularly due to the new location's proximity to public transport. Although more limited than the Danish and Norwegian cases in term of physical sites, this development represents a spatial expansion of reuse practices.

Institutional scaling activities are less pronounced in the Latvian case. Scaling-up appears primarily through increased visibility and networking activities surrounding the initiative. The opening of the new site was accompanied by public events and guided visits involving actors such as universities and governmental representatives and it is through these activities that the initiative builds relationships with institutional stakeholders and increases awareness of reuse practices.

6.1.4 Food Sharing Initiative – The Long Table (Długi Stół)

The Polish case differs from the others because the initiative analyzed in the midterm report is not the same as the one examined in the baseline assessment. The baseline report focused on Jadłodzielnia, a food-sharing initiative in Toruń. In the midterm assessment, the case study instead centers on Długi Stół (The Long Table) in Poznań. Both initiatives address food waste through grassroots' food redistribution activities, but the change in case means that a direct baseline–midterm comparison is limited. The baseline case represented an early-stage, community-driven food-sharing initiative with educational activities. Długi Stół operates through regular food redistribution events supported by volunteers and collaborations with various civic organizations, including social centers and food-sharing networks. In contrast to the other initiatives, the Polish case does not demonstrate a clear process of scaling-out during the midterm period. While the initiative continues to operate through volunteer networks and collaborations with local actors,

there is no geographic replication or expansion to new locations. While partnerships with local actors exist, the initiative has not yet demonstrated substantial institutional integration or formal governance support. This means that scaling activities related to this initiative have not yet taken place.

6.2 Social Practices Across the Initiatives

Beyond their organizational structures and scaling activities, the four initiatives can also be compared in terms of the social practices through which participants engage with the initiatives. Drawing on a Social Practice Theory perspective, the initiatives can be understood as configurations of materials, competencies, and meanings that together shape how repair, reuse, and redistribution practices are carried out. Although the initiatives operate in different institutional contexts, several shared patterns can be identified in how these practices are organized and performed. A first point of comparison concerns how participants engage with the initiatives in practice. Across the cases, participation ranges from highly collaborative community practices to more institutionalized operational routines. In some initiatives, particularly those relying on volunteer engagement (i.e., the Danish, Latvian and Polish initiatives), the practices involve direct interaction between participants and often include informal knowledge exchange and social interaction. In other cases, participation occurs primarily through structured organizational processes where reuse activities are integrated into existing institutional routines (i.e., the Norwegian and to some degree the Danish initiative). These differences reflect the institutional contexts in which the initiatives operate. Grassroots initiatives tend to rely on community participation and voluntary engagement, where activities such as repairing, redistributing food, or exchanging materials are organized through collaborative practices and some administrative procedures. In contrast, institutionally embedded initiatives are structured more strongly by administrative procedures and logistical coordination. While both forms contribute to circular economy objectives, they shape the social dynamics of participation in different ways.

The first important dimension concerns the **materials** that the practices are organized around. Rather than simply supplying the inputs to circular activity, the materials in each case condition the form, tempo, and locus of the practice itself. The initiatives differ first in the nature of their core material. The broken household items handled in the Danish repair cafés are heterogeneous and arrive unpredictably, making the practice contingent and reliant on improvisation, whereas the office furniture circulated in the Norwegian municipalities is comparatively standardized and durable, allowing it to be warehoused and managed through planned logistics. The Latvian exchange points fall between these poles, handling a broad mix of construction surplus and

household goods that does not perish, while the Polish food sharing initiative is defined by perishability, which imposes a fixed weekly rhythm of recovery and redistribution that the other initiatives do not face. The materials also differ in where ownership and control reside. In the Danish repair cafés, the items remain with the visitor, in the Norwegian case, they are governed institutionally by the municipality, and at the Latvian sites, they are relinquished anonymously, a distinction that largely tracks the contrast between grassroots and institutional initiatives noted above. Finally, each initiative is limited by a different material bottleneck. These are the availability of spare parts in Denmark, storage capacity and transport distance in Norway, monitoring capacity in Latvia, and the availability of vehicles together with the perishability of the goods in Poland. Despite these differences, all four converge on a common material that operates at a different level, namely the digital platforms and registration systems that perform little circular work themselves but make the initiatives visible, governable, and fundable. It is largely through these documentation infrastructures that material flows are translated into the environmental data discussed in the next section.

Another important dimension concerns the **competencies** required to sustain the practices. In initiatives based on repair or reuse activities, participants often rely on practical knowledge and technical skills, such as diagnosing faults in broken products or identifying materials suitable for reuse. In initiatives based on redistribution, competencies instead relate to logistical coordination, communication with donors or partners, and organizing the redistribution process. In all cases, these competencies are distributed across different actors within the initiatives and are gradually developed through participation in the activities themselves. Another competence is the ability to document the activities, e.g. in terms of the number of users and the number of repaired or reused products.

The practices are also shaped by the **meanings** associated with participation. Environmental motivations play a central role across all initiatives, as participants generally engage in the activities to reduce waste and support more sustainable resource use. However, the empirical findings also indicate that participation can be linked to broader social and economic considerations. Economic considerations appear particularly relevant for participants who benefit directly from the initiatives. In the Polish case, the initiative’s continued existence is tied not only to environmental goals but also to economic considerations, as it provides food to low-income individuals and families. Similarly, volunteers in the Danish repair cafés reported that many visitors seek repair services for economic reasons. Students, pensioners, or individuals with limited financial resources may use repair cafés because replacing broken household items can be

financially difficult. In the Norwegian case economic reasoning is also a dominant factor used to convince stakeholders within the municipality, to keep the initiative going. Although economic motivations are less explicitly documented in the Latvian case, access to free construction materials and household items may benefit residents with limited financial resources. In this sense, the initiative contributes not only to environmental objectives but also to social and economic sustainability by providing access to resources that might otherwise be difficult to obtain.

Furthermore, the Norwegian initiative also includes a social dimension, although it manifests in a different way. The furniture reuse initiative has been connected to work-training activities involving unemployed individuals who participate in the preparation and handling of reused furniture. Such arrangements illustrate how circular economy initiatives can contribute to broader social objectives, although the midterm assessment indicates that this form of work-training has declined during the observed period. Being a volunteer in a repair cafe contributes also to developing social relations and is also one of the drivers sustaining local repair cafes.

The comparison suggests that the initiatives combine environmental goals with social functions. While the specific forms of participation differ across institutional contexts, the initiatives collectively demonstrate how circular practices can intersect with everyday economic needs, opportunities for social engagement, and the development of practical competencies among participants. These differences in social practices also influence how initiatives generate and use environmental data, as examined in the next section.

6.3 Comparison of Environmental Data and Impact Assessment

An important dimension of comparison is how the initiatives collect and use quantitative data to assess environmental impacts. Within the TransScale project, environmental impacts are primarily evaluated through estimates of avoided waste and associated CO_2 emission reductions resulting from repair, reuse, or redistribution activities. However, the availability, consistency, and use of such data vary considerably across the cases. The initiatives differ significantly in their data collection systems and monitoring practices (see Table 101: Environmental data collection and indicators of the initiatives.), which affects the degree to which environmental outcomes can be documented, assessed and compared.

Initiative	Environmental data collection	Type of environmental indicators

Repair Café Danmark (Denmark)	Analogue registration and digital spreadsheets	Repaired items, weight of products, estimated CO_2 savings
Reuse of Furniture (Norway)	Digital monitoring through the Loopfront platform	Reused items, financial savings, avoided waste and CO_2 savings
Normales (Latvia)	Partial digital monitoring (Nomales site only)	Number and weight of exchanged materials
Food Sharing Initiative – The Long Table (Poland)	No systematic monitoring by the initiative	Food quantities measured by researchers

Table 111: Environmental data collection and indicators of the initiatives.

The Danish and Norwegian initiatives have the most developed systems for documenting environmental impacts. In Repair Café Denmark, volunteers record information about repaired items, including the type of product, its weight, and whether the repair was successful. These data are subsequently used to estimate the CO_2 savings associated with repairing products rather than replacing them with a new product. In Norway, the Loopfront platform provides a digital system for tracking reused furniture and estimating both environmental and financial savings from reuse activities. When examining the available quantitative data across the cases, an increase in estimated CO_2 savings can be observed in both the Danish and Norwegian initiatives between the baseline and midterm assessments. These increases reflect both higher activity levels and improved operational systems for documenting reuse and repair outcomes. In contrast, the Polish initiative does not currently collect systematic environmental data. Instead, the quantities of redistributed food have been measured by researchers during specific observation periods. Because no baseline environmental assessment was conducted for the initiative, it is not possible to make a direct comparison between the baseline and midterm periods. The Latvian case also presents challenges in terms of comparability. Although the available data suggest a decrease in activity, this result is likely misleading. The recorded figures cover only the original Nomales site, while part of the material flow has shifted to the newer and more publicly accessible site at Vietalvas. Because this second site does not yet have a systematic monitoring system, its activities are not included in the dataset. The apparent decline therefore most likely reflects incomplete data coverage rather than an actual reduction in reuse activity.

Beyond measuring environmental impacts, the presence of quantitative data also appears to influence how initiatives communicate their environmental value and legitimacy. In the Danish and Norwegian cases in particular, estimates of CO_2 savings are used to demonstrate the

environmental relevance of the initiatives to municipalities, partners, and the wider public. Such documentation can strengthen the credibility of the initiatives and may support efforts to scale-up activities or at least secure institutional support. At the same time, the comparison highlights that environmental monitoring remains uneven across the initiatives. Strengthening data collection systems may therefore represent an important opportunity for further development. More consistent documentation of environmental outcomes could improve the ability of initiatives to communicate their impacts, attract collaborations or funding, and support future scaling processes.

Bringing these dimensions together, the following section synthesizes the key patterns shaping scaling across the initiatives.

6.4 Conclusion on Scaling Challenges and Potential

The comparison of the four initiatives indicates that scaling within the TransScale cases does not occur through a single pathway but rather through different combinations of replication, institutional integration, and infrastructural development. Although all initiatives pursue similar environmental objectives related to waste reduction and resource efficiency, their scaling trajectories are shaped by differences in governance structures, organizational resources, and operational infrastructures. A key distinction concerns how scaling occurs across institutional contexts. The Danish and Polish initiatives are primarily grassroots-based initiatives, relying on volunteer networks and community participation to sustain and expand their activities. In contrast, the Norwegian initiative is embedded within municipal governance structures, allowing scaling processes to occur through administrative routines and inter-municipal collaboration. The Latvian initiative occupies an intermediate position, operating within a private-sector organizational framework while maintaining a strong public-facing role through its reuse facilities and outreach activities. These institutional configurations influence both the direction and mechanisms of scaling. In the grassroots initiatives, expansion tends to rely on community engagement, volunteer recruitment, access to existing facilities, and informal networks. Scaling therefore occurs gradually through the replication of existing practices. In the institutional case, scaling is more closely tied to administrative integration and cooperation between public-sector actors. Meanwhile, the Latvian initiative illustrates a form of scaling linked to the development of physical and operational infrastructure, where expansion occurs through the establishment of additional facilities with optimized reach.

A second pattern is found in the relationship between organizational capacity and scaling potential. The initiatives operate with relatively modest organizational resources, and their scaling trajectories are closely linked to the availability of human and material resources (see key resource base on Table 12: Scaling activities for each CSE initiative).

Initiative	**Organizational structure**	**Key resource base**
Repair Café Danmark (Denmark)	NGO	Local volunteers and small national coordination (i.e., a secretariat with staff)
Reuse of Furniture (Norway)	Municipal initiative	Municipal staff and administrative resources
Normales (Latvia)	Private company initiative	Limited staff and project-based resources
Food Sharing Initiative – The Long Table (Poland)	NGO	Volunteers and civic partnerships

Table 13: Scaling activities for each CSE initiative

These structural differences shape how scaling can occur. Volunteer-based initiatives depend heavily on sustained engagement from participants and local communities, while institutionally embedded initiatives depend more directly on administrative priorities and public-sector resources. Another important factor influencing scaling dynamics is the presence of supporting infrastructures, including digital platforms, storage facilities, and physical locations where activities can take place. In some of the initiatives, the development of such infrastructures plays a crucial role in enabling expansion. Digital platforms can support coordination, documentation of environmental impacts, and communication with stakeholders, while physical facilities enable the practical implementation of repair, reuse, or redistribution activities. Across the cases, visibility and public engagement also appear to play a significant role in shaping scaling potentials. Public events, collaborations with external actors, and informal communication channels contribute to raising awareness of the initiatives and attracting new participants or partners. These activities can strengthen both scaling-out processes by attracting new users and scaling-up processes by increasing institutional recognition.

Despite these enabling factors, the comparison also highlights several shared constraints. Access to human resources, including volunteers or administrative staff, remains a central challenge

across the four cases. Similarly, the availability of appropriate facilities and logistical resources can influence the ability of initiatives to expand their activities. Limited awareness of initiatives outside existing participant networks may also restrict opportunities for further development. All in all, the four cases illustrate that scaling these types of circular sharing economy initiatives typically occurs through incremental and context-dependent processes rather than through rapid organizational expansion. Instead of transforming their operational models, the initiatives tend to extend existing practices gradually while strengthening their organizational capacities, infrastructures, and institutional relationships. These developments suggest that scaling in this field often involves the gradual stabilization and diffusion of practices rather than the rapid growth typically associated with conventional organizational expansion.

Appendix

Appendix 1: Environmental Midterm Assessment of ”The Long Table”

BREAKING NEW GROUND
AALBORG UNIVERSITY
NIFU
UAM
BANKU AUGSTSKOLA
BA SCHOOL OF
BUSINESS AND FINANCE

Appendix 1

Environmental Midterm Assessment of ”The Long Table”

Date	Box no.	Food (as recorded)	Weight (kg)	CO2e factor (kg CO2e/kg)	CO2e benefit (kg CO2e)
12.07.2025	1	pepper	3,90	1,071	4,18
12.07.2025	2	tomatoes	4,15	0,485	2,01
12.07.2025	3	beets, greens	9,40	0,393	3,69
12.07.2025	4	onion	11,30	0,275	3,10
12.07.2025	5	tomatoes, apples	8,50	0,545	4,63
12.07.2025	6	grapefruit, apples	7,90	0,690	5,45
12.07.2025	7	cauliflower and mix	10,40	0,603	6,27
12.07.2025	8	radish, mix	12,30	0,514	6,32
12.07.2025	9	lettuce, radishes	3,40	0,458	1,56
12.07.2025	10	cucumbers	8,40	0,396	3,32
12.07.2025	11	carrots, broccoli	6,15	0,451	2,78
12.07.2025	12	cucumbers	8,90	0,396	3,52
12.07.2025	13	broccoli	8,50	0,631	5,36
12.07.2025	14	celery	5,40	0,381	2,06
12.07.2025	15	radish	7,10	0,454	3,22
12.07.2025	16	greens	2,90	0,454	1,32
12.07.2025	17	mushrooms	5,20	0,378	1,96
12.07.2025	18	cauliflower and mix	8,00	0,603	4,82
12.07.2025	19	apples	6,25	0,605	3,78
12.07.2025	20	cauliflower and mix	4,60	0,603	2,77
12.07.2025	21	mix	4,50	0,574	2,58
12.07.2025	22	garlic, celery	6,00	0,814	4,89
12.07.2025	23	radish	5,35	0,454	2,43
12.07.2025	24	cauliflowers	9,25	0,631	5,83
30.08.2025	1	cabbage	5,60	0,287	1,61
30.08.2025	2	mix	6,80	0,574	3,90
30.08.2025	3	cabbage	4,50	0,287	1,29
30.08.2025	4	carrot and parsley root	5,60	0,611	3,42

30.08.2025	5	greens	3,20	0,454	1,45
30.08.2025	6	radishes	6,10	0,454	2,77
30.08.2025	7	radishes	5,90	0,454	2,68
30.08.2025	8	zucchini and tomatoes	6,30	0,663	4,18
30.08.2025	9	zucchini	5,40	0,842	4,55
30.08.2025	10	zucchini	6,20	0,842	5,22
30.08.2025	11	cucumbers	4,20	0,396	1,66
30.08.2025	12	apples	4,55	0,605	2,75
30.08.2025	13	carrot, broccoli	7,10	0,451	3,20
30.08.2025	14	apples	6,00	0,605	3,63
30.08.2025	15	carrot, parsley root	5,30	0,611	3,24
30.08.2025	16	kohlrabi, horseradish	9,80	0,371	3,63
30.08.2025	17	cabbage, brocolli	6,70	0,459	3,07
06.09.2025	1	potatoes	7,10	0,410	2,91
06.09.2025	2	mix	3,90	0,574	2,24
06.09.2025	3	leek	6,90	0,434	2,99
06.09.2025	4	apples	6,50	0,605	3,93
06.09.2025	5	lettuce	4,00	0,461	1,85
06.09.2025	6	cucumbers	5,50	0,396	2,18
06.09.2025	7	cabbage	6,00	0,287	1,72
06.09.2025	8	cabbage and greens	6,00	0,371	2,22
06.09.2025	9	cucumbers, cauliflowers	22,00	0,513	11,29
06.09.2025	10	kohlrabi	5,00	0,287	1,44
06.09.2025	11	kohlrabi	5,00	0,287	1,44
06.09.2025	12	green beans	2,25	0,946	2,13
06.09.2025	13	zucchini	5,25	0,842	4,42
06.09.2025	14	apples, radishes	6,60	0,530	3,50
06.09.2025	15	celery	8,15	0,381	3,11
06.09.2025	16	celery	8,50	0,381	3,24
06.09.2025	17	mix	6,40	0,574	3,67

06.09.2025	18	cucumbers and cauliflower	16,00	0,513	8,21
13.09.2025	1	cauliflower, cabbage	5,90	0,459	2,71
13.09.2025	2	apples, cucumber	5,90	0,500	2,95
13.09.2025	3	tomatoes, cauliflower	5,90	0,558	3,29
13.09.2025	4	apples, pepper	6,10	0,838	5,11
13.09.2025	5	cauliflower, mix	7,90	0,603	4,76
13.09.2025	6	tomatoes, lettuce	7,00	0,473	3,31
13.09.2025	7	broccoli, mix	2,90	0,603	1,75
13.09.2025	8	beetroot, lettuce	9,40	0,396	3,73
13.09.2025	9	green beans, apples	7,60	0,776	5,89
13.09.2025	10	carrot, cauliflower	10,00	0,451	4,51
13.09.2025	11	radish	6,50	0,454	2,95
13.09.2025	12	zucchini	6,90	0,842	5,81
13.09.2025	13	beetroot, eggplant	5,70	0,659	3,75
13.09.2025	14	apples, pepper	9,00	0,838	7,54
13.09.2025	15	pears	7,50	0,459	3,44
13.09.2025	16	apples	6,60	0,605	3,99
13.09.2025	17	tomatoes	4,80	0,485	2,33
13.09.2025	18	carrot, corn	5,10	0,627	3,20
13.09.2025	19	carrot, cucumbers	3,70	0,334	1,24
13.09.2025	20	apples	4,80	0,605	2,90
13.09.2025	21	apples	4,40	0,605	2,66
13.09.2025	22	tomatoes	4,10	0,485	1,99
20.09.2025	1	tomatoes	9,15	0,485	4,44
20.09.2025	2	cauliflower	6,25	0,631	3,94
20.09.2025	3	leek	5,85	0,434	2,54
20.09.2025	4	broccoli and cucumbers	9,50	0,513	4,87
20.09.2025	5	cucumbers	14,85	0,396	5,87
20.09.2025	6	apples	11,60	0,605	7,02
20.09.2025	7	radishes and tomatoes	5,90	0,469	2,77

20.09.2025	8	radishes and plums	5,90	0,675	3,98
20.09.2025	9	cucumbers and apples	9,50	0,500	4,75
20.09.2025	10	chives and tomatoes	4,10	0,459	1,88
20.09.2025	11	chives and cabbage	4,10	0,360	1,48
27.09.2025	1	cauliflower	10,60	0,631	6,69
27.09.2025	2	potatoes	13,50	0,410	5,54
27.09.2025	3	pepper	4,30	1,071	4,61
27.09.2025	4	tomatoes	8,40	0,485	4,07
27.09.2025	5	onion, parsley	3,30	0,364	1,20
27.09.2025	6	mixed vegetables	5,30	0,574	3,04
27.09.2025	7	tomatoes	5,70	0,485	2,76
27.09.2025	8	mixed vegetables	7,20	0,574	4,13
27.09.2025	9	apples	7,50	0,605	4,54
27.09.2025	10	apples	3,80	0,605	2,30
27.09.2025	11	carrot	7,00	0,272	1,90
27.09.2025	12	mixed vegetables	5,20	0,574	2,99
27.09.2025	13	cucumbers	8,90	0,396	3,52
27.09.2025	14	mixed vegetables	5,10	0,574	2,93
27.09.2025	15	cauliflower	5,20	0,631	3,28
27.09.2025	16	mixed vegetables	9,40	0,574	5,40
27.09.2025	17	potatoes, carrot	11,00	0,341	3,75
27.09.2025	18	apples	12,20	0,605	7,38
27.09.2025	19	tomatoes	6,70	0,485	3,25
04.10.2025	1	cauliflower + mixed vegetables	7,90	0,603	4,76
04.10.2025	2	tomatoes	5,70	0,485	2,76
04.10.2025	3	apples	7,60	0,605	4,60
04.10.2025	4	carrot, parsley	6,10	0,363	2,21
04.10.2025	5	cauliflower	4,30	0,631	2,71
04.10.2025	6	beetroots	6,40	0,331	2,12
04.10.2025	7	broccoli, cauliflower	5,40	0,631	3,41

04.10.2025	8	mixed vegetables	5,20	0,574	2,99
04.10.2025	9	radish, cabbage	8,40	0,371	3,11
04.10.2025	10	apples, onion	5,70	0,440	2,51
04.10.2025	11	zucchini, eggplant	4,90	0,914	4,48
04.10.2025	12	mixed vegetables	6,30	0,574	3,62
04.10.2025	13	tomatoes	5,40	0,485	2,62
04.10.2025	14	carrot + mixed vegetables	4,70	0,423	1,99
11.10.2025	1	cauliflower	7,90	0,631	4,98
11.10.2025	2	cauliflower	4,70	0,631	2,96
11.10.2025	3	peaches	4,50	0,706	3,18
11.10.2025	4	bananas, dill	3,40	0,651	2,21
11.10.2025	5	mixed fruits	6,60	0,730	4,82
11.10.2025	6	zucchini	4,90	0,842	4,13
11.10.2025	7	apples	6,20	0,605	3,75
11.10.2025	8	grapes	5,80	0,882	5,11
11.10.2025	9	parsley	4,20	0,454	1,91
11.10.2025	10	plums, peaches	4,10	0,801	3,28
11.10.2025	11	lettuce, celery	3,90	0,421	1,64
11.10.2025	12	apples, bananas	2,90	0,726	2,11
11.10.2025	13	beetroots	5,70	0,331	1,89
11.10.2025	14	tomatoes	9,00	0,485	4,36
11.10.2025	15	carrots	5,10	0,272	1,39
11.10.2025	16	radish	7,20	0,454	3,27
18.10.2025	1	cucumber, tomatoes, lettuce	11,90	0,447	5,32
18.10.2025	2	cauliflower, broccoli	8,30	0,631	5,23
18.10.2025	3	mixed vegetables	7,20	0,574	4,13
18.10.2025	4	green beans, lettuce	4,90	0,704	3,45
18.10.2025	5	bananas, cauliflower	9,70	0,739	7,17
18.10.2025	6	broccoli, dill	4,50	0,542	2,44
18.10.2025	7	radish, apples	9,70	0,530	5,14

18.10.2025	8	broccoli, apples	11,40	0,618	7,04
25.10.2025	1	champignons	3,30	0,378	1,25
25.10.2025	2	cauliflower, green beans	14,90	0,788	11,74
25.10.2025	3	tomatoes	8,90	0,485	4,31
25.10.2025	4	zucchini, onion	6,10	0,558	3,41
25.10.2025	5	tomatoes	6,80	0,485	3,30
25.10.2025	6	radish, broccoli	13,40	0,542	7,27
25.10.2025	7	broccoli	6,20	0,631	3,91
25.10.2025	8	apples, cucumbers	7,30	0,500	3,65
25.10.2025	9	apples	8,20	0,605	4,96
25.10.2025	10	apples, plums	12,50	0,751	9,39
25.10.2025	11	grapefruits	8,80	0,774	6,81
25.10.2025	12	onion, cabbage, cauliflower	13,00	0,397	5,17
25.10.2025	13	cabbage, pepper, broccoli	10,00	0,663	6,63
25.10.2025	14	apples, tomatoes	11,90	0,545	6,48
15.11.2025	1	tomatoes	5,50	0,485	2,67
15.11.2025	2	tomatoes/cucumbers	12,80	0,440	5,63
15.11.2025	3	tomatoes/peppers	4,10	0,778	3,19
15.11.2025	4	tomatoes	3,60	0,485	1,74
15.11.2025	5	tomatoes	3,60	0,485	1,74
15.11.2025	6	tomatoes	5,70	0,485	2,76
15.11.2025	7	broccoli/cauliflower	14,00	0,631	8,83
15.11.2025	8	tomatoes	5,25	0,485	2,54
15.11.2025	9	cabbage/beans/lettuce	17,70	0,565	10,00
15.11.2025	10	tomatoes	9,70	0,485	4,70
15.11.2025	11	mix	10,90	0,574	6,26
15.11.2025	12	mix/apples/lettuce	11,40	0,547	6,24
15.11.2025	13	plums/apples/lemons	13,85	0,725	10,04
		GRAND TOTAL	**1249,9 kg CO2e**		**678,7**

Summary

Date	Weight (kg)	CO2e benefit (kg CO2e)	
12.07.2025	167,8		87,9
30.08.2025	99,3		52,3
06.09.2025	131,1		62,5
13.09.2025	137,7		79,8
20.09.2025	86,7		43,5
27.09.2025	140,3		73,3
04.10.2025	84,0		43,9
11.10.2025	86,1		51,0
18.10.2025	67,6		39,9
25.10.2025	131,3		78,3
15.11.2025	118,1		66,4
TOTAL	**1249,9**		**678,7**

CO2e factors are taken directly from The Big Climate Database (CONCITO), Danish (DK) version, v1.2 (rev. 18.12.2025), column Total kg CO2-eq/kg. This total covers agriculture, indirect land use change (iLUC), food processing, packaging, transport and retail, and includes iLUC. The system boundary is cradle to retail gate, per 1 kg of product at retail. For a box listing several foods, the factor is the equal average of the named items factors. Boxes labelled only mix or mixed vegetables use the vegetable average; greens uses a leafy greens value (Parsley/Dill, raw); mixed fruits uses the fruit average (averages over the distinct items below). Two foods have no CONCITO entry and use a documented proxy: kohlrabi uses Cabbage, white (same species, Brassica oleracea); horseradish uses Radish (same family, Brassicaceae).

Recorded food	CONCITO DK item used	Total kg CO2e/kg
apple	Apple, raw, all varieties	0,605
banana	Banana, raw	0,847
greenbeans	Beans, green, raw	0,946
beet	Beet, red, raw	0,331
broccoli	Broccoli, raw	0,631
cabbage	Cabbage, white, raw	0,287
carrot	Carrot, raw	0,272
cauliflower	Cauliflower, all varieties, raw	0,631
celery	Celery, raw	0,381
mushroom	Mushroom, raw	0,378
chives	Chives, raw	0,434
corn	Corn cob	0,981
cucumber	Cucumber, raw	0,396
dill	Dill, raw	0,454
eggplant	Aubergine, raw	0,986
garlic	Garlic, raw	1,248
grape	Grape, raw	0,882
grapefruit	Grapefruit, raw	0,774
horseradish	Radish, raw (proxy for horseradish, same family)	0,454
kohlrabi	Cabbage, white, raw (proxy for kohlrabi, same species)	0,287
leek	Leek, raw	0,434
lemon	Lemon, raw	0,674
lettuce	Lettuce, iceberg (incl. crisphead types), raw	0,461

onion	Onion, raw	0,275
parsley	Parsley, raw	0,454
parsleyroot	Parsley root, raw	0,949
peach	Peach, raw	0,706
pear	Pear, raw	0,459
pepper	Pepper, sweet, red, raw	1,071
plum	Plum, raw	0,897
potato	Potato, raw	0,410
radish	Radish, raw	0,454
tomato	Tomato, ripe, raw, origin unknown	0,485
zucchini	Squash, raw	0,842
greens (leafy)	**Parsley/Dill, raw (leafy greens)**	**0,454**
mix / mixed vegetables	**vegetable average (distinct veg items above)**	**0,574**
mixed fruits	**fruit average (distinct fruit items above)**	**0,730**