

Developing the concept and operating model for Tallinn's circular economy centres

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Definitions

Waste collection station – a waste treatment facility where collection devices are installed for the transfer of waste and where primary treatment, compaction for the purposes of volume reduction and transport may take place and which has been granted the relevant environmental permit.

Reuse – any operation whereby products or components that are not waste are reused for the purpose for which they were created.

Preparation for reuse – a controlling, cleaning or corrective recovery operation that prepares products or components of products that have become waste for use in such a way that they can be reused without any further pre-treatment.

Repair – the restoration of a broken or defective product or component for (re)use (see also preparation for reuse).

Repair workshop – a place equipped with the necessary tools (devices, accessories) to repair broken items on your own, under the supervision of a master or by purchasing repair services.

Recycling – the recovery operation whereby waste materials are transformed into products, materials or substances for their original or some other use. It does not include energy recycling (incineration) or the processing of waste into materials to be used as fuel or for backfilling.

Circle house – a building or part of a building, either stand-alone or located within the premises of a circular economy centre/waste treatment plant, for the promotion of the circular economy, housing repair workshops, reuse rooms, classrooms and other activities suitable for the promotion of the circular economy.

Circular economy centre – a circle house on a single site together with a waste treatment plant.

Introduction

This report summarises practical research aimed at putting forward a concept and operating model for Tallinn's circular economy centres to encourage reuse and create repair workshops, and thereby support residents' opportunities to contribute to a circular economy. The proposed concept will be the basis for the development of services for Tallinn's residents that offer opportunities for the reuse of objects/items and the repair of broken items. Through these activities, the city can contribute to reducing overconsumption, increasing reuse and thus reducing the burden on the environment.

This research is part of the project "Transformation of Waste Stations into Circular Economy Centres for the Promotion of Reuse and Establishment of Repair Workshops" (project number 2014-2021.1.06.22-0067), which is supported by the Environmental Investment Centre under the "Circular economy pilot projects" application round "Climate change mitigation and adaptation" funded by the European Economic Area Financial Mechanism.

This research paper analysed existing reuse/repair solutions initiated and supported by local governments both in Estonia (see chapter 2) as well as in other countries, including Norway (see Annex). Among other things, the suitability of these operational solutions for Tallinn's reuse and repair operational models was analysed. Round tables were held with interest groups and data collection through surveys and interviews were carried out to assess the operational models. Based on the analysis and the feedback from primary interest groups and the commissioning authority, a recommended concept and operating models for Tallinn's circular economy centres were developed (see 3), integrating the initiatives already in place in Tallinn and proposing solutions from a local government perspective, in particular to promote the reuse and repair of things (to develop appropriate services, knowledge and culture among the populace).

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The research was carried out in 2023 by Stockholm Environment Institute Tallinn Centre under the leadership of Harri Moora, Environmental Management Programme Manager.

1. Promoting the circular economy at the local government level – principles and operational bases

The following is a brief overview of the basic legal and operational principles of reuse and repair that municipalities should take into account when developing a reuse and repair system at a local level. The overview is based on previous studies on the subject and on an analysis of the experience of European municipalities in implementing reuse and repair systems.

1.1 The strategic and legal context for promoting reuse and repair in the European Union

From a linear to a circular economy

In its waste policy, the European Union (EU) has set out to create a strong framework for a circular economy to avoid the loss of valuable resources through wasteful consumption, inefficient use of materials and waste management. One part of the framework is the setting of binding targets for, among other things, the reuse of various products. The EU Waste Framework Directive¹ foresees the reuse and repair of end-of-life products or their components, for which Member States may use both educational and economic measures, such as the creation and support of reuse and repair networks and initiatives.

The European Commission's Circular Economy Action Plan², an important part of the European Green Deal³, foresees that the transition from a linear economy to a circular economy should lead to consumers being offered high-quality, functional and safe products that are affordable, last longer and can be reused, repaired and recycled.

Building on the Ecodesign Directive 2009/125/EC, the European Commission has published a proposal for a new ecodesign for sustainable products regulation.⁴ The proposal sets ecodesign requirements for nearly all products on the EU market (except food, feed and medicine), which should improve their durability, reusability, repairability, energy efficiency, suitability for circulation and other environmental factors. Depending on which products are included in the final list, the proposed requirements have great potential to make production and consumption more sustainable. However, the successful implementation of these requirements (i.e. extending the lifetime of products) also requires the existence of product reuse and repair systems.

Right to product repair

According to a Eurobarometer survey, 77% of EU consumers would prefer to repair their existing products instead of buying new ones, but the high cost of repair and the low availability of services force them to buy new products.⁵

The European Commission has announced the introduction of a right to repair in several strategic policy documents: The European Green Deal, the Circular Economy Action Plan and the New Consumer

¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018L0851>

² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A98%3AFIN>

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52019DC0640>

⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A0142%3AFIN>

⁵ <https://www.europarl.europa.eu/news/et/headlines/society/20220331STO26410/oigus-toodete-parandamisele-el-soovib-rangemaid-reegleid>

Agenda⁶. Repair, which prolongs the life of products and helps save money from buying new things, is an important step towards the EU's goal of a circular economy by 2050.

The right to repair means the following principles.

- The right to repair purchased goods during the warranty period. Under EU law, consumers can have their faulty products repaired free of charge within two years of purchase.
- Right of repair after the expiry of the legal warranty. Manufacturers and sellers have not had the obligation to repair products after two years – even when consumers want to pay for repairs, they have not had the legal right to do so and it has often been difficult to find someone to repair it.
- Consumers' right to repair products themselves. Under EU law, manufacturers have thus far not been obliged to provide consumers with information on repair (e.g. repair instructions). Access to technical information and spare parts for some products has been restricted to professional repair workshops.

In March 2023, the European Commission proposed a directive to promote repairing goods bought by consumers.⁷ The new rules would make it easier to repair broken products, reduce waste and support repair workshops. Under the agreement reached by the European Parliament and the Council in February 2024 manufacturers will, for the first time, be obliged to offer a repair option beyond the two-year warranty period for products covered by the Ecodesign Directive.⁸

The regulatory framework for the right to repair also strongly encourages local governments to develop a system for repairing products.

1.2 The role of local governments and the principles for promoting reuse and repair

Local governments have an important role to play in fostering a culture of circular economy, including reuse and repair, and in developing a system to support it. Promoting the circular economy (including reuse and repair) at the local government level is a systemic process that involves a number of necessary elements in addition to the creation of technical facilities (e.g. premises and equipment). The experience of the most successful European municipalities in the circular economy and of similar initiatives in Estonia, as well as previous analyses and studies on the subject, have highlighted several elements and principles that should be taken into account when creating a reuse and repair system at the local level. The following are the main principles that local governments in Estonia should consider in order to encourage the reuse and repair of items and to create a system at the local level.

Existence of a strategic, including financial, framework

The promotion of the circular economy (including reuse and repair), both at the national and municipal level, should be based on strategic documents (including relevant objectives and targets) that provide a framework for the development of solutions and the implementation of measures (including the design of the necessary support and funding schemes). Therefore, it is important that the strategic documents of the municipalities include, in addition to other waste management planning, objectives and measures for the development of reuse and repair activities that support the implementation of the local government's circular economy system.

It is expected that, in addition to recycling targets, reuse targets for a number of products (e.g. textiles, electronics, etc.) will be introduced at the EU level in the coming years. There should, therefore also

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0696>

⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0155>

⁸ <https://www.consilium.europa.eu/en/press/press-releases/2024/02/02/circular-economy-council-and-parliament-strike-provisional-deal-on-the-right-to-repair-directive/>

be a willingness at the local government level to set such targets themselves. This means the methods for monitoring and measuring reuse and repair activities/measures and their success should already be established at the initial stage of promoting them (this requires, among other things, the establishment of technical capacities, e.g. weighing and accounting systems).

As the development of a number of circular economy activities (in particular reuse and repair) requires long-term support from the local government, it is important that the basis for financing this system is laid out via an agreement. While the financing of a number of waste management activities can be planned on a so-called "polluter pays" basis (e.g. collection and treatment of municipal waste), it is generally not possible to plan reuse and repair activities as economically viable (at least in the initial phase of system development). Therefore, the strategic framework for the local government circular economy (e.g. the waste management plan or other relevant strategic documents) should also include principles and sources of funding for the reuse and repair system. The promotion of reuse and repair cannot be developed on a project basis.

Systemic and holistic approach

Local government models for reuse and repair must fit into the existing circular economy system, which includes both the relevant departments within the local government itself and other partners involved in the circular economy/waste management system (including reuse and repair initiatives), as well as organisations and businesses active in the field.

The systematic and planned development of reuse and repair activities also requires that the department(s) and structures dealing with the organisational side of the system (e.g. planning, coordination, communication and awareness raising) are clearly defined at the local government level.

The comprehensive development of the system is based on cooperation with other relevant actors (see below).

Cooperation with different actors

In implementing the reuse and repair system, public authorities need to work closely with stakeholders in the field (reuse organisations, repair service providers, civil associations, environmental education organisations, etc.). The experiences of more successful countries and local governments show that the meaningful involvement of stakeholders in the functioning of the reuse and repair system ensures a more successful and widespread diffusion of the circular economy culture. Involving non-municipal partners will also help create the necessary integrated system and increase synergies in this area, which in the long term will ensure faster development of the reuse and repair system while helping to reduce municipal costs.

The development of a reuse and repair system in cooperation with businesses and organisations will create the foundation for this type of business to spread and flourish, and will help to avoid the potential negative impact (on competition) of a system set up by the local government for businesses and organisations already operating in the circular economy sector.

Promoting a culture of reuse and repair and its social aspects

From the point of view of the local government, the promotion of reuse and repair should have a much broader objective than just the development and support of such activities/services. It is important to see the broader objective of contributing to the creation of a reuse and repair society/culture that, beyond the traditional waste problem, considers reuse and repair as part of the social and economic values of society. Moreover, the wider dissemination of maintenance skills and communal cooperation related to it will have a significant impact on improving societal resilience and coping in crisis situations.

As such, it is important to develop the awareness, education and communal cooperation components of the system when targeting reuse and repair activities at the local government level.

Thus, from the point of view of the local government, a reuse and repair system should take into account the following principles.

- Activities and services enacted with the support and initiative of the local government must provide opportunities and inclusion for all members of society.
- These activities and services should not give rise to unequal competition with other organisations and companies active in this field.
- The system to be set up should contribute to the wider dissemination of the relevant knowledge, skills and mindset.

Supporting reuse and repair also contributes to the preservation of traditional craft skills/techniques and the development of the creative sector. At the same time, there are good opportunities for innovation with novel solutions and techniques for reuse and repair (e.g. by developing e-commerce platforms and channels, 3D printing, digital technologies).

In addition, the development of reuse and repair activities offers good opportunities for municipalities to create social jobs in waste treatment plants with a new function, i.e. circular economy centres, and in repair organisations/businesses, which will help to better integrate people excluded from the labour market into society.

Creating local market demand for recycled and refurbished products

Local governments have a significant stimulating effect on creating wider market demand for reuse and repair on the local level. This requires the local government to widely integrate the criteria of reuse and repair into their product and service procurements. In addition, the local government can develop a system for reusing things (e.g. furniture) belonging to its departments and divisions as well as lending systems that support the wider application of both reusing as well as repairing.

2. Reuse and repair initiatives in Estonia

Estonian local governments have begun developing solutions and opportunities that support reuse and repair. So far, this has primarily been limited to collecting reusable items or supporting repair initiatives in local government waste treatment plants.

The following is a brief overview of reuse and recycling initiatives and their operating models and challenges, particularly in Tallinn and Tartu. The models of operation described can be broken down more generally as follows:

- local government waste treatment plant-based circular economy initiatives,
- item repair/repair workshop initiatives.

Circular economy initiatives (especially those based on private initiative) that are not directly owned by the local government or do not rely heavily on public funding (e.g. MTÜ Uuskasutuskeskus) are not described.

2.1 Waste treatment plant-based circular economy initiatives

Several municipalities in Estonia (including the city of Tallinn) have started to add a reuse function to their waste treatment plants, offering residents the opportunity to donate usable items (especially clothes, household appliances and furniture).

Usually, waste treatment plants have one or more rooms open during opening hours where residents can bring reusable items for recycling free of charge and where they can take things for themselves if they wish. For the collection of used clothing, household textiles, footwear and toys, many waste treatment plants also have separate containers that are usually entrusted to a reuse organisation for emptying and further application.

In Tallinn, reuse rooms can be found in the Paljassaare and Pääsküla waste treatment plants⁹, which are overseen by the Tallinn Waste Centre in cooperation with MTÜ Uuskasutuskeskus. Residents can leave any clothes that are in good condition, as well as footwear, toys, books, CDs, dishware, cutlery, sporting and leisure goods, furniture, household linens and smaller home appliances at reuse rooms. Up to six 100-litre bags of usable clothing can be brought per person, per day. Reuse rooms are primarily self-service based, i.e. there is generally no separate staff receiving items. People leave their own things on the shelves according to product category labels. Reusable items are free for people to take away. In addition, there is a scale in the room for weighing items brought in or taken away.¹⁰

If the room is full and the items brought in have not found a new owner, MTÜ Uuskasutuskeskus sorts them and takes potentially reusable items to their stores or donates them to those in need via their partners. The expenses of the reuse room and associated staff are covered by the city of Tallinn.

Tallinn is the first local government in Estonia to have opened a repair workshop at a waste collection station (see section 2.2.1), thus further extending the classic waste treatment plant's function in a circular economy.

In Tartu, reuse rooms can also be found in two waste treatment plants on Selli and Jaama streets.¹¹ Household items that can be recycled (including furniture, electric and gas cookers, washing machines, dishwashers, etc.) can be handed over to the recycling room at the waste station, where residents can take them for free.

⁹ <https://www.tallinn.ee/et/keskkond/korduskasutus#Korduskasutuskeskused>

¹⁰ The weighing is done to monitor the reuse rate.

¹¹ <https://www.tartu.ee/et/kuhu-jaatmed-via>

A number of smaller local governments (such as Rae¹² and Saku¹³) have also begun accepting usable items at waste treatment plants. In addition, some local governments (such as Kambja¹⁴ and Rõuge¹⁵) have set up separate buildings or rooms where usable but no longer needed household items (dishes, hobby equipment, books, toys, clean clothes and footwear, etc.) can be brought. These so-called recycling rooms let anyone take items home with them for their own use.

As most local governments do not operate their own waste treatment plants (except the city of Tallinn), reuse takes place without a particular operating/business model (i.e. the local government does not itself handle utilisation of used goods and they are given away for free or disposed of through a partner).

2.2 Repair initiatives

Several Estonian local governments have also begun supporting repair initiatives and repair workshops that disseminate maintenance skills and knowledge among the populace. Remedial initiatives supported by local governments or the state can be broadly divided into two fields:

- (general) repair workshops,
- clothing repair.

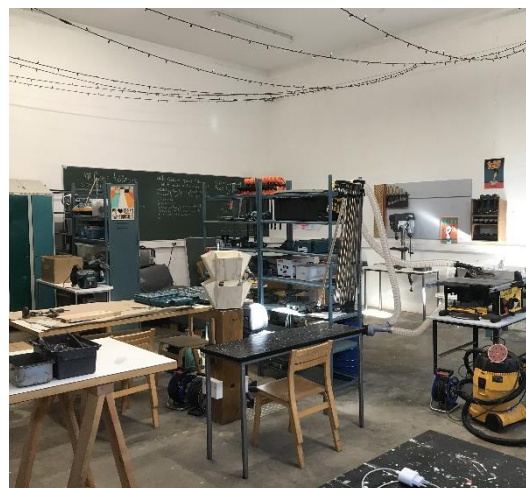
The following is a brief description of only those workshops supported or initiated by local governments or the state. This section does not cover other private initiatives or businesses offering repair services (such as clothing or electronics repair).

2.2.1 Repair workshops

Kopli 93 repair workshop

Kopli 93 repair workshop¹⁶ (Kopli 93, Tallinn) is Tallinn's first community repair shop and has been operating since the beginning of 2022 in the converted garages of the Kopli community centre courtyard. The workshop is part of the Kopli 93 community centre, which is being developed as part of the Horizon 2020 project Centrinno¹⁷ in cooperation with TalTech, Kopli Vocational School and Tallinn Strategic Management Office.

To set up the workshop, the government of Põhja-Tallinn initiated the project "Kopli repair workshop: a test laboratory for new economic models and social organisation", which aims to support sustainable living. The creation of the workshop and the hiring of the repairing specialists was funded by the city of Tallinn and the Environmental Investment Centre (EIC) through the circular economy programme.



¹² <https://jaatmejaam.rae.ee/jaatmejaamast/>

¹³ <https://www.sakuvald.ee/taaskasutus>

¹⁴ <https://www.kambja.ee/kuhu-jaatmed-viia>

¹⁵ <https://rouge.kovtp.ee/taaskasutuskeskus>

¹⁶ <https://www.tallinn.ee/et/jaatmekeskus/kopli-93-parandustookoda>

¹⁷ <https://centrinno.eu/cities/tallinn/>

Until 31 December 2023, the repair workshop and the Kopli community centre, as part of the Salme Cultural Centre, were in the budget of the Põhja-Tallinn district. From 1 January 2024, the Kopli 93 repair workshop is part of the Tallinn Waste Centre, which is managed by the Tallinn Strategic Management Office.

The repair workshop is focused primarily on wood, but in cooperation with Kopli Vocational School and other experts there have also been workshops centred around smithing and urban spaces, home furnishing and repairing items of different materials. The workshop is open on Mondays, Wednesdays and Thursdays from 17:00-21:00, as well as for different events.

Use of the workshop is free of charge. To repair your broken item, you must bring the materials you will use (including paint, varnish, fixings, etc.). The workshop is equipped with tools, and a master can help you choose the appropriate and safe tools and techniques.

In addition to the Kopli repair workshop, the city of Tallinn is planning to open a wood repair workshop at the **Paljassaare waste collection station** (Paljassaare põik 5). In Paljassaare, there is a reuse room and the necessary room/building for creating a workshop.

Pääsküla Repair Workshop

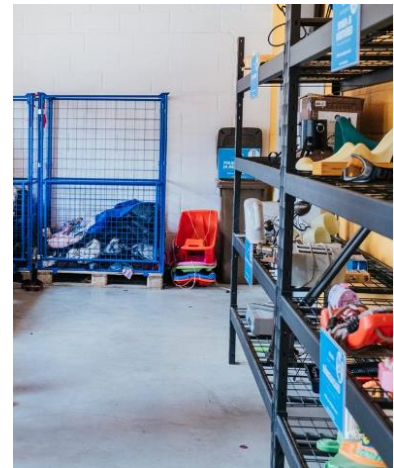
A repair workshop was opened in Tallinn's Pääsküla waste collection station (Raba 40) in July 2023.

Under the guidance of an expert, you can repair items that need soldering, riveting, glueing or welding. In the first four months (August-November 2023), 56 items were repaired in the workshop. The main materials were metal, wood and mixed materials.

The workshop is open Tuesdays and Wednesdays from 14:00-19:00. The workshop employs one craftsman.

The workshop includes a reuse room where you can bring things you no longer need and take things for your own use.

The repair workshop and reuse room were created and furnished and a repairer hired with the support of the European Economic Area/Environmental Investment Centre project "Transformation of Waste Stations into Circular Economy Centers for the Promotion of Reuse and Establishment of Repair Workshops". The repair workshop will be free of charge for visitors until the end of the project (30 April 2024). The repair workshop will continue to operate following the end of the project.



Tartu Repair Cellar

The Repair Cellar¹⁸ is an open workshop for repairing, reusing and recycling consumer goods at Tartu Aparaaditehas (Kastani 42). The Repair Cellar started as one of the repair cafes held in 2017, which are still held today, generally once every two months.



¹⁸ <https://paranda.ee/>

The main areas of activity of the Repair Cellar¹⁹ are:

- sewing,
- electronics,
- bicycles,
- general repairs (including furniture, toys, sports and travel equipment, musical instruments, footwear and ceramics).



The activities of MTÜ Paranduskelder are supported by the Tartu City Government and through various projects by the Environmental Investment Centre (EIC). The Repair Cellar has had various other cooperating partners and projects. The Tartu City Government covers most of the rental costs of the premises, while the EIC supports the payment of salaries: for the professional repairer three times a week and for coordination and marketing. There are a total of 0.75 jobs for two people at present. The activities coordinator conducts educational programmes and organises workshops. The marketing specialist's main tasks include organising marketing campaigns, including social media management, distributing promotional materials, liaising with partners, organising events, responding to visitors' queries online and on social media.

You can have your broken items restored on-site on a donation basis with the help of professional repairers. On average, one donation is €5. A membership fee is charged for the use of the workshop without the guidance of a craftsman. Six repairers work in the Repair Cellar. The Repair Cellar is open on Tuesday, Wednesday and Thursday from 17:00-21:00. Two craftsmen are present each day.

Seminars take place both on-site (with a participation fee) and, starting from 2024, online. A craftsman will give instructions on how to fix things on the spot, which will be recorded and uploaded on Youtube. Thematic workshops and educational programmes can also be booked for groups. You can rent the Repair Cellar for your event and buy supplies that are used in repairs (materials, tools) from the online shop.

The Repair Cellar's main target groups are three segments of the population of Tartu and its surrounding areas: students aged 17-26, adults interested in sustainable living aged 25-40 and senior Tartu residents aged 55-78.

Men's Shed Tartu

The Men's Shed Tartu (Anne 46a)²⁰ is an open workshop for all people who want to build, craft or make something with their own hands in the city of Tartu.



The workshop is designed primarily for learning and doing woodworking, and for the maintenance and repair of various items. The items made in the workshop are for the use of members, their families and the community. The Tartu Woodshed is open to members 24/7. All the activities are carried out on a community basis as volunteer work.

You can use the workshop with a 1-day, 7-day or 30-day ticket (separate prices for adults, pensioners, Men's Shed supporting members). Large-scale and long-term projects must be agreed upon on a separate basis. You can also rent a seminar room for your own events as well as machines. The workshop regularly organises training courses, workshops, tool fairs for buying, selling and exchanging woodworking tools, craft days, etc.

¹⁹ The overview of activities is based on the document: Repair Cellar 2024 Canvas for a repair workshop business model.

²⁰ <https://www.meestekoda.ee/>

The main funders of the workshop have been the city of Tartu, the Association of Municipalities of Tartu County through a local initiative programme and the National Foundation of Civil Society. A similar Men's Shed has been established in Estonia in the city of Haapsalu.

2.2.2 Clothing repair

Re-use Centre Sewing Room

In May 2023, the city of Tallinn, in cooperation with MTÜ Uuskasutuskeskus and TTK University of Applied Sciences, opened a sewing repair workshop in the Re-use Centre (Sõpruse pst 255, Tallinn) where both clothes and home textiles can be repaired.²¹ An area of about 10 m² is set aside for this purpose in the back of the shop.

To use the sewing repair service, you need to book a time. Initially, three items could be repaired at a time, but due to the high workload, from the end of July 2023, only one item can be repaired at a time.

Users of the free service will also be asked to fill in an online survey, the answers to which will help the city of Tallinn and the Re-use Centre to assess the relevance of the service in promoting a culture of repair and the circular economy. As of 15 January 2024 (from the opening of the sewing room):

- 255 people responded to the survey,
- 292 customers visited the sewing room,
- 607 sewing jobs were carried out,
- 15 jobs were sent back (technically too complex).

Sewing repair work is done by students of the Fashion Industry curriculum of TTK University of Applied Sciences with the help of activity supervisors.

As part of the pilot project, sewing repair services will be provided free of charge until 30 April 2024, during which the project is supported using European Economic Area funding and no revenue is generated. The sewing repair workshop will continue to operate after the end of the project.

Trash to Trend Repair and Upcycling studio

Trash to Trend repair and upcycling studio²² (Müürivahe 17, Tallinn) was opened in May 2023. The aim of the studio is to prolong the life of clothes through reuse, reprocessing and recycling. In particular, the aim is to contribute to sustainable consumption through the improvement and redesign of quality products as well as information and training. Services offered:



- clothing repair and redesign,
- footwear maintenance (in cooperation with partner Cleanstep),
- workshops.

The creation of the Trash to Trend repair and circular design studio was funded by the city of Tallinn with non-profit support intended to enrich and value of the urban living environment, paying 80% of the rent for the space until the end of 2023. The self-financing for the project will be covered by the company's other similar activities. No income was generated by the project.

The customer needs to book a time to receive repair services. Clothing can be repaired by oneself with the help of an expert. The majority of customers are aged 35+ and do not consume fast fashion but rather buy quality garments.

²¹ <https://uuskasutus.ee/koostoo/#omblustuba>

²² <https://www.reetaus.com/et/pages/trash-to-trend>

Trash to Trend OÜ's funding comes from projects and from serving business and regular customers. After the end of the project, the studio wants to continue with workshops and training.

3. The concept and operating models for Tallinn's Circular Economy Centres

In this chapter, the concept and possible operating models of Tallinn's Circular Economy Centres are described, based on the previously set out principles of promoting the circular economy (reuse and repair) in local governments, the developments in the field and the experience of Estonia and selected other European countries (in particular Norway and other Nordic countries, see also the annex to the report) in implementing reuse and repair models.

The concept of Tallinn's circular economy centres has focused primarily on the reuse and repair function. The concept has been described from a municipal perspective, i.e. it has been assumed that the operating model must be compatible with the needs and interests of developing a municipality-centred reuse and repair system (see also the principles set out in section 1.2). The contribution and role of other reuse and repair initiatives (NGOs and businesses active in this field) in the system is described, in particular through cooperation and partnership with the municipal model.

The following concepts for the operation of the Tallinn reuse and repair system are proposed separately:

- circular economy centre – includes a holistic circular economy function, including reuse and repair in the envisaged circular economy centres,
- reuse room – integrated primarily into existing waste facilities,
- repair workshop – repair workshops that can fit into existing waste treatment plants as well as other locations.

All the concepts of operational models discussed here describe models based primarily on the initiative and financing (i.e. partial or full management) of the local authority itself.

3.1 General description of Tallinn's reuse and repair system

The reuse and repair activities supported by the city of Tallinn and the operating models for these activities must fit into the existing recycling system. This includes both the relevant municipalities and waste management facilities (e.g. waste treatment plants and related reuse/repair activities), as well as other organisations and companies active in this field.

In Tallinn, the central body providing waste management and city maintenance services (including environmental information) is the **Tallinn Waste Centre**²³, managed by the Tallinn Strategic Management Office. Among other things, the Tallinn Waste Centre operates the city's waste treatment plants. As such, the Tallinn Waste Centre can be viewed as a holistic developer of the city's circular economy, whose objective, among other things, is the coordination of the city's reuse and repair activities and the management of circular economy centres/waste treatment plants and repair workshops in the city's administrative area. To accomplish these objectives, necessary structural changes and specification of activities have been initiated at the Tallinn Waste Centre.

Tallinn has also created the necessary **strategic framework** that will serve as a foundation for the planned development of the circular economy (including reuse and repair). The Tallinn Waste Plan 2022-2026 sets out the main targets for the development of the circular economy.²⁴ An important field of activity is the creation of a culture of reuse and repair, which will come to fruition primarily through increasing the development, partnerships and awareness of circular economy centres as well as supporting circular economy businesses/organisations and initiatives.

²³ Taking into account this institution's increasing activities in the circular economy, consideration can be given to renaming it the Tallinn Circular Economy Centre.

²⁴ <https://www.riigiteataja.ee/akt/417052022007>

The main elements in implementing Tallinn's reuse and repair system can be seen in the form of the **circular economy centres**, which will be developed on the basis of already operating waste treatment plants and new, planned circular economy centres that together will form the system's primary framework. In addition, the framework includes **reuse rooms and repair workshops** created or planned by the city (either adjacent to waste treatment plants or separate). The operating models of these implementation elements can be very different and external partners may be involved in their operation (see also Figure1).

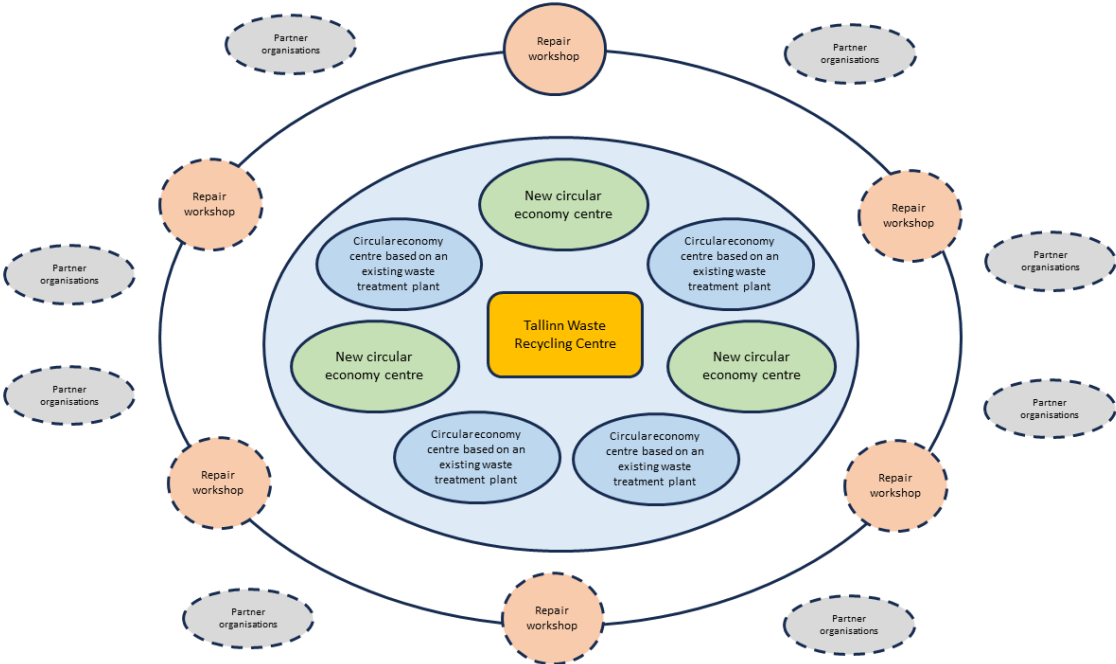


Figure1. Main implementing elements and actors of the Tallinn reuse and repair system

The following chapters describe the possible concepts for operating models of elements of Tallinn's reuse and repair system that can be used as a basis for developing the system.

3.2 Circular economy centre concept

At the time of this study, the city of Tallinn is planning to build at least three new circular economy centres, which will include other circular economy functions (such as reuse and repair) in addition to the waste collection station itself:

- Lilleküla Circular Economy Centre (at Mustjõe Street) – expected to be completed in 2024,
- Lasnamäe Circular Economy Centre (at Punane Street) – expected to be completed in 2025,
- Haabersti Circular Economy Centre (at Järveotsa Road) – expected to be completed in 2026.

The future layout and planning of these circular economy centres will vary somewhat depending on their location and design conditions. However, in addition to the classic waste treatment plant, all the circular economy centres will also have a recycling, repair and awareness-raising function, i.e. a training and education function. As such, these new centres in Tallinn are similar in function to those in other progressive European municipalities (see Annex).

The following is a recommended conceptual design of a circular economy centre (standard activities and services).²⁵

²⁵ Here, it should be taken into account that the conditions and layout of the planned circular economy centres vary and certain limits may affect the implementation of the proposed concept.

Waste collection station (indoor or outdoor container park and waste reception area)

In the new circular economy centres, the operation, organisation and financing of the waste collection station could continue on the same basis as in the existing waste treatment plants. Waste reception staff can be deployed in other activities at the circular economy centre, including in the recycling area.

It has also been observed in Nordic municipalities that linking the waste collection station function to the circular economy centre (through reuse, repair and awareness raising) creates significant synergies, including the holistic provision of services in a single location.

Circle house

A building or part of a building in a circular economy centre that houses reuse rooms, repair workshops, classrooms and other activities suitable for promoting the circular economy. The design of a circle house and the circular economy activities it engages in can vary in scale and focus. As a general rule, circle houses located in holistic circular economy centres (Tallinn's new circular economy centres) should include the following activities:

Reuse area

Reuse activities, including reception, cleaning, sorting and utilisation (display and sale) can be done on several different levels. In Tallinn's new circular economy centres, the reuse area should include at least the following rooms/spaces:

- item reception area,
- item cleaning and sorting area,
- storage,
- item sales area.

The experience of other municipalities shows that the storage of reusable items needs to be spacious enough. However, it should be noted that the amount of goods and materials collected in the centres can vary greatly over time. At the design stage, flexible spaces or areas (e.g. for storage containers) could also be planned for the premises of the centre, which can be used for storing items as needed (either to increase or decrease storage space). The area for the sale of second-hand goods could also be larger in the long term, in order to test different sales solutions in the future. In general, it is not advisable to offer different types of items mixed together to consumers. A place for the utilisation/sale of second-hand goods therefore needs enough space to display things in a way that is suitable, understandable and presentable to people.

Reusable items reception

In general, recyclable items are accepted from residents on the basis of an agreed upon set of rules (including a list of items/product groups and the conditions of acceptance). In the new centres, there should definitely be separate staff to receive items and visitors should be discouraged from leaving their belongings anywhere without supervision.

The costs of premises and staff for the reception and storage of items are generally borne by the body managing the circular economy centre.

Utilisation and sale of reusable goods

Further handling of items, including the sale of the collected items, can take different forms:

- the circular economy centre handles and sells reusable items itself,
- the subsequent handler and seller of the reusable items is a partner (e.g. Uuskasutuskeskus).

As a general rule, it would be preferable for at least some reusable items to be sold in the circular economy centre on-site. This adds value to the centre and makes them multifunctional service providers, which in turn makes them more attractive to the population.

Typical products to be sold on-site are:

- furniture,
- sports and leisure goods,
- garden products,
- electrical and electronic equipment (generally requires inspection and repair),
- home and garden appliances,
- children's goods,
- home furnishings,
- footwear and clothing (in some cases given to partners for sale elsewhere).

The experience of similar centres in Nordic municipalities shows that the sale of reusable items by the centre itself may not be very efficient, as the municipality/centre manager generally lacks the "commercial" interest and motivation to do it in a high-quality way. At the same time, the reuse of items should be treated as normal economic activity. It is therefore not sensible to direct used items into reuse for free. Successful Nordic municipalities are thus moving in the direction of setting a sale price for used items. As non-municipal partners (reuse organisations and companies) are generally much more efficient in selling used goods, municipalities have tended to outsource the sale of used goods in circular economy centres to organisations or companies, offering them shop space in the centre at a favourable rent (these organisations usually receive the used goods free of charge) (see also examples from other countries in the Annex).

Therefore, it would be advisable to organise the sale of reusable items in the new circular economy centres in Tallinn with the help of selected partners. In the initial phase, the circular economy centre may offer the necessary space for the sale of goods, either free of charge or at a low rental price, which can be adjusted once the sales results are determined.

If it is not immediately possible to find a partner for the sale of second-hand items, the selling can be carried out by the circular economy centre itself. At the same time, if possible, the centre should also start to add sale prices to things (at least for the most in-demand and higher market-value items).²⁶ It should be noted that the offering of used goods for free also creates an unfair situation on the market (discouraging the economic activities of other reuse organisations on the market), devalues the image of reuse and is therefore not conducive to the development of the circular economy.

However, for certain items (e.g. furniture, toys, sports equipment), the circular economy centre may develop a system that allows these items to be distributed free of charge within the municipality's own system (e.g. public authorities, schools and kindergartens) or donated to specific interest groups (e.g. families in need, children's homes).

For the on-site utilising/sales of used goods, the same display and sales principles should be followed as for the retail sale of conventional goods (e.g. grouping of items by theme, good presentation and sales messages, uniform design of labelling, appropriate locations for different items). Sales should be monitored on a rolling basis (at least weekly). This helps gain an understanding of clients' demands and preferences, which in turn helps adjust item reception and general utilisation principles. Sales tracking also provides data for monitoring reuse goals and possible target numbers. When handing over the sale of reusable items to a partner, they should also be asked for periodic feedback on the sale of the items.

Thus, it should be borne in mind that circular economy centres should be able to keep records of the quantities of reusable items received and disposed of (which assumes the necessary scales and an accounting system that can also be shared with potential reuse partners). Accounting of the quantities of items is necessary in order to monitor compliance with reuse targets (including the calculation of

²⁶ The experience of other similar centres shows that the revenue from the sale of used goods should at least cover the salaries of the staff involved in selling them.

the carbon footprint) and possible future national targets. Quantities (weights) should first be accounted for used clothing and textiles, and then gradually for other reusable items.²⁷ To this end, an assessment of the quantity of textiles received and utilised, as well as other items, should be introduced. The acquisition of appropriate storage and sales accounting programs/software should also be considered in developing the reception and utilisation of used goods in the new circular economy centres. This would help with keeping records and would give an overview of the reception and utilisation/sale of used items and finances. In this case, item-by-item counting can also be introduced to facilitate the estimation of quantities/weights of items.²⁸

As the sale of reusable goods should be based on the same principles as the retail sale of normal goods, the design and layout of the salesroom should also take into account the normal requirements for salesrooms.

The opening hours of the reuse area should coincide with the opening hours of the waste treatment plant.

Repair activities

One of the functions of a circle house in a circular economy centre is usually to provide a repair facility and service. To this end, the centre should have a separate area or premises for repair workshops and repair service providers.

If the functions of a waste collection station and reuse fit together well, then the opportunities of the given circular economy centre should be taken into account, such as size and room layout, location (accessibility) and the existence of any repair workshops/services already operating in the area. Depending on the location and the content of the circular economy centre, repair activities can either focus on raising awareness and skills, or on providing different repair services (shopping centre type circular economy centre). The centre can also have both lines of action.

Typically, repair workshops are divided into two categories:

- general repair workshops – provide an environment for repairing a variety of items (usually includes various rooms, tools and devices),
- specialised workshops – usually offer repairs in one particular category (e.g. clothing and textiles, woodworking and furniture).

Both types of workshops usually offer advice and instruction (both individual instruction as well as regularly held lessons) in addition to repairing things on one's own. As such, the workshop is not only a repair facility, but also a provider of repair skills.

Repair workshops in municipal circular economy centres should be open and accessible to all residents, and should offer the opportunity to repair, in particular, the most common and simple items (repairs should not be too complicated or time-consuming) and to increase skills for as many people as possible.²⁹ This should be borne in mind when designing the operational design and operating procedures of repair workshops, which also impose certain restrictions on the choice of items that can be repaired on-site. For example, repairing time-consuming pieces of furniture significantly limits the number of people who could repair furniture themselves or with the help of a professional repairer. However, short-term workshops can be organised to improve the skills (e.g. woodworking skills) needed to repair these items.³⁰

²⁷ It can be expected that recycling and reuse targets will also be set at the national level.

²⁸ For some items, weighing is difficult, and so average mass weight of items can be used in the accounting system to calculate estimated weights.

²⁹ It is important to avoid that businesses use repair workshops for their own economic activities.

³⁰ In the case of the repair of furniture and other such items as well as the corresponding workshops, there may already be a sufficient supply on the market, and people may be willing to pay for it. In the case of municipally managed repair workshops, it makes no sense to start competing with existing repair-focused enterprises.

It is also difficult from an electrical safety point of view to allow people to repair their own sophisticated electrical equipment, for example. In this case, it is more reasonable to offer an equipment repair service or to organise workshops in a well-thought out framework and for a selected target group.

Based on the above, Tallinn's new circular economy centres could have **general repair workshops**. In both Lasnamäe and Lilleküla, premises for a general repair workshop are planned. The workshop in the Lilleküla Circular Economy Centre is planned to be focused on soft furniture and textiles. In the future, general repair workshops could also have 3D printing capability (with the ability to form and model the parts needed to repair things), as many repairs require the replacement of broken plastic parts.

As there are not many suitable partners in Tallinn who could take over the management of the general repair workshops (including instruction and seminars) on the basis of a cooperation agreement, the city of Tallinn will probably have to hire the necessary repairers/instructors to run the repair activities at the centre. Therefore, the investment and administrative costs of a general workshop (premises, equipment, wages of the repairers and primary material costs) will have to be covered by the circular economy centre itself. However, the repair activities offered to people (including participation in workshops) should be priced from the start.³¹ It can also be applied to workshops in a step-by-step approach, as people's interest and willingness grow.

Experience with general repair workshops so far shows that a workshop must have one or more dedicated repairer(s) (a member of staff employed by the centre) to organise the workshop, supervise people where necessary, and ensure the upkeep and safety of the equipment and premises. Volunteers or part-time assistants (e.g. students from vocational training centres in the field) may also be involved.

Organising seminars should certainly be part of the activities of repair workshops. The organisation of seminars can be more flexible and can also involve external specialists and organisations as facilitators and organisers.³²

In addition to a general repair workshop, circular economy centres should have **one or more specialised repair workshops**. Based on the experience of repairmen, having a separate repair workshop is suitable for garment and household textiles or as a smaller-scale woodworking workshop. Under certain conditions, there may also be a separate repair workshop for electrical and electronic devices. However, when taking into account the aforementioned limitations in this field, it would still be more appropriate to handle the repair of electrical and electronic devices as a separate service offered by the centre. Specialised repair workshops should also offer regular seminars for residents.

Since the skills necessary for specialised repair workshops are specific, but, in most cases, also widespread (e.g. sewing, woodworking/furniture repair), it is recommended to hand over specialised repair workshops (conducting activities, instruction and organising seminars) to contracted partners, who will operate in accordance with conditions set by the circular economy centre. The model of a specialised repair workshop could be based on the experience gained from the garment repair workshop set up in cooperation between the city of Tallinn, TTK University of Applied Sciences and MTÜ Uuskasutuskeskus. Here too, the city's contribution could, above all, be to cover costs related to acquiring necessary equipment and free use of premises for the workshop.

³¹ Here, too, it could be assumed that the workshop fee would in the future at least cover either the electricity and heating costs of the workshop or the repairer's salary.

³² Depending on the topic and popularity of a given seminar, different forms of collaboration can be used in addition to partial or full coverage of expenses related to the seminar, such as using rooms and devices for free or a lower rent price as well as giving the opportunity for the seminar organiser to carry out the seminar and set a participation fee themselves.

Repair workshops should also collect certain detailed data (e.g. item being repaired, type and length of repair work) that allows for the analysis of repair work efficiency and people's expectations and needs (including price level), through which the operating model of the repair workshop can be improved. Surveys and feedback forms are also recommended to analyse activities.³³

As Tallinn's new circular economy centres will be, among other things, shopping and leisure centres by design and activity, it would be desirable to offer space for **various repair service providers** in these centres. These can be, for example, cobblers, electric and electronic device repairmen, clothing repair (if the centre does not already have a clothing repair workshop), bicycle repair and maintenance, leisure equipment repair, etc. It is important to ensure that there is no negative competition between service providers and repair workshops. At the same time, cooperation and positive competition between all workshops and service providers in the centre should be encouraged.

The centre should rent out premises to repair service providers, whereas the initial rental fee can be lower.³⁴ The amount of the rent may also depend on other possible additional functions that the service provider offers to the centre (including to repair workshops).

In addition, a **mobile repair café or workshop** could be considered for shared use by the circular economy centres, which could be used for a variety of purposes, including awareness raising (see below).

Learning activities

A part of circular economy centres is organising learning activities and other educational events for different population groups. The primary target groups for educational activities offered by municipal circular economy centres should be pupils (educational institutions) of different ages who can be offered, among other things, circular economy workshops (including those teaching repair skills), courses and educational programmes. Teaching repair skills for students could be thematically linked to the repair workshops in the centre.³⁵ The experience of the Nordic countries shows that it is necessary to teach children general repair skills for everyday life (such as fixing a bicycle tyre and other things that teach the use of different tools) and to explain the importance and benefit of reusing/repairing things.

The centre should have a dedicated room for educational activities and one or more tutors, the number of which will depend on the workload. Workshops can also be run and supervised by the centre's repairers. Sharing of educators/tutors between the circular economy centres is possible.

Circular economy centres should also offer guided tours (including information on how to reuse items and the need/opportunities to prevent and reduce waste in general).

Funding for educational activities (premises and tutors) should be planned as part of the budget of the circular economy centres or in tandem with other relevant city authorities.

Other activities and services

Tallinn's new circular economy centres will have a much broader scope of activities than today's waste treatment plants. Thus, these centres should also be seen as places for leisure activities that would enliven community life and create opportunities for residents and businesses to actively participate in the circular economy and provide knowledge/services.

If enough space is available, circular economy centres could also accommodate the following activities:

³³ Here, it is worth building on the experience of a pilot project on garment repair supported by the Environmental Investment Centre.

³⁴ It is important to ensure that, where there is competition in the city for repair services, the circular economy centre does not create undue advantages for its service providers over other similar service providers.

³⁵ For example, the waste sorting educational programme (Garbage Wolf) could be extended to include the topics of reuse and repair.

- information point – provides information on waste management and the circular economy, including relevant reuse and repair services in the city (can also be in electronic form),
- café,
- spaces or areas for pop-up shops, exhibitions and events.

A demo composting field, greenhouse or garden could also be built at some of the centres.

The creation of a so-called material library at some centres that would offer information and tips on the use of various materials can be considered.³⁶

3.3 Reuse rooms operating model

This sub-section focuses on describing the operational model of a reuse room at an existing waste collection station (a circular economy centre created on the basis of a waste treatment plant).

As a general rule, Tallinn should introduce at least a collection of second-hand items at all existing waste treatment plants. This means that residents can hand over usable items as well as waste to the waste treatment plant. At the same time, however, it should be taken into account that it may not always be possible for existing waste treatment plants to offer a full reuse function (lack of suitable facilities and staff, etc.).

Waste treatment plants should, at minimum, ensure the collection (e.g. with a separate container, preferably held indoors) of reusable clothing and household textiles (including footwear and toys). The collection of used clothing and household textiles should be organised in cooperation with reuse organisations.

In addition, all existing waste treatment plants could also collect certain other recyclable items (in particular, usable furniture, household appliances, books, leisure equipment, leftover building materials and paint). The list of items to be accepted depends on the capacity of the waste collection station to store the items temporarily. If only reusable items are accepted at the waste treatment plant, this can be done with minimal labour costs. For example, at Espoo Kierrätyskeskus in Finland, the sorting of recyclable items is done at the gate of the waste treatment plant/centre, where people are advised on what kinds of waste, as well as recyclable items, are accepted and where to put them.

The establishment of a reuse room (a room where used items are collected for utilisation on-site) at the waste collection station presumes the availability of the necessary space. In Tallinn, there are reuse rooms at the Pääsküla and Paljassaare waste treatment plants.³⁷ People can leave their usable items in these rooms, and items can also be taken for free (for which there is a separate area and shelves in the room). Weighing scales are also available to determine the weight of items for utilisation or sale on-site. An agreement has been signed with Uuskasutuskeskus for the further marketing of items not utilised or sold on-site. The functional experience of this type of reuse room shows that waste treatment plants still lack sufficient oversight and control over item exchange and utilisation since, in most cases, there is no employee to direct people and check brought items and their sale or utilisation

³⁶ Before creating a material library, it should be made clear what the focus of the collection is and how it will be used in the centre's activities (including teaching). For example, one thematic area could be a database/examples of materials, details and techniques for wood or eco-renovation of buildings to support the activities of a repair workshop in a centre (e.g. Paljassaare Wood Workshop).

³⁷ Other waste treatment plants lack a reuse room, the creation of which is stymied by a lack of available space, though if necessary, a container for reusable items could be installed. Therefore, when planning reuse rooms at other waste treatment plants, it should be assessed whether there are already other reuse organisations in the immediate vicinity. There should be at least the possibility to transfer certain reusable items to the waste collection station (the list of items should be based on local conditions and the partner's recommendations/possibilities for utilisation or sale). Aegna's waste collection point should be looked at separately, where residents could possibly share used goods with each other for free.

with sufficient frequency. The items brought to Uuskasutuskeskus for further utilisation are also generally of poor quality.

Therefore, as in the case of circular economy centres (see also section 3.2), controlled reception and utilisation procedures should be introduced in the reuse rooms of existing waste treatment plants. This requires a dedicated staff member in the reuse room to handle the reception, sorting, display, pricing and sale of items. The salary costs of the staff involved in organising the reuse should be at least partly covered by the proceeds from the sale of the items if the turnover of the reuse room is sufficiently high. The management of the reuse room at the waste station and, in particular, the utilisation and sale of the collected items can also be outsourced to a partner (a reuse organisation).

Waste facilities that are not very centrally located, where the quantities of used items brought in are small, or where it is not possible to create and staff a suitable reuse room could be limited to accepting only reusable items. In this case, the utilisation of used goods will be carried out in either a partner's outlet or in reuse rooms or outlets located in other circular economy centres.

Particular attention should be given to reusable building materials and fixtures (e.g. windows, doors, paints, ceramic tiles) whose collection and utilisation waste treatment plants are well suited for. In addition, a separate, larger reuse warehouse for building materials and a collection of sustainable renovation materials/details that can be used at the on-site wood repair workshop should be created at the Paljassaare waste collection station (see also section 3.4).

Existing waste treatment plants, when accepting and selling used items, should also keep records of these items and their quantities (see also the section on utilisation and sale of reusable items 3.1).

3.4 Repair workshops operating model

The city can also create and manage repair workshops outside of circular economy centres (such as near waste treatment plants or elsewhere in the urban environment, such as the Kopli 93 repair workshop). It would be wise for such workshops to follow the same operating principles as those proposed for the city's new circular economy centres (see also section 3.2).

As of 1 January 2024, Tallinn has opened a general repair workshop at the Pääsküla waste treatment plant, and there are plans to establish a wood repair workshop at the Paljassaare waste collection station in cooperation with the MTÜ Säästva Renoveerimise Infokeskus.

The experience of the general repair workshop of the Pääsküla waste collection station also shows that a repair workshop must have a professional repairer (paid employee) who organises the workshop's activities, instructs people if necessary and ensures the working condition and safety of equipment and premises. Repair workshops in waste treatment plants should also gradually start to price the repair services they offer. However, it can be expected that Tallinn will have to continue to cover the costs of purchasing workshop equipment and managing the premises, as well as the repairer's salary, as the workshop operating model will not generate any significant income in Estonia in the near future.

For other, so-called specialised repair work (in particular, clothing and textiles repair), it makes more sense to set up workshops in more accessible locations in urban spaces. The activities of the sewing workshop (see also section 2.2.2), which was set up in cooperation between the city of Tallinn, MTÜ Uuskasutuskeskus and TTK University of Applied Sciences, have shown that there is a strong demand for clothing repair services. The location of the sewing room in the Re-use Centre shop also provided a certain synergy. However, on the basis of the experience gained, the service model should be further developed (e.g. standardisation of the services and determination of the appropriate service price) in order to ensure the highest possible efficiency of repair activities. In developing the operating model of the sewing workshop, the goal should be to ensure that service fees can cover the salary costs of instructors. The costs of purchasing equipment and renting premises would be covered by the city. In

the case of such sewing workshops, it would be important for the city to find a partner to coordinate and operate the workshop.

Both the workshops in the circular economy centres and the municipally supported workshops elsewhere in the urban environment can also serve as venues for repair cafés, which can be run by the centres themselves or in cooperation with partners as part of their activities (see also examples of repair café operations in the Annex).

ANNEX. Examples of reuse and repair initiatives in other countries

Circular economy and reuse centres

Swedish municipal circular economy centre ReTuna

ReTuna Återbruksgalleria³⁸ is located in Eskilstuna, Sweden, about 120 km west of Stockholm. ReTuna opened in 2015 as the world's first recycling shopping centre of its kind, belonging to the municipally-owned business *Eskilstuna Energi och Miljö* (EEM).



ReTuna's operating model

ReTuna is a waste collection station based circular economy centre that deals with the collection, sorting, repair and sale of reusable items as well as educational activities (see Figure 2). Items are collected at the reuse centre (Returen), where reception staff employed by the city of Eskilstuna (AMA – *Arbetsmarknadsenheten*) carry out the initial sorting according to the shops' wish lists, in order to pick out unusable items for further recycling or incineration for energy recovery. In addition to the ReTuna reuse centre, people can put things in ReTuna containers in three locations in Eskilstuna.

Usable items are distributed to the reuse shops in the mall. The shops' staff carry out a second sorting to decide which items to repair or renovate before displaying them for sale. If the shops don't take all of the items, the remainder are taken to incineration/material recycling once a week on Thursdays to make room for new items arriving over the weekend.

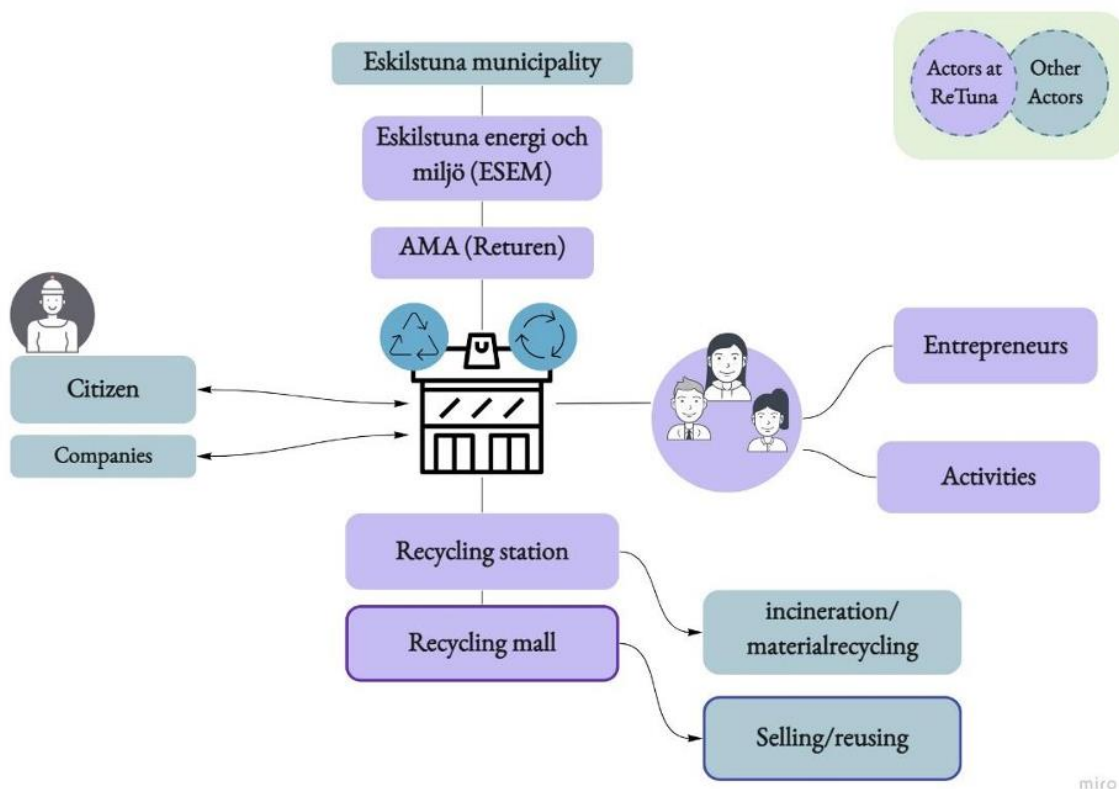


Figure 2. ReTuna's operating model³⁹.

³⁸ <https://www.retuna.se>

³⁹ Berglund, M. 2022. Upcycle and Repurpose Driven Design: A case study at ReTuna Återbruksgalleria. <https://liu.diva-portal.org/smash/get/diva2:1682361/FULLTEXT01.pdf>

Most of the shops are field-specific (sports, leisure and gardening; cooking; building materials and tools; children's goods; clothing; electronics; furniture; flowers; kitchen and home furnishings, ceramics; books; IKEA reuse shop). The shops offer repair services (e.g. for bicycles, electronic equipment, simple furniture repairs) and organise courses and seminars on item repair or making new things from old materials as well as auctions.

ReTuna also includes a repair workshop⁴⁰, which uses the premises of Eskilstuna Folk University in the evenings and on weekends when classes are not in session. The main contributors to the workshop are its members, who pay a monthly fee. Among other things, there is a 3D printer, sewing machines, woodworking and metalworking machines and a range of repair materials.

ReTuna also organises field trips to the centre, lectures, theme days (e.g. swap day) and other events for children and adults. All Eskilstuna schools can participate in the CirkulÄran learning programme.

The ReTuna restaurant is furnished with recycled items that are also for sale (dishware, chairs, etc.). The food left over in the evening is sold at a very low price.

600-700 people visit the ReTuna circular economy centre every day.

In its first years, the ReTuna project was financed by the municipality of Eskilstuna, which bought the shopping centre building and offered shop tenants a rent reduction of 50% for the first two years and 30% for the third. Since 2018, the centre has been operating without rent subsidies.⁴¹ In addition to shops, ReTuna generates income from renting out space for conferences and seminars and from organising field trips and training courses. So ReTuna's customers are not just buying goods, they are also buying services. In 2018, ReTuna had a turnover of around €1 million.⁴²

Norwegian municipal circular economy centre Resirkula

Resirkula is Norway's first circular economy centre⁴³, located at the Gålåsholmen waste reception and management/transfer centre in Hamar Municipality, about 130 km north of Oslo. The waste management centre is managed by four local authorities through their waste management company Sirkula. In 2020, Sirkula opened the Resirkula circular economy centre, inspired by the Swedish ReTuna concept. Resirkula, as a centre of excellence for the circular economy, offers residents a one-stop shop for reuse, attractive second-hand shops and educational activities.



Resirkula operating model

At the waste management centre in Gålåsholmen (see Figure 3), there are separate reception points for waste and recyclables. There is also a separate reception facility for garden waste and other biodegradable waste, which is turned into compost and biogas on-site. The waste collection station serves 96,000 inhabitants, including 44,700 households and 10,500 summer homes. The waste management centre employs 90 people. A total of 170,000 tonnes of waste is treated annually, of which 55.4% is recycled or reused.

⁴⁰ <https://www.retuna.se/butiker/eskilstuna-makerspace/>

⁴¹ <https://www.circularcityfundingguide.eu/case-studies/retuna-the-worlds-first-recycling-mall/>

⁴² <https://www.retuna.se/english/about-us/>

⁴³ <https://www.resirkula.no>

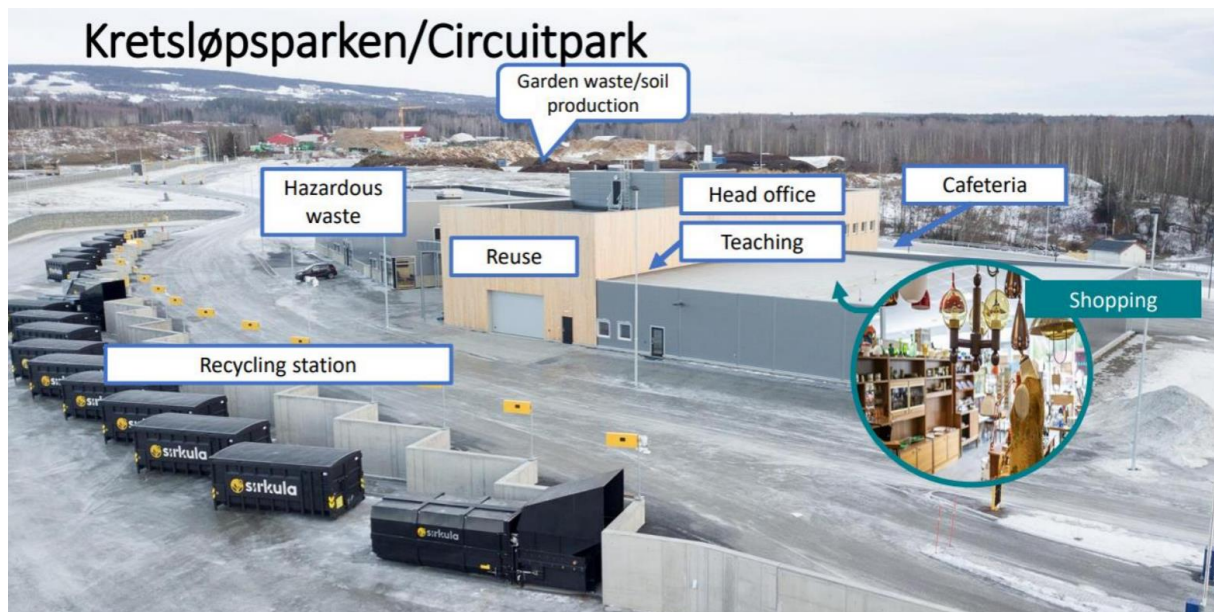


Figure 3. Map of Gålåsholmen waste management centre

The circular economy centre staff will accept items that can be reused and distribute them to Resirkula shops based on their wish lists.

Resirkula shops focus on a specific field:

- sports and leisure goods (*Resport og fritid*): bicycles, roller skates, skiing, hiking and golf equipment, etc. (sales and maintenance);
- children's goods (*Lille Karusell*): toys, books, clothes, prams, children's furniture, etc.;
- Electronic devices (*Re:Elektro*): computers, telephones, televisions, audio devices, audio disks and cassettes, kitchen appliances, etc. (sale and repair service);
- home and garden equipment (*Re:Elektro. Motor og verktøy*): power tools, lawn mowers, snow blowers, etc. (sales and repair services);
- gardening supplies (*Grønne saker*): plants, compost, flowerpots, gardening tools, etc;
- home furnishings (*Melkespannet kalkmaling & redesign*): dishware, kitchen utensils, furniture, repainted with environmentally friendly chalk paint if necessary, etc. (sales and advice on upgrading your items);
- clothing (*UFF x Resirkula Sy-den*): shared shop with the UFF chain and a Resirkula self-service sewing room, advice and sewing courses of various levels in the Hamar city centre. Use of the sewing room is subject to a fee (basic equipment, such as needles, threads, etc. are included in the price). Sewing space can be rented by the minute or by the month. Sewing courses can be organised for a fee by anyone interested.

Like second-hand shops, the Resirkula café is run by a private company. The café also uses recycled dishes and works with Too Good To Go to reduce food waste.

Resirkula gift cards can be used to pay for the purchase or repair of items in Resirkula shops, as well as in the café.

The reuse centre's reception and café offer employment opportunities for those who need help re-entering the labour market.

Resirkula is a not-for-profit organisation funded from the general financing of the waste management centre, including residents' waste management fees. Resirkula's operating costs are covered by renting shops and repair workshops to businesses and by the sale of reusable items.

Second-hand shops are rented out on a competitive basis. For the first two years, the rent paid by businesses is lower, which makes it easier to set up shops. As the shopping centre is located outside the city centre, the overall rent level is slightly lower than usual. Shop tenants can get goods received from residents free of charge. If shops do not sell some of their goods, they will have to cover the costs of treating them as waste. This motivates shops to take only as much stuff as they can sell themselves. Shops put things up for sale directly, or repair and refurbish them before they are sold. Shops price their products themselves. In general, the shops' revenues have covered both rent and labour costs, and most of them are profitable.

Goods not accepted by the shops are sold as "Remarked" at a very low price at the centre.

While initially there was criticism about the location of the shopping centre, visitors have now realised that such a shopping centre concept requires a lot of space and cannot work in the city centre because it is connected to a waste treatment plant. At the same time, the shopping centre with its numerous themed shops has turned into an attractive spot to visit both when going to the waste collection station as well as on its own. With the opening of its clothing shop, Resirkula has also expanded into the Hamar town centre. As of 2021, all Resirkula shops were profitable, but the shopping centre as a whole was not yet profitable.⁴⁴

Reuse centres in Finnish municipalities – Kierrätyskeskus

In Finland, reuse centres (*Kierrätyskeskus*) have been in operation since the early 1990s, making Finland one of the first Nordic countries to implement the reuse centre concept. Reuse centres are owned by cities and local organisations and often work in partnership with municipal waste treatment plants. Shops in the centres operate independently. The following example gives a closer look at the functioning of the Helsinki Metropolitan Area Reuse Centre.

Helsinki region reuse centre operating model

*Pääkaupunkiseudun Kierrätyskeskus Oy*⁴⁵ is a non-profit organisation established in 1990 by the city of Helsinki and the Finnish Ministry of the Environment, with reuse centres in Helsinki, Espoo and Vantaa. The Helsinki Metropolitan Area Reuse Centre includes:



- repair workshops,
- shops (13),
- environmental school Polku.

The Reuse Centre accepts used goods: furniture, clothing, electronics, home appliances, bicycles, books and other things that people bring to the centre, place in collection boxes in shopping centres, give away at centre-ran collection events or order a removal service from the centre.

The items received are sorted and their condition and reuse potential are assessed. Items in need of repair are either fixed on the spot or in a larger centre (e.g. fridges and washing machines), if possible, or if they cannot be repaired, they are taken in as spare parts (including electronics, bicycles, clothing buttons and locks).

Items are sold in Kierrätyskeskus shops or in their own e-shop, from where they are bought from all across Finland. Upcycled products are sold under the Plan B trademark and handicraft materials are

⁴⁴ Rissanen, M. 2021. Taustoitus kiertotalouskauppakeskuksen perustamiselle Lahteen. LAB-ammattikorkeakoulu. Tradenomi (AMK), Liiketalous

https://www.theseus.fi/bitstream/handle/10024/497831/Rissanen_Mira.pdf?sequence=2&isAllowed=y

⁴⁵ <https://www.kierratyskeskus.fi/>

used in Näprä workshops. Refurbished items come with a warranty and a certificate for the work done and the positive environmental impact of reuse. Shops also have a free takeaway shelf.

An estimated 60% of items brought in are repaired and used again, 30% are unrepairable items whose material goes into recycling (e.g. textile products to the Paimio reprocessing centre), and only 10% are burned as waste for energy recycling.⁴⁶

Kierrätyskeskus cooperates with the Helsinki Region Environmental Services HSY waste station, which acts as a collection point for reusable items. Kierrätyskeskus is also a social enterprise, providing work for the long-term unemployed, people with special needs, volunteers, Finnish language learners and others.

Polku Environmental School⁴⁷ organises visits to the reuse centre, both on-site and virtually, runs practical seminars on how to give new life to used goods, gives presentations in schools, etc. The environmental school is funded by Helsinki Region Environmental Services HSY. For educational institutions, a visit to the reuse centre shop with a guided tour and an introductory presentation is free of charge.

The start-up of the reuse centre was supported by the Ministry of the Environment, with the city of Helsinki covering the rental costs. Selling second-hand items both in shops and online helps to generate income to cover operating costs. In addition, Kierrätyskeskus receives its funding from donations and projects. The wages of people recruited through the employment programme are paid by the state.

Slovenian municipal reuse centre Depo Vrhnika

Depo Vrhnika is a reuse centre, shop and environmental education organisation located in Vrhnika, Slovenia, 20 km southwest of the capital Ljubljana.⁴⁸

The reuse centre was founded in 2014 by the Vrhnika communal enterprise (*Komunalno Podjetje Vrhnika* - KPV) and the municipalities of Borovnica, Log-Dragomer and Vrhnika, who together are the founding members of KPV.⁴⁹ These municipalities also joined the Zero Waste Cities network in the same year.



The reuse centre operates as part of the KPV at the Vrhnika waste treatment plant. The centre has two repair workshops where broken items are repaired or reprocessed to prolong their life. New products made from waste, such as bags made from curtains, car airbag material and seat belts, are sold under the Depo trademark.

Every year, around 33,000 items are collected for recycling, of which around 15,000 are repaired, cleaned or restored.⁵⁰ Smaller items are brought in by residents, with most items taken from large waste.

The reuse centre has two outlets, one on the premises of the collection centre and the other in the centre of Vrhnika, which sell second-hand goods at attractive prices while still making a profit. Items, together with their prices, are also posted on Depo's Facebook page.

An important part of the reuse centre's work is to raise awareness of sustainable development, participate in environmental education events and organise seminars for target groups of all ages.

⁴⁶ <https://unbroken.solutions/solutions/city-and-local-authority-solutions-kierratyskeskus-finland/>

⁴⁷ <https://polkuedu.fi/environmental-education/>

⁴⁸ <https://kpv.si/dejavnosti/depo>

⁴⁹ <https://zerowastecities.eu/bestpractice/best-practice-the-story-of-vrhnika/>

⁵⁰ <https://samo1planet.si/aktualno/depo-vrhnika-center-ponovne-uporabe-z-dodano-vrednostjo/>

The reuse centre is funded by the budgets of the municipalities of Borovnica, Log-Dragomer and Vrhnika as well as grants, sales of second-hand items and partnerships with other organisations.

Repair cafés

Repair Café network

The Repair Café movement⁵¹ was started by Dutch journalist and environmental activist Martine Postma, who organised the first Repair Café in Amsterdam in 2009 to support sustainable local living. With the initiative's success, she created the Repair Café International Foundation, which has, since 2011, supported the creation of local repair cafés in Holland as well as Belgium⁵², Germany, France, the United Kingdom, the United States, Japan, India and dozens of other countries. In total, more than 2500 repair cafés have been set up.⁵³



The goal of repair cafés is to preserve repair skills in society, recognise people with repair skills, propagate repairable products and prevent simply throwing things away, which reduces the amount of energy and raw materials needed, as well as CO₂ emissions when producing new products. Repair cafés generally do not compete with professional repair service providers, as repair cafés are frequented by people who do not usually buy repair services because they either find them too expensive or want to do it themselves.

Repair cafés are meeting places where repair is social work that helps to change people's mindset and relationship with their belongings and to stimulate interest in a more sustainable way of life. There are volunteer repairers/specialists on site, as well as tools and materials to repair a wide range of items (e.g. clothes, furniture, electrical appliances, bicycles, dishware, household appliances, toys). Visitors bring pastries with them to the café. In addition, you can spend time in the café and find inspiration by browsing through books on DIY and renovation at the reading table.

The foundation organises a network of improvement cafés to exchange experiences, and on its website, offers tips, advice and instructions on how to repair various items. The foundation supports the creation of repair cafés with information and communication materials and forms, the provision of an online environment for the website, the purchase of tools and more, provided that the repair café uses the Repair Café name and logo and pays a one-off fee (€49) to the Foundation.

Other repair initiatives – Germany

In addition to the repair cafés that are part of the Repair Café network, there are initiatives in Germany that have joined the Network of Repair Initiatives (*Netzwerk Reparatur-Initiativen*) established in 2014.⁵⁴



In total, more than 1500 repair initiatives and cafés (repair meetings, bars, buses) operate in Germany on a voluntary basis, organising get-togethers in a relaxed atmosphere to collectively repair broken everyday items: electrical and mechanical household appliances, household electronics, clothes, bicycles, toys, etc.

Repair initiatives can be similar in content to the Repair Café network repair cafés, but are not obliged to use the Repair Café name and logo.

The Network of Repair Initiatives is coordinated by a non-profit foundation based in Munich.⁵⁵ The foundation gives advice on the creation of repair initiatives and organisation of operations, organises events for sharing repair initiative experiences, publishes thematic repair work instructional materials and information on the dates and times of regional repair initiatives on its website and collects

⁵¹ <https://www.repaircafe.org/>

⁵² <https://repairtogether.be/>; <https://repairshare.be/>

⁵³ <https://www.repaircafe.org/en/visit/>

⁵⁴ <https://www.reparatur-initiativen.de/>

⁵⁵ <https://anstiftung.de/>

statistics on repair initiatives (how many items are or are not repaired), which is used to measure the environmental impact of reuse (avoidance of CO₂ emissions and waste). Repair workshops can enter statistical information into their account on the network website.⁵⁶

Karlsruhe repair café operating model

The Karlsruhe Repair Café (*ReparaturCafé Karlsruhe*)⁵⁷ was created in 2013 as part of the "Quartier Zukunft – Labor Stadt" project of the Karlsruhe Institute of Technology. For the first four years, the repair cafés were organised by the Karlsruhe Institute of Technology with project funding. Since 2017, *ReparaturCafé* Karlsruhe has been operating as a non-profit organisation with members and contributors. Members pay an annual membership fee.



The repair café has four main areas of activity: electronics, bicycles, sewing and wood/metal/ceramics (see Figure4). Repair café events usually take place every two weeks. The repair café organises both events with and without pre-registration. Once a year, usually on Sundays, the repair café is also opened in a larger area to allow more people to participate.

Unsere Reparatur-Bereiche



Figure4. Areas of repair in the Karlsruhe cafeteria.

In most cases, the time allotted for a repair job with an experienced repairman is one hour. Whenever possible, customers bring their own suitable spare parts. You have to pay for the use of the repair café's spare parts. Participation in the repair café is free, but monetary donations as well as coffee and cake are welcome. Room rent, supplies, etc., are funded using donations.

The repair café has around 30 volunteers who supervise repairs and assist in the café and visitor reception. There are around a dozen organisers of the repair café events.⁵⁸

⁵⁶ <https://www.reparatur-initiativen.de/post/auf-dem-weg-zur-reparatur-statistik>

⁵⁷ <https://www.reparaturcafe-karlsruhe.de/>

⁵⁸ <https://www.karlsruhe.de/stadt-rathaus/beteiligung-engagement/marktplatz-ehrenamt/umwelt-schuetzen-zukunft-sichern/reparaturcafe-karlsruhe-e-v>