CIRCULATING BUILDING MATERIALS IN PRACTICE

Circular Cities & Regions Initiative

Funded by the European Union

Smith innovation

CIRCOFIN

Title of the Publication:

Circulating building materials in practice - A best practice benchmarking of Circular Construction Hubs in Europe

Date of Publication: July 2025

Author:
Smith Innovation

Contributors:
UnternehmerTUM
Concular

Publisher:
CirCoFin Project Consortium

Funding Acknowledgement:
This project has received funding from the European Union's Horizon Europe research and innovation programme.

Photo Credits:
All photos © respective project partners unless otherwise stated.
Photos provided by: Sola Byggåterbruk, Deutsche Bahn, Fundació Deixalles and Sirken.

Smith innovation CIRCOFIN Circular Cities & Regions Initiative Funded by the European Union

Catalogue structure

ACKNOWLEDGMENT

The CirCoFin Consortium would like to express sincere thanks to the following initiatives for their valuable contributions to this publication:

Genbyg (DK), Sirken (NO), Resirqel (NO), Sola Byggåterbruk (SE), Malmö Återbyggdepå (SE), DB Resale (DE), Fundació Deixalles (ES), Utrecht Trechterweide (NL), 2050 Materials (UK) and PlusByg (DK).

Their openness in sharing insights, experiences, and practical knowledge has been essential in highlighting best practices and showcasing the potential of Circular Construction Hubs across Europe. Their contributions have helped ground this work in real-world examples and have served as a valuable source of inspiration for future initiatives.

1 INTRODUCTION

INTRODUCTION

This catalogue offers a systemic perspective on the evolving European market for reused building materials. It brings together best practice examples, showcasing Circular Construction Hubs (CCHs) as well as supporting initiatives focused on supply, demand, and regulation. Together, these elements form the broader ecosystem that enables circular construction to grow and scale.

At the core of this catalogue are the best practice CCHs – real life examples that illustrate how different ownership models, operational strategies, and technical setups supports these initiatives. Surrounding these hubs are initiatives that address key systemic challenges, such as how to secure a stable supply of reused materials, how to stimulate demand across public and private sectors, and how regulatory frameworks can either accelerate or hinder progress.

Understanding CCHs in isolation is not sufficient. Their success depends on how well they connect with and are supported by the wider system. This catalogue aims to support early-stage initiatives by offering inspiration, learnings and reflections. By learning from what already works, future projects can more effectively contribute to the transition toward a circular built environment.

2 MAPPING OF CCHS IN A EUROPEAN CONTEXT

Learnings from broad mapping of CCHs

The initial mapping of CCHs in Europe is based on desk research and input from project partners (see page 44). While not exhaustive, the mapping offers a representative snapshot of the current landscape. Given the emerging nature of the field and continuous market development, some initiatives may not have been captured. Nonetheless, the insights derived provide a solid basis for identifying key tendencies and market dynamics.

By analysing the identified CCHs according to ownership models, sales strategies, and sourcing scopes, the following trends can be observed:

- The market for reused building materials is currently driven primarily by commercial actors.
- Only a small share of initiatives focus exclusively on B2B transactions.
- The CCH landscape is most developed in northern, central, and western parts of Europe.
- Less than one-third of the mapped initiatives have an explicit focus on social sustainability.
- Over 50% of initiatives have been established between 2010 and 2025.
- Most operate either as physical hubs or as hybrid models combining physical and digital elements.

These tendencies illustrate the current state of the CCH landscape in Europe. As the market continues to evolve, new models and approaches are expected to emerge, further shaping the sector.

Broad mapping of CCHs

Private
Waste Management
Blended/ Cooperation
Public

B2B
B2C

Est. 1977 Bregnetjerggård (DK)
Est. 1995 Bautelbörse (DE)
Est. 2021 Rät & Godt (DK)
Est. 2000s Hans in't Veen (NL)
MaterialNomaden (re:store) (AT)
Est. 2012 Emma' Tek (FR)
Pepe Matériaux (FR)
Est. 2016 Soli'B ât (FR)
Est. 1990 Garnier Alban (FR)
BDS Groupe (FR)
Est. 2018 Articonn ex (FR)
Est. 1987 Authentic Reclaim ation LTD (UK)
Est. 2017 New Horizon (NL)
Est. 2020 Nedrivningsselskabet Falster (DK)
Est. 2022 Skave Nedbr ydning (DK)
Est. 2014 Matériaux Anciens du Sud (FR)
Est. 1971 Folkes Bygg & Byggnad svård (SE)
Est. 2020 Buurman Antwerpen (BE)
Est. 1992 Glasgow Salvage (UK)
Est. 2015 Buurman Rotterdam (NL)
Est. 2020 Sydhavnens Genbrugscen ter (DK)
Est. 2015 PlusByg (DK)
Est. 2022 Urban Mining Hub Berlin (DE)
Est. 1997 Malmö Återbyggdepå (SE)
Est. 1997 Retri val (BE)
Est. 2024 Materiatheque Sileo (FR)
Est. 2013 Resirquel/ Om by gg (NO)
Est. 1998 Community Wood Recycling (UK)
Tussentation (NL)
Bouwkringloop (NL)
Materialban ken for bygning svern (NO)
Est. 1985 RCB Carrelages (FR)
Est. 2018 Cycle Up (FR)
Est. 2008 The Reclaimed Compa ny (UK)
Est. 2014 Enviromate (UK)
Est. 1989 Circulaire bouwmate rialen (NL)
Insert (NL)
Est. 2010 Ogstkaa rt (NL)
Est. 2017 Greendozer (DK)
Est. 2022 La Matériauthèque (BE)
Est. 2016 Klaravik (DK)
BH Matériaux Anciens (FR)
Est. 2019 Upcycling Forum (DK)
Est. 2014 Rotor Deconstructing and Consulting (BE)
Est. 2017 Restado (DE)
Est. 1991 RGS Nordic (DK)
Est. 2013 Reclaimed World (UK)
Cirq (NL)
Est. 2020 Rehub.No (NO)
Est. 1990s Soekijad (NL)
Renewi Westpoo rt BV (NL)
Est. 2012 Klassiske Vinduer (DK)
Est. 2020 Concular (DE)
Est. 2020 DuSpot (NL)
Est. 2017 JK Genbrugscen ter (DK)
Est. 1999 Kingo Genbyg (DK)
Est. 2002 J.Jensen A/S (DK)
Est. 2021 2050 Materials (UK)
Est. 2018 Cyrkl (CZ)
Est. 1991 SalvoWeb (UK)
Est. 1968 Jakobsen Tegl Aps (DK)
Est. 1998 Genbyg (DK)
Est. 2022 Building Spares Market (UK)
Est. 1998 Halmstad Bygg återvinning (SE)
Selinvej (Internally) (DK)

IC2C

Local
1-500km²

Regional
500-5.000km²

National
5.000-500.000km²

International
500.000<km²

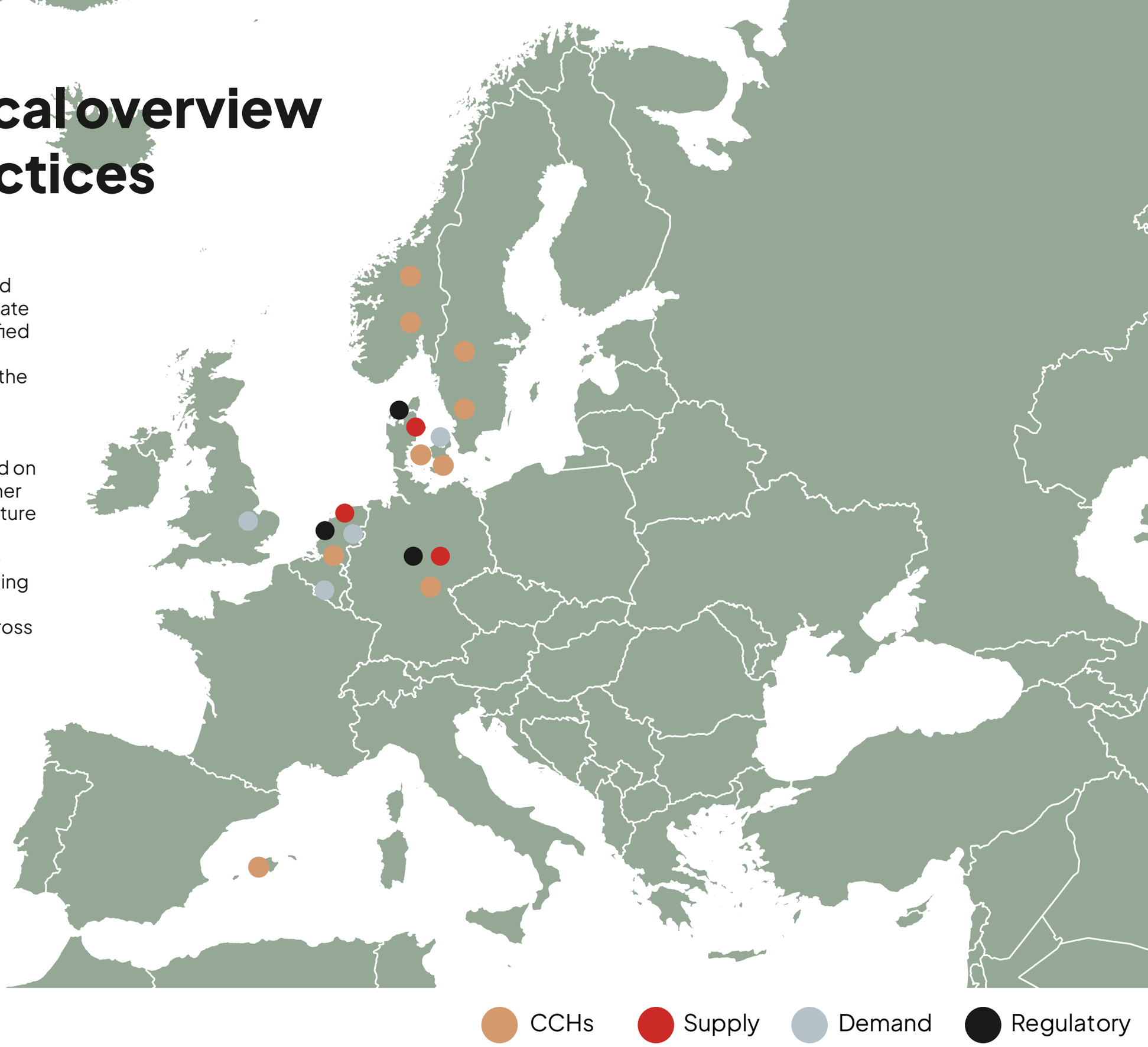
Digital
Physical
Digital + Physical

Smith innovation
CIRCOFIN

Geographical overview of best practices

The geographical overview of best practice cases and the broad mapping of CCHs in Europe indicate a greater concentration of identified initiatives in the northern regions, with fewer cases documented in the south.

However, as the mapping is based on available desk research and partner contributions, it may not fully capture all established initiatives across Europe. While not exhaustive, the overview provides an understanding of the varying degrees of market maturity and scaling potential across different European contexts.



3 BENCHMARKING BEST PRACTICE CCHS

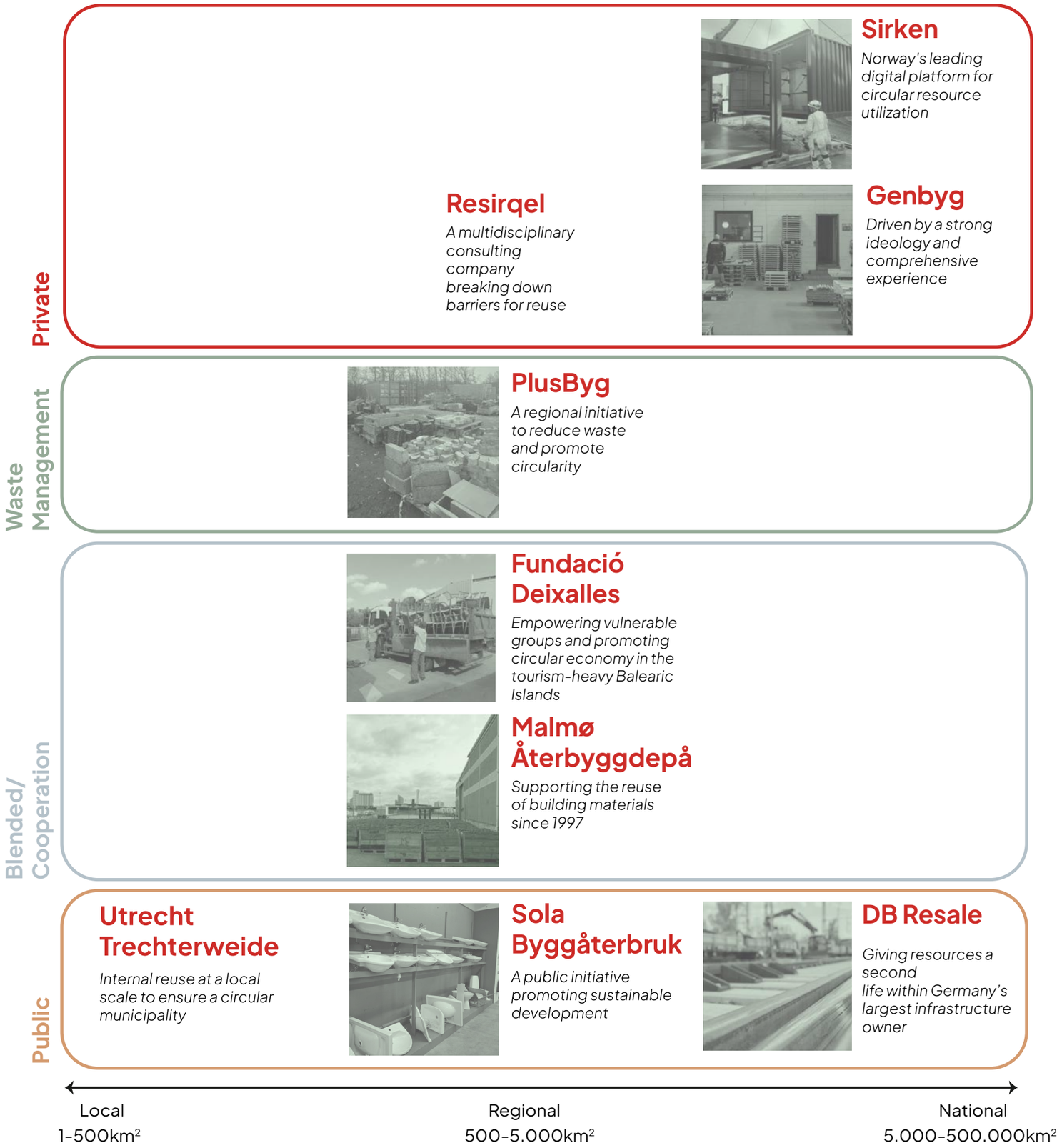
Best practice CCHs

This catalogue presents a collection of best practice cases of Circular Construction Hubs (CCH) across Europe - from Norway to Spain. The cases cover a variety of ownership models, including public, private, blended, and waste management-led initiatives. Together, they reflect the diversity of approaches being used to enable circular construction in different local and regional contexts.

Each case has been examined to highlight key technical, operational, organisational, and financial features, with a focus on the factors that have contributed to their success.

The goal is to provide inspiration and guidance to those planning or developing their own hubs, whether at city, regional or project level. The best practices offer insights into what works in real-world settings. They showcase practical solutions, innovative business models, and tested operational approaches. By identifying transferable elements and common challenges, the examples help reduce uncertainty and build confidence in new initiatives.

This collection serves as a foundation for further development and scaling of Circular Construction Hubs. It supports informed decision-making, encourages peer learning, and contributes to building a shared knowledge base for the circular built environment.



3.1 PRIVATE OWNED

Resirqel

A multidisciplinary consulting company breaking down barriers for reuse

Located in Oslo, Resirqel has since 2013 contributed to enhance circular economy practices in the construction and real estate industry. By offering a wide range of services, from resale of used materials to reuse assessments, environmental mapping, and consultancy, they help customers implement reuse.

ENGAGING THE MARKET

Resirqel was founded due to a shared frustration on how valuable building components were treated as waste. A key to engaging the professional market has been their use of digital mapping and building part assessment, which enables competitive pricing, logistical efficiency, and more informed reuse decisions. This reduces uncertainty and helps meet the expectations of clients with complex project demands.

REUSE CONSULTANCY

According to Resirqel, one of the most effective ways to enhance reuse is to offer hands-on guidance throughout the process. They have developed a service model that supports clients from early project planning and material mapping to demolition planning, reuse documentation, and project execution.

By combining architectural and engineering expertise with regulatory knowledge, they help make reuse a practical and credible option, even in complex construction projects. Thus, their consultancy services not only reduce uncertainty, but also build trust and competence across projects and actors in the construction sector, thereby helping to make reuse a viable, scalable solution.

BALANCING DEMAND AND SUPPLY

Balancing the supply of reusable materials with demand from new construction projects remains a complex challenge, which Resirqel notes often is due to mismatches in timing and volume. Resirqel addresses this by using their digital mapping and traceability system that evaluates materials based on criteria such as remaining lifespan, disassembly complexity, and CO_2 savings. This approach ensures that decisions about reusing materials are both sustainable and cost-efficient. Through close collaboration with demolition contractors, architects, planners, and construction firms, Resirqel connects supply and demand more effectively.

> *Those who dare to take a chance now, will have an advantage later*
>
> *Lasse Kilvaer, Environmental Advisor, Resirqel*

FINANCIAL CHALLENGES

Resirqel highlights that financial barriers most often are high upfront costs for dismantling and deconstruction, as well as sometimes having to purchase materials from demolition contractors. The process is labour-intensive, and there is uncertainty around resale timelines, while some customers expect reused materials to be cheaper than new ones. Although Resirqel has not yet secured investors, they are actively seeking investment. Challenges include a lack of clear profit projections, unstable or mismatched supply and demand, and the perception of reuse as a niche or marginal activity.

COLLABORATIONS AND PUBLIC SUPPORTS

Even though Resirqel is privately owned, they actively collaborate with public institutions and EU projects, which increases their adaptability, supports faster innovation, and improves their visibility in the market. In addition, they focus on building credibility through pilot initiatives and cooperation with EU and municipal stakeholders, aiming to demonstrate demand from the construction sector and to improve the quality of their data and evaluation methods.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Cooperatively owned

MANAGED BY
Resirqel

OPERATIONS
- *Collection*
- *Storage*
- *Selling*
- *Consulting Service*

STAFFING
8 employees

QUALITY ASSURANCE
Materials are analysed according to rest life, condition, disassembly complexity, and residual CO2 savings

SOURCING SCOPE
Regional

SOURCING OPERATIONS
Mapping tool and traceability system, assessing whether a material is worth recovering and accept materials on a donation basis

TECHNICAL ELEMENTS

FACILITY LAYOUT
Facility and storage possibility in Oslo

PHYSICAL CAPACITY
4.500 m^2 indoors
2.500 m^2 outdoors

PROCESSING TOOLS
No industrial processing

DIGITAL SYSTEMS
Tools to assess reuse potential and pricing + storing material data

FRACTIONS
Wood, metal, glass, and interior elements

MATERIALS QUANTITY
-

STORING STRATEGY
Decisions made depending on material durability, demand likelihood and ease of handling

BUSINESS ELEMENTS

SALES STRATEGY
B2B

KEY ACTIVITIES
Advising construction clients on reuse
Pre-demolition audits and material mappings
Material traceability and assessment
Disassembly planning

ADDITIONAL SERVICES
Logistics

SUPPLIERS
-

DEMAND
-

PARTNERSHIPS
Public construction sector, demolition contractors, planners and engineers
Material buyers in the private sector
Research and regulatory landscape

FINANCIAL ELEMENTS

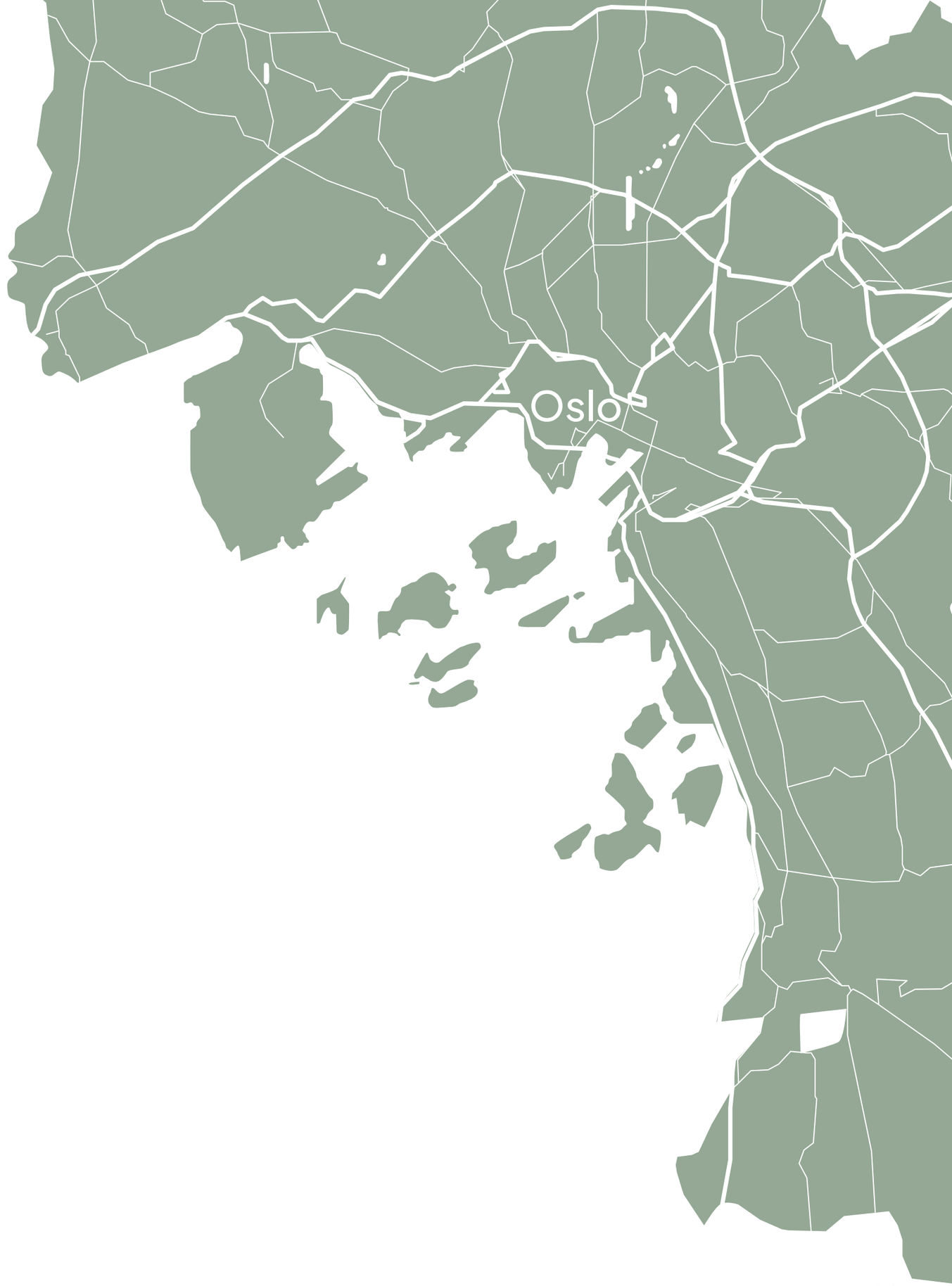
YEARLY TURNOVER
Total revenue in 2022: 5.9 mio NOK (approx. 515.000 Euro

INVESTMENT SOURCES
No investors on board yet

REVENUE STREAMS
Material sales
Consulting work (e.g. reuse planning, demolition audits)

PRICING STRATEGY
Comparisons with new materials
Assessment of handling and deconstruction costs

FINANCIAL MODEL
Commercial company



THE GOOD EXAMPLE

In 2023, Resirqel was awarded “Green Company of the Year” by the City of Oslo in recognition of their work with reuse and contribution to the circular economy. Through projects like the reuse potential study for Borg Havn IKS, where they assessed circular opportunities in large-scale infrastructure, they have demonstrated the practical value of circular construction and helped spread awareness across the construction sector.

> *Our vision is to bring transparency, structure, and a scalable system for reuse*
>
> *Martin Eid, Co-founder and CEO, Ombygg (Resirqel)*

BARRIER: *Lack of policy regulation (external)*

Resirqel emphasises how policy and regulation can be both a driver and a barrier for reuse. While increasing CO_2 regulations and public procurement targets support the transition, the current lack of clear obligations hinders practical implementation. Resirqel notes that reuse is complicated by bureaucratic procedures in permitting, recertification, and the interpretation of building codes, which are often still based on a single-life-cycle mindset. They point out that stronger policy frameworks, such as mandatory reuse quotas or financial incentives, would significantly support scaling, particularly if it is combined with digital traceability tools and a more reuse-oriented construction culture.

ENABLER: *Digital tools and expertise (internal)*

According to Resirqel, a key enabler for making reuse work in practice has been the combination of their background and expertise in construction with digital tools. Their material mapping tool allows them to assess components based on criteria such as remaining lifespan, CO2 savings, and disassembly complexity. This helps remove uncertainty from reuse decisions and supports more efficient planning. Combined with their background in construction and demolition, this has enabled Resirqel to support reuse decisions that are both practical and cost-efficient, thereby making reuse a more realistic option for actors in the construction sector.

Sirken

Norway's leading digital platform for circular resource utilisation

Established in 2021 as a privately owned company, Sirken operates as Norway's largest platform for reused and surplus building materials. Through their digital marketplace, they connect contractors and buyers to facilitate circular practices within the construction sector.

SCALING THE MARKET

Sirken is built on the belief that there is a scalable market for reused construction materials. This belief not only drives their strategy focus but has also helped attract investors who see the potential in their Saas-driven business model. According to Sirken, scaling is essential in order to meet the needs of larger contractors, who require quantity when sourcing reused materials. By growing their network of reuse hubs and improving digital infrastructure, Sirken aims to contribute to scaling the reuse market within the construction industry.

SaaS SOLUTION

At Sirken, they have developed a SaaS-based solution that combines a digital platform with self-service technology installed at their reuse hubs. Each hub operates with Sirken's web shop, allowing companies to register, store, and sell surplus and reused materials efficiently. Companies pay a monthly fee to access the system, while Sirken manages material sales and returns a share of the revenue to the partners. This ensures a continued supply, and with around 18 hubs connected, Sirken regards this business model as a key driver for future growth and enhancer of circular practices across the construction industry.

AI-SUPPORTED QUALITY CONTROL AND PRICING

AI is used to enhance both quality control and pricing of reused materials. When new materials arrive at one of the 18 hubs, it is photographed and registered. Sirken then use AI to help verify the material types and to automatically suggest prices based on historical data, market trends, and the condition of each item. The system also incentivises contractors to provide more accurate and detailed information, as better and more thorough documentation allows for higher pricing, which will benefit both Sirken and the contractors. Using this system, the manual workload is reduced, price setting becomes more consistent, and the overall process become more efficient.

> *What attracted investors to us is the ease of our business model and the scalability of it*
>
> *Ingvar Aune, co-founder, Sirken*

FLEXIBILITY THROUGH MOVABLE HUBS

To ensure a steady balance between supply and demand, Sirken has developed a network of both fixed and movable storage hubs across Norway. While their facilities provide regional storage capacity, their movable hubs enable on-site collection and registration of surplus and reused building materials. Thus, any construction site can function as a seller of reused materials. By doing this, Sirken reduces the need for long-term warehousing and lowers transaction costs.

ATTRACTING INVESTORS

Sirken attracted early funding through a grant from Innovation Norway, and then sold 25% of the company in 2022, leaving them with 29 investors. While some of these investors are driven by a strong commitment to sustainability, most of them are attracted by the economic potential of the company. According to Sirken, investors are particularly drawn to its simple, self-service business model, that is easy for both suppliers and buyers to use. The potential of scalability of the business model has thus been key to gaining investor confidence and support.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Private owned

MANAGED BY
Sirken

OPERATIONS
Providing physical hubs (permanent and movable), digital marketplace and system for companies to sell their surplus and reused materials

STAFFING
3 employees

QUALITY ASSURANCE
Using AI to screen the materials and contractors provide detailed information about material

SOURCING SCOPE
National

SOURCING OPERATIONS
Collaboration with construction and demolition companies

TECHNICAL ELEMENTS

FACILITY LAYOUT
18 Sirken Shops (movable hubs)
3 Sirken Stores (permanent stores)

PHYSICAL CAPACITY
1400 m^2 in Stavanger, 500 m^2 in Oslo, and 600 m^2 in Trondheim
Each movable hub is 72 m^2

PROCESSING TOOLS
AI for screening materials

DIGITAL SYSTEMS
Digital marketplace
Self-service systems

FRACTIONS
Doors, windows, isolation, concrete, flooring, inventory, furniture, roofing stones, piping, electronics, lumber, bolts, nails

MATERIALS QUANTITY
400 tons surplus material per year

STORING STRATEGY
Decisions made depending on material durability, demand likelihood and ease of handling

BUSINESS ELEMENTS

SALES STRATEGY
B2B and B2C

KEY ACTIVITIES
Reselling surplus and reused building materials through digital marketplace and self-service stores.
Storing of reused and surplus building materials

ADDITIONAL SERVICES
Reuse mapping

SUPPLIERS
Professionals

DEMAND
48% professionals and 52% privates

PARTNERSHIPS
Construction companies, demolition companies

FINANCIAL ELEMENTS

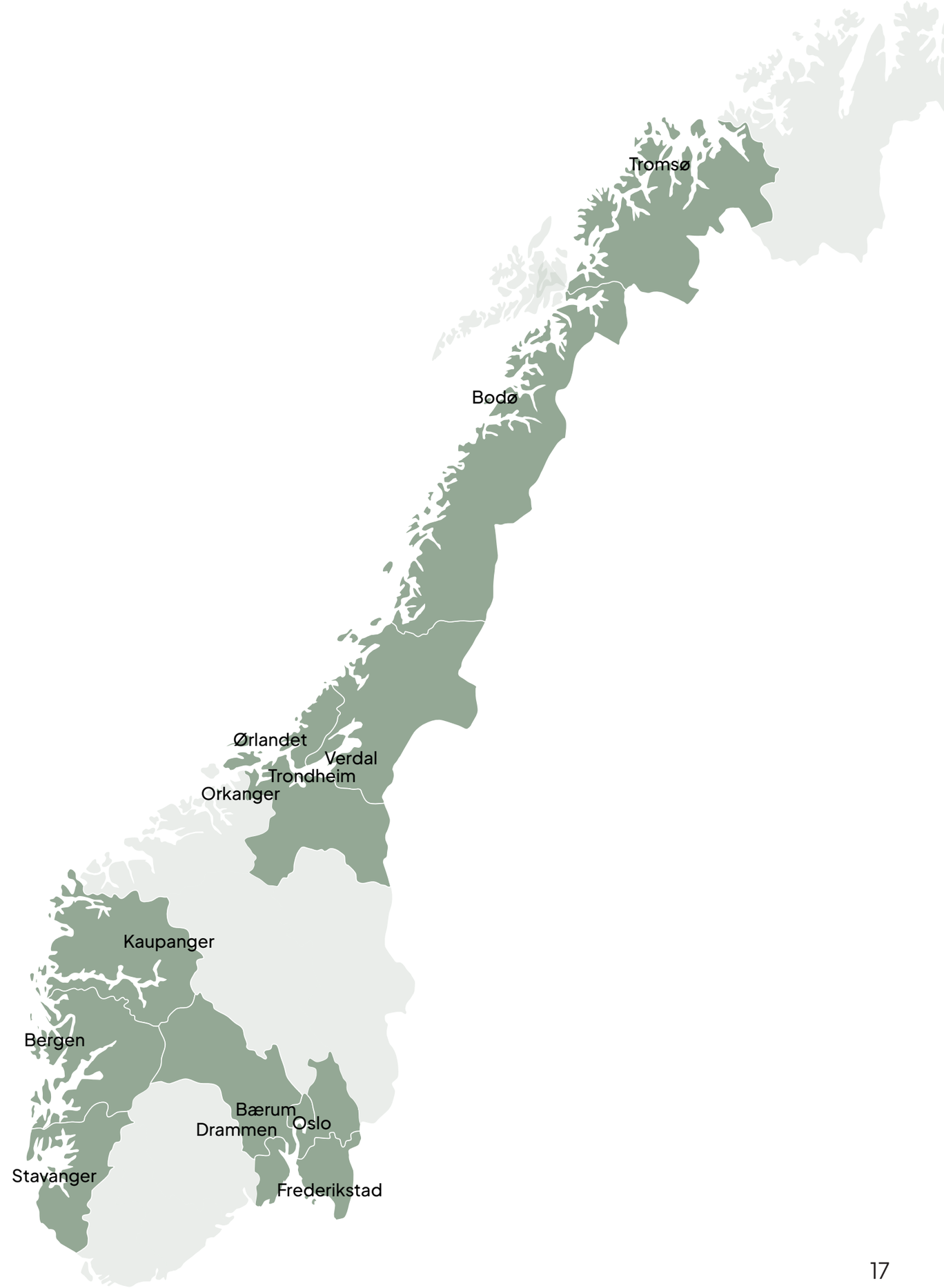
YEARLY TURNOVER
2.7 mio NOK (approx. 236.000 Euro)

INVESTMENT SOURCES
Soft-funding from Innovation Norway
29 investors in total

REVENUE STREAMS
80% from sales of surplus and reused building materials
Monthly subscription fees

PRICING STRATEGY
Using AI to determine the price of materials (depending on the quality of the material)

FINANCIAL MODEL
SaaS solution – commercial company



THE GOOD EXAMPLE

Sirken was the idea of two friends from Norway, who saw an opportunity in the reuse of construction materials. What started as an initial frustration with limited access to reusable materials at recycling facilities, led them to develop the self-service platform. By combining digital technology with physical storage, Sirken has established a scalable model that reduces waste and makes reused and surplus materials more accessible.

> *How can we mitigate the costs of doing reuse in the built environment? Then, we came up with the concept of Sirken*
>
> *Ingvar Aune, Co-founder, Sirken*

BARRIER: *Lack of political support (external)*

Despite growing interest in reuse, Sirken finds that political support still lacks behind. National regulations continue to prioritise waste management over actual reuse. Contractors are often legally obliged to dispose surplus materials as waste, even when the materials are in good condition. As a result, Sirken highlights the challenge that there are no clear incentives or mandate encouraging public or private actors to favour reused materials. This absence of stronger political support then ends up acting as a barrier to scaling the reuse market further and preventing it from becoming a more standard practice in the construction industry.

ENABLER: *Self-service business model (internal)*

Self-service is the main point and key driver of Sirken's business model. By designing a system where customers can browse, buy, and collect materials without assistance, Sirken significantly reduces operational costs, particularly staffing-salary. All their 18 reuse hubs are fitted with digital security systems to ensure secure access all 24 hours of the day. This model further simplifies the logistics for buyers, as they can pick up their materials at any time without needing to coordinate with a seller. In Sirken's view, this self-service system is not just a cost-saving approach, it is an innovation that supports scale, accessibility, and efficiency in the reuse market. Thus, it helps make circular construction more sustainable, both economically and practically.

Genbyg

Driven by a strong ideology and comprehensive experience

Operating since 1998 as a privately owned company, Genbyg has established themselves as one of Denmark's leading actors in the reuse of building and construction materials. In 2022, Enemærke & Petersen (contractor) and Carl Ras (wholesaler) became co-owners, to further strengthen Genbyg's role in contributing to the green transition.

VALUE-DRIVEN

At Genbyg, they prioritise a value-driven approach rather than focusing solely on profit. To support this, they employ young people from vocational schools to help with manual tasks, providing these vulnerable youths with valuable work experience and social inclusion. This not only helps meet their operational needs but also aligns with their commitment to social responsibility. By integrating environmental sustainability with social impact, Genbyg creates a model that delivers both economic and societal benefits, reinforcing their mission to contribute meaningfully beyond just financial gain.

ADAPTING TO THE DIGITAL ERA

Genbyg took the initiative to develop their own digital platform early on. Over time, they have seen a steady shift in customer behaviour towards online sales. Today, around 70–80% of their sales happen through their web shop. This trend has even led them to question whether a physical showroom will remain necessary at all. However, as demand for online integration increases, Genbyg highlights the need to have a strong and well-functioning online presence in order to successfully reach customers and drive sales.

MATERIAL STOCK STRATEGY

Contrary to common assumptions, Genbyg's experience shows that bigger facilities do not automatically ensure better operations. In fact, they report that larger volumes of materials can sometimes lead to stockpiles that become difficult to sell. This challenges the one-size-fits-all approach to managing reused materials, as some materials can remain in inventory for years. Instead, Genbyg advocates for a more flexible and adaptive strategy. For instance, they hold auctions to clear items that cannot be sold. Still, this illustrates that bigger facilities does not directly translate into higher sales, highlighting the need for a good strategy for managing materials.

> *Our experience tells us that there is a great untapped potential for more reuse and recycling in the construction industry*
>
> *Jesper Holmberg, Co-founder and CEO, Genbyg*

THE DUALITY OF SELLING MULTIPLE MATERIALS

Genbyg has a large range of reused building materials, often with differing requirements. Handling and testing for dangerous substances is a manual and labour-intensive process, made even more complex by differing standards for materials from past decades, such as the 1980s and 1990s, compared to newer ones. These variations increases the number of quality checks before materials can be sold. Despite these challenges, Genbyg sees great value in maintaining a wide product range to serve various customer needs. To overcome this challenge, they are exploring technologies that can optimise these processes, aiming to enhance efficiency without compromising safety or compliance.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Private ownership – Genbyg (60%), Enemærke & Petersen (20%) and Carl Ras (20%)

MANAGED BY
Genbyg

OPERATIONS
- *Sourcing reused materials*
- *Resale of reused materials*
- *Resource mapping*
- *Craftsmanship/design solutions*

STAFFING
11 employees

QUALITY ASSURANCE
External tests of materials and internal material knowledge

SOURCING SCOPE
National

SOURCING OPERATIONS
Resource-planning
Through partnerships and collaborations

TECHNICAL ELEMENTS

FACILITY LAYOUT
Store, warehouses and carpentry facilities

PHYSICAL CAPACITY
6000 m2 warehouse and store in Kastrup, Denmark. Remote storage and processing in Sorø, Denmark

PROCESSING TOOLS
Carpentry, trucks, forklift

DIGITAL SYSTEMS
Web shop and online catalogue

FRACTIONS
Doors, windows, wood, flooring, bricks, tiles, panels etc.

MATERIALS QUANTITY
-

STORING STRATEGY
Ensuring continuous material flow and avoiding long-term storage

BUSINESS ELEMENTS

SALES STRATEGY
B2B and B2C

KEY ACTIVITIES
Resource mapping
Material recovery
Craftmanship and design solutions

ADDITIONAL SERVICES
Upcycled product development

SUPPLIERS
100% professionals

DEMAND
50% professionals and 50% privates

PARTNERSHIPS
Contractors, wholesalers, demolition companies, building owners, private companies

FINANCIAL ELEMENTS

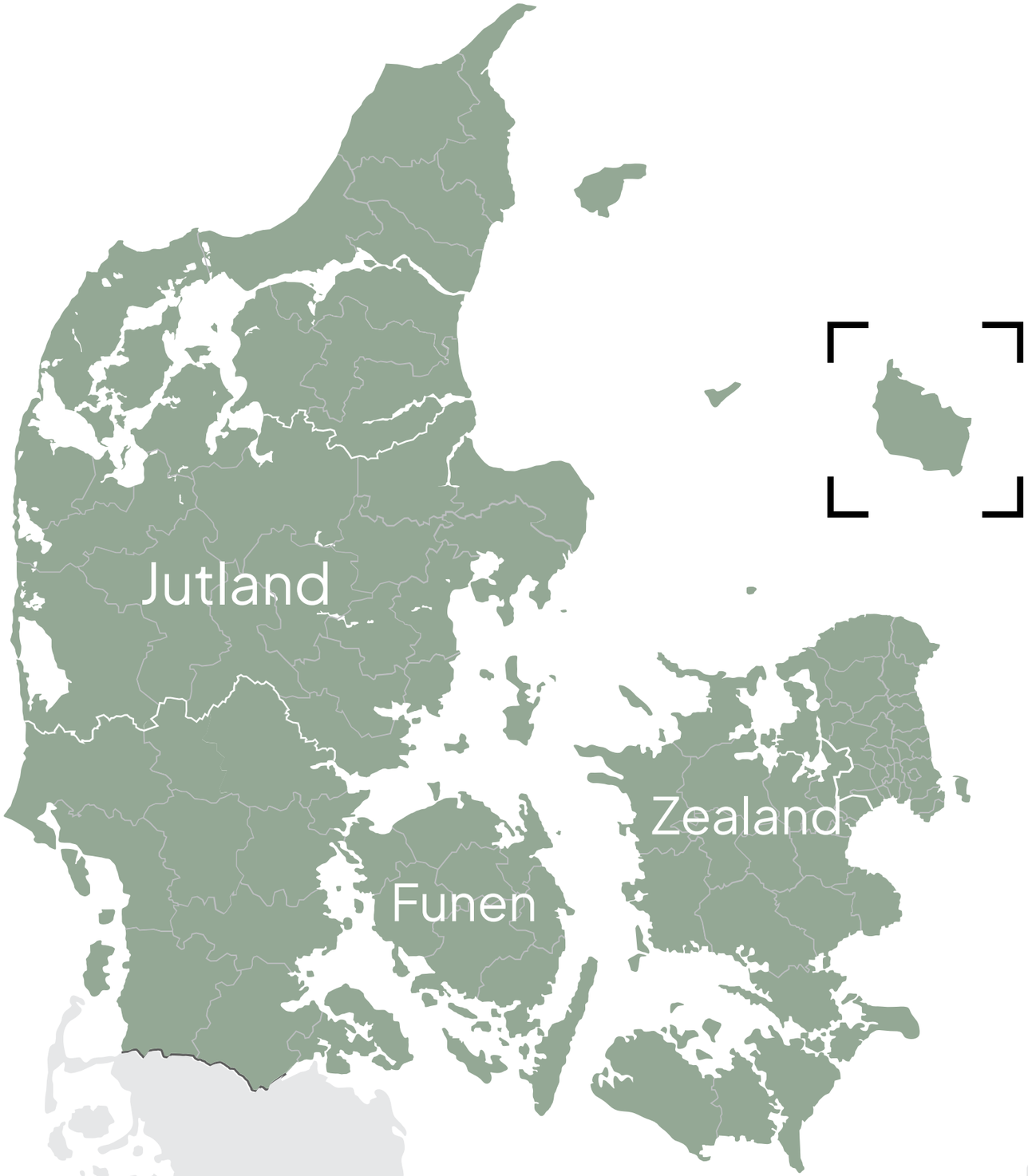
YEARLY TURNOVER
7 mio DKR. (approx. 100,000 Euro)

INVESTMENT SOURCES
Enemærke & Petersen and Carl Ras bought 40% of the company in 2022
Initial financial funding from "Den Grønne Jobpulje"

REVENUE STREAMS
Sale of reused building materials
Sale of upcycled products

PRICING STRATEGY
Vary depending on the material
50% off the market-price of new product

FINANCIAL MODEL
Commercial company



THE GOOD EXAMPLE

Over the past decade, Genbyg has launched various upcycling projects, targeting the B2B market and retail. They operate their own design studio, developing sustainable interior concepts for restaurants and stores while also producing their own design products made from reused materials. Today, about 25% of their income comes from the sale of these upcycled products, that they have created from the reused materials they receive – an additional service to ensure a steady revenue stream.

> *Regulations ensuring an increased percentage of reused building materials in new buildings, will ensure a balance in demand and supply*
>
> *Jesper Holmberg, Co-founder and CEO, Genbyg*

BARRIER: *Lack of regulatory requirements (external)*

The lack of clear legislation driving demand for reused building materials can act as a significant barrier to grow the market further. While the idea of using reused material in new constructions is gaining attention, there is still no rule requiring, for example, that 10% of a building's materials come from reused sources. Genbyg emphasises that without stronger regulatory requirements like this, the market struggle to grow beyond small-scale projects. They see such legislation as an important step to boost demand and accelerate the green transition among all actors.

ENABLER: *Partnerships (external)*

A key enabler for Genbyg's operations lies in the strength of their partnerships and ownership structure. Collaborations with major companies like Enemærke & Petersen and Carl Ras, now co-owners, are crucial in order to ensure a steady supply of reused materials and provide direct access to construction projects, thereby also creating momentum for the collection and resale of reused materials. As Genbyg also comments on, these partnerships are important for larger companies as well, as these recognise the urgent need to take practical action to stand out in the green transition. Genbyg's long-standing presence in the market further strengthen their reputation as a trusted partner.

3.2 WASTE MANAGEMENT OWNED

PlusByg Næstved

A regional initiative to reduce waste and promote circularity

PlusByg (Denmark) is a publicly owned initiative operated by six municipalities. Founded in 2012 as a complementary project to AffaldsPlus (waste management), PlusByg has grown to include three regional hubs in Næstved, Ringsted, and Vordingborg. PlusByg Næstved was established in 2019.

A VISION TO REDUCE WASTE

The initiative was carried out by a visionary manager, who saw the business potential alongside an increasing focus on sustainability and circularity. With a vision to reduce waste and promote circularity, PlusByg is working to meet the increasing demand for building materials while tackling the challenges of supply and space constraints.

THE RIGHT PRICING

To ensure public interest in reuse, sustainability, and circularity, the purchase of reused building materials must be profitable for buyers. PlusByg emphasises the need to communicate the economic advantages of buying reused materials compared to new – such as the absence of disposal fees and lower purchase prices, to help maintain attention. PlusByg also focuses on additional values including lower outgassing from older materials, higher material quality, and further highlighting the storytelling aspect of a material's previous life. This helps framing reused materials as a more appealing option, thereby increasing the incentive for buyers to make the sustainable choice of purchasing reused materials instead of new.

RESPECTNG MARKET DYNAMICS

To cater physical limitations, PlusByg seeks to keep their prices low to maintain a fast inventory turnover and create space for new incoming materials. While this approach helps operations, it has drawn criticism from other organisations with different pricing strategies and financial models. As a publicly owned entity, PlusByg is cautious not to distort market dynamics, but continues to prioritise environmental impact over profit.

> *It is the low prices that is the biggest driver for buying reused materials*
>
> *Henrik Bro Andersen, Team leader, PlusByg Næstved*

INITIAL SORTING AT THE RECYCLING STATION

AffaldPlus has 19 recycling stations located within the six owner municipalities. The employees are encouraged to collect material and fractions for PlusByg, that has the potential to be reused. From the experience, circularity and sustainability is not necessarily a priority for the employees and thus training and education is relevant for the employees to understand the relevance and importance of collecting even more material for the PlusByg stores.

A PART OF AN EU FUNDED INITIATIVE

PlusByg Næstved was initiated as a part of the EU regional funded project "Mærk Næstved – Grøn Bæredygtig Byudvikling", where Næstved had a strong focus on minimising resources and creating new innovative waste systems. PlusByg Næstved have now become an important part of the municipalities Circular Economy agenda, though PlusByg is still missing regulatory initiatives to strengthen their business and the incentive for businesses and citizens to contribute.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Waste management ownership AffaldPlus (100%)

MANAGED BY
AffaldPlus

OPERATIONS
- *Collecting*
- *Logistics*
- *Sorting*
- *Storage*
- *Selling*
- *Delivery service*
- *Smaller repairs*

STAFFING
54 employees across PlusByg stores. Typically, 5–10 in job training

QUALITY ASSURANCE
Material knowledge and no toxic materials. Advising costumers to use only for DIY projects

SOURCING SCOPE
Southwestern Zealand (Regional scope)

SOURCING OPERATIONS
Collecting from recycling stations and receiving materials

TECHNICAL ELEMENTS

FACILITY LAYOUT
Warehouse, outside storage, stock, repair area, office, small café area, free collecting zone

PHYSICAL CAPACITY
-

PROCESSING TOOLS
Repair area with basic tools
Sorting tool (textiles)

DIGITAL SYSTEMS
No digital systems

FRACTIONS
Beams, doors, sanitary, windows, bricks, roof tiles, stones, furniture, lightning, tools

MATERIALS QUANTITY
Approx. 2000 reused materials in 2023 (including other goods)

STORING STRATEGY
Adjusting prices or moving goods to other facilities/stores

BUSINESS ELEMENTS

SALES STRATEGY
B2C

KEY ACTIVITIES
Job training
Selling reused materials
Smaller repairs

ADDITIONAL SERVICES
Sorting textiles
Delivery services

SUPPLIERS
-

DEMAND
Approx. 100% citizens

PARTNERSHIPS
Børge Jakobsen – Window project

FINANCIAL ELEMENTS

YEARLY TURNOVER
Approx. 335.000 Euro (approx. 95.000 from reused building materials)

INVESTMENT SOURCES
EU Regional Funding through the initiative "Mærk Næstved – Bæredygtig grøn byudvikling"

REVENUE STREAMS
28% sales of reused building materials
72% sales of other reused goods

PRICING STRATEGY
50% of price for new materials

FINANCIAL MODEL
Non for profit organisation (surplus is used for operations of recycle stations)

THE GOOD EXAMPLE

PlusByg stands as an inspirational example on a circular construction hub owned by waste management. By having directly access to the materials and fractions received at the regional recycling stations, PlusByg is able to turn the citizens' waste into functional materials. As a non for profit organisation, they are enabled to strengthen their focus on other aspects such as social sustainability and circularity.

> *Same day as new building materials enters our store, they are bought - the demand for building materials are high*

Henrik Bro Andersen, Team leader, PlusByg Næstved

BARRIER: *Difficulties in establishing beneficial partnerships (external)*

PlusByg has experienced difficulties establishing partnerships with private actors, such as demolition companies to ensure a stable supply of reused building materials. There is currently no regulations that obligate companies to perform selective demolishing and material sorting, and therefore these practices have not become standardised within the sector. Thus, new working practices required for the partnerships to be beneficial, is a price that companies have to pay. Though, new regulations is expected to create changes from mid 2025 and forward. Changes that can increase the supply of reused building materials, as new practices, increasing circularity within the construction sector, will receive regulative support.

ENABLER: *Donating materials is free for companies (external)*

At PlusByg citizens and companies can donate materials without incurring fees – a significant advantage over traditional recycling stations, that requires a fee for companies. This approach not only promotes environmentally sustainable practices but also offers financial benefits to contributors. In addition, PlusByg offers flexible drop-off solutions for companies, to accommodate various operational hours within the sector. This flexibility encourages companies to contribute, enhancing the circularity of the regional construction sector. By offering cost-effective and convenient options for material donation and collection, PlusByg plays a pivotal role in promoting sustainable practices among regional companies.

3.3 BLENDED OWNERSHIP

Fundació Deixalles

Empowering vulnerable groups and promoting circular economy in the tourism-heavy Balearic Islands

Established in 1986 as a non-profit organisation, Fundació Deixalles (Spain) aims to contribute to building a fairer and more sustainable society by promoting the socio-labour insertion of vulnerable people through activities related to waste and improving the environment.

A STABLE AND SUFFICIENT BUSINESS MODEL

Fundació Deixalles operates with a stable and sufficient business model based on public-private cooperation. The sale of collected items is their primary source of funding. For the hotel project specifically, 95% of the income comes from selling the materials. The remaining funding comes from public funds and European funding. They provide companies with certificates outlining the social and environmental impact of the collected materials, which companies can use to justify their actions.

LIMITED LEGAL BARRIERS MAKES IT EASIER TO OPERATE

Fundació Deixalles has encountered no legal barriers to the development or implementation of its service. On the contrary, the project aligns seamlessly with regional waste and tourism legislation, which actively encourages the separation and collection of reusable waste. This supportive legal framework facilitates Fundació Deixalles' operations rather than hindering them.

ETHICAL ALIGNMENT IS IMPORTANT IN PARTNERSHIPS

While Fundació Deixalles prefers to work with partners who share its ethical values, this is not a strict requirement. The foundation promotes a model of social and solidarity economy, which often contrasts sharply with the dominant economic system. If Fundació Deixalles only collaborate with organisations that fully embody this alternative model, it would likely find itself isolated. The organisation believes that transforming society requires embracing contradictions. Therefore, it engages with a diverse range of partners, aiming to influence positive change from within.

> *Our project proves the significant reuse potential of hospitality waste and presents a replicable solution for other tourist areas across Europe*
>
> *Juan Gayá, Environmental technician, Fundació Deixalles Palma*

INFRASTRUCTURE IS A MAIN CHALLENGE

Infrastructure is the main challenge, specifically the need for larger warehouses to store the significant volume of materials, especially during the peak collection season (November to February). This is a major challenge. Large-scale hotel renovations require the quick removal of large quantities of materials, necessitating adequate infrastructure

SEEKING TO INCREASE FOCUS ON DECONSTRUCTION AND VALUE FOR CONSTRUCTION INDUSTRY

For now, Fundació Deixalles is not directly involved in deconstruction activities. However, it sees this as a highly promising area for future development, both from an environmental perspective and in terms of social and labour inclusion. Currently, its work focuses on the recovery of potentially reusable items such as furniture, textiles, mattresses, electrical appliances, decorative items, and kitchenware, primarily from the hospitality sector.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Collectively owned non-profit organisation

MANAGED BY
The board of directors and a member-based assembly

OPERATIONS
- *Collecting*
- *Logistics*
- *Storage*
- *Sorting*
- *Selling*
- *Upcycling*

STAFFING
400 people across all services

QUALITY ASSURANCE
Drivers assess materials based on internal criteria

SOURCING SCOPE
Regional scope

SOURCING OPERATIONS
Collects reusable items from hotels and private homes

TECHNICAL ELEMENTS

FACILITY LAYOUT
Workshops, warehouses, stores

PHYSICAL CAPACITY
Warehouses
7 physical stores in Mallorca, 1 in Ibiza

PROCESSING TOOLS
7 small trucks for logistic services

DIGITAL SYSTEMS
Internal database/program for tracking collections

FRACTIONS
Furniture, mattresses, textiles

MATERIALS QUANTITY
410 tons of material collected
2000 mattresses/year

STORING STRATEGY
6-month average sell cycle

BUSINESS ELEMENTS

SALES STRATEGY
Primarily B2C, yet also B2B

KEY ACTIVITIES
Reselling reusable items
Job creation
Logistics

ADDITIONAL SERVICES
Collecting waste

SUPPLIERS
Private
Professionals

DEMAND
Mostly B2C, some B2B (hotels)

PARTNERSHIPS
Hotels, governments, warehouse providerst

FINANCIAL ELEMENTS

YEARLY TURNOVER
Activity Incomes 8,202,623 Euro
Operating Expenses: -€7,919,495.86 (2023)

INVESTMENT SOURCES
Spanish government (EU-funded)
Self-financing

REVENUE STREAMS
90% of income comes from material sales. Occasional charges for waste collection

PRICING STRATEGY
Competitive to prices in second-hand stores and platforms, seeking a quick turnover and affordable prices for people with limited resources

FINANCIAL MODEL
Non for profit organisation

THE GOOD EXAMPLE

Fundació Deixalles is an inspiring example of a CCH, having established a stable business model aligned with national and regional policy agendas. Its activities span environmental, social, and economic goals, contributing to a more just and sustainable society. A business model that is replicable for other sectors or cities.

> *In three years, we have collected 520 tonnes of material. We reuse 96% of this and we went to 282 hotels to collect material. We calculated that the tonnes of CO2 that were avoided were nearly 2000 tonnes."*
>
> *Juan Gayá, Environmental technician, Fundació Deixalles Palma*

BARRIER: *Difficulties in reaching the larger companies (internal/external)*

Fundació Deixalles experience difficulties in reaching the decision-makers in larger companies. This makes it difficult to scale at market and especially as they also experience that current practices must be changed, to promote circular economy – for example in the hotel industry where staff are used to discard materials instead of seeing it as a resource. A limited participation from the industry is a key challenge that currently result in mostly social enterprises to participate in the initiative.

ENABLER: *Free services and social and environmental certifications for companies (internal)*

Free collection services are a significant enabler to engage the industry, as they experience a financial benefit. Further, by providing social and environmental certificates to companies, Fundació Deixalles' services are a valuable contribution to the companies' sustainability strategy. Their established infrastructure with stores and workshops, along with their long history (nearly 40 years), makes them well-known and supports their operations.

Malmö Återbyggdepå

Supporting the reuse of building materials since 1997

Malmö Återbyggdepå (Sweden) is a non for profit organisation founded in 1997 as a labor market policy project. Malmö Återbyggdepå is located close to the city center of Malmö, in the old industrial harbor area. It focuses on the collection and resale of secondary building material, providing a sustainable alternative to traditional waste disposal in the construction industry.

A JOINT VENTURE

Malmö Återbyggdepå is a jointed venture between the City of Malmö (55%) and the municipal utility company SYSAV (45%). Besides contributing to the revenue stream by requesting logistics services, Malmö Stad provides a workforce enrolled in job training activities. A model that is essential for the initiative's existence and mission.

PHYSICAL LIMITATIONS

With a physical capacity of 16000 m2 facility (outdoor and indoor), they handle approx. 1500 tons yearly of secondary materials from both citizens (20% of their stock) and professional construction companies (80% of their stock). The materials come from a variety of sources including surplus materials from construction sites and materials retrieved from demolition and renovation projects. However, expanding its operations faces limitations due to physical space constraints.

MAKING SUSTAINABILITY AFFORDABLE

Malmö Återbyggdepå is not allowed to pay for the material they receive, but they are allowed to sell it at a discounted price – usually 30–50% of the cost of new materials. This pricing strategy supports the organisation's goal of making sustainable building materials affordable, while ensuring not to undersell the existing secondary materials market.

> *"It takes time to grow and develop – you must expand slowly and steady to avoid failing*
>
> *Line Persson, Project manager, Malmö Återbyggdepå*

THE SUCCESS OF DIGITALISING

In 2024 they digitalized their inventory and launched their web shop which increased their turnover with 38% compared to 2023. By digitalising their inventory, they have experienced a broader costumer scope, as costumers outside Malmö have access to material information and quantity online. Especially the demand for roof tiles have increased.

DEVELOPING AND MAINTAINING STRATEGIC PARTNERSHIPS

Återbyggdepå's existence is strongly depending on strategic partnerships with local contractors and building clients, fostered by its dedicated manager, who has been with the initiative from the start. In the coming years, Återbyggdepå hopes to strengthen its relationships with publicly owned housing entities and expand its role in the professional sector, providing a model for sustainable construction and material reuse in Sweden..

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Collectively owned non-profit organisation

MANAGED BY
The board of directors and a member-based assembly

OPERATIONS
- *Collecting*
- *Logistics*
- *Storage*
- *Sorting*
- *Selling*
- *Upcycling*

STAFFING
400 people across all services

QUALITY ASSURANCE
Drivers assess materials based on internal criteria

SOURCING SCOPE
Regional scope

SOURCING OPERATIONS
Collects reusable items from hotels and private homes

TECHNICAL ELEMENTS

FACILITY LAYOUT
Workshops, warehouses, stores

PHYSICAL CAPACITY
Warehouses
7 physical stores in Mallorca, 1 in Ibiza

PROCESSING TOOLS
7 small trucks for logistic services

DIGITAL SYSTEMS
Internal database/program for tracking collections

FRACTIONS
Furniture, mattresses, textiles

MATERIALS QUANTITY
410 tons of material collected
2000 mattresses/year

STORING STRATEGY
6-month average sell cycle

BUSINESS ELEMENTS

SALES STRATEGY
Primarily B2C, yet also B2B

KEY ACTIVITIES
Reselling reusable items
Job creation
Logistics

ADDITIONAL SERVICES
Collecting waste

SUPPLIERS
Private
Professionals

DEMAND
Mostly B2C, some B2B (hotels)

PARTNERSHIPS
Hotels, governments, warehouse providerst

FINANCIAL ELEMENTS

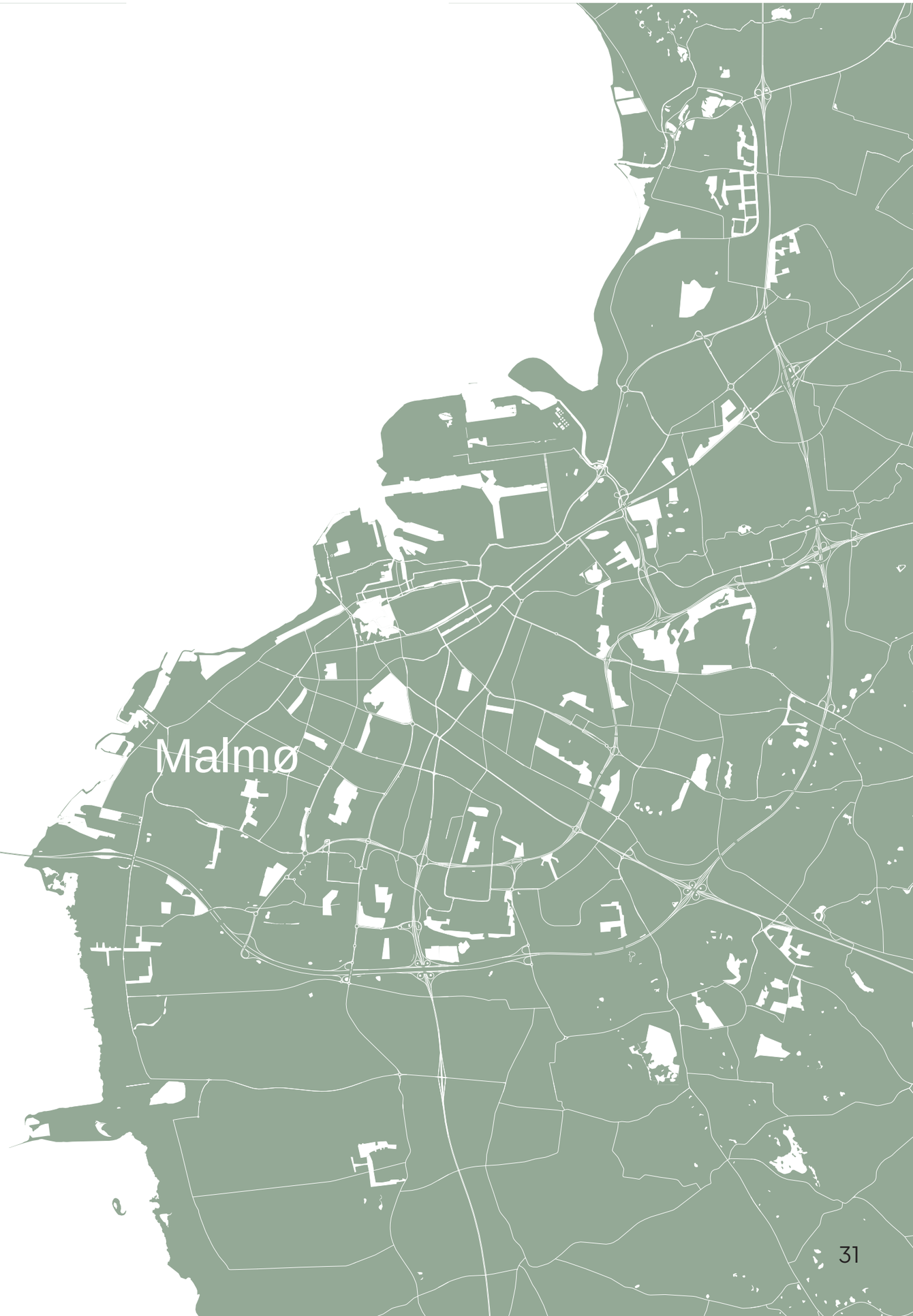
YEARLY TURNOVER
Activity Incomes 8,202,623 Euro
Operating Expenses: -€7,919,495.86
(2023)

INVESTMENT SOURCES
Spanish government (EU-funded)
Self-financing

REVENUE STREAMS
90% of income comes from material sales. Occasional charges for waste collection

PRICING STRATEGY
Competitive to prices in second-hand stores and platforms, seeking a quick turnover and affordable prices for people with limited resources

FINANCIAL MODEL
Non for profit organisation



THE GOOD EXAMPLE

Malmö Återbyggdepå stands as a successful example of a circular construction hub, driven by a mix of public-utility ownership, with a strong focus on labor market programs and social responsibility. They are strongly depending on the engagement of the people employed, and the stable revenue generated by offering logistic services to the municipality. This ensures an initiative that manage to balance economic stability, environmental impact, and community engagement.

Smith innovation CIRCOFIN

> *The people engaged in our organisation is a big part of our success – pioneers are essential*

Line Persson, project manager, Malmö Återbyggdepå

BARRIER: *Missing regulative support for reuse (external)*

As a publicly owned initiative, Malmö Återbyggdepå relies heavily on ongoing political support within the municipality, making its future uncertain in the face of potential political shifts. Furthermore, the lack of binding regulations to support the reuse of building materials—currently only guided by recommendations—leaves the demand for secondary materials among professionals reliant on strong partnerships, networking, and competitive pricing. While Återbyggdepå thrives in offering affordable prices, its physical capacity remains a significant constraint, limiting its ability to supply the larger quantities required for large-scale projects.

ENABLER: *Socially responsible workforce (internal)*

The blended ownership model is essential for Malmö Återbyggdepå to operate. The integration of job training programs and internal logistics tasks, ensures that Malmö Återbyggdepå not only contributes to local workforce development, but it also ensures a steady, government-supported labor force. This model helps stabilise the organisation's operations, as it offers a steady flow of tasks and covers salaries for a significant portion of the workforce. Thus, the blended ownership model provides both operational support and financial stability for Malmö Återbyggdepå.

3.4 PUBLIC OWNED

Utrecht Trechterweide

Internal reuse at a local scale to ensure a circular municipality

As part of the EU-funded PREUSE project, the Municipality of Utrecht established in 2025 Trectherweide as a publicly owned reuse hub dedicated to support the reuse of construction materials in the maintenance of the city's public spaces.

A STEP TOWARDS A CIRCULAR MUNICIPALITY

Trechterweide reflects Utrecht's broader ambition to become a fully circular city. By establishing a municipally owned reuse hub for public space materials, the city is taking concrete steps to reduce CO2 emissions. The reuse hub enables materials such as pavement stones and street fixtures to remain in circulation within the city. Thereby, the material's lifespan is extended and demand for new resources is reduced.

FOCUSING ON MATERIALS WITH A VIABLE BUSINESS MODEL

In establishing Trechterweide, the municipality prioritized materials that combine high environmental impact with strong reuse potential. Six categories of paving materials were selected based on usage frequency in the city and available storage capacity. These materials are easy to collect, process, and reuse in public space projects. The business model was made stronger by gathering storage needs in one place and getting rental incomes from circular businesses. Even though the hub still runs at a cost, this approach supports the long-term goal of a self-sustaining model.

SUPPLYING FOR OWN DEMAND

Trechterweide is designed to meet the city's own needs. All materials entering the hub comes from municipal space projects, and all reuse takes place within the city itself. By managing both supply and demand internally, the city remains control of flows and can more efficiently plan for reuse in future projects. In the coming years, the goal is to make reuse as a standard element in municipal procurement, thereby making Trechterweide the main supplier of reused materials.

> *We are our own supply and demand so that is a strength*
>
> *Noortje Voulon, strategic advisor, City of Utrecht*

FINDING THE LOCATION WAS FIRST PRIORITY

Before any detailed plan was made, the City of Utrecht prioritized finding the right location for the reuse hub. Thus, when a rare, centrally located industrial site became available, the municipality acted quickly. The location had enough space to have both reuse activities and other municipal functions, thereby making it a practical and cost-effective choice. Additionally, it's close location to public work departments and access to the canal made it ideal for managing materials efficiently. Thus, Utrecht built its reuse strategy from the location which allowed a more flexible and innovative approach to design the reuse hub.

SEEKING TO INCORPORATE BUILDING MATERIALS

While Trechterweide currently focuses on materials from public spaces, such as paving stones and lampposts, they are considering extending reuse practices to include building materials. However, space limitations have so far limited this idea. If additional space becomes available, and systems for handling larger, more complex fractions are developed, the city aims to expand the hub's role and incorporate reused building materials in their business model.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
City of Utrecht

MANAGED BY
City of Utrecht

OPERATIONS
- *Handling*
- *Storing*
- *Cleaning*
- *Repairing*

STAFFING
3 full-time employees

QUALITY ASSURANCE
External quality check (Kiva)

SOURCING SCOPE
Local

SOURCING OPERATIONS
Collecting materials from public spaces

TECHNICAL ELEMENTS

FACILITY LAYOUT
Storage facility and office facility

PHYSICAL CAPACITY
4,000 m2 warehouses

PROCESSING TOOLS
Palleting machine
Cleaning material scanning

DIGITAL SYSTEMS
DuSpot

FRACTIONS
Pavement, concrete, wood, stones, bricks

MATERIALS QUANTITY
-

STORING STRATEGY
-

BUSINESS ELEMENTS

SALES STRATEGY
G2G

KEY ACTIVITIES
Handling reused pavement and concrete
Collecting reused pavement and concrete

ADDITIONAL SERVICES
Repairing
Cleaning
Space rent out

SUPPLIERS
100% internal

DEMAND
100% internal

PARTNERSHIPS
Private companies that rents the depot for sustainable activities

FINANCIAL ELEMENTS

YEARLY TURNOVER
-

INVESTMENT SOURCES
Municipality of Utrecht, EU-funding through PREUSE

REVENUE STREAMS
Rental income

PRICING STRATEGY
No pricing

FINANCIAL MODEL
Non-profit public initiative

THE GOOD EXAMPLE

Trechterweide serves as a strong example of how operating with a fully internal scope can help maintain a stable and predictable balance between supply and demand. At the same time, it provides a low-risk environment for testing different business models. The city's strong commitment to become circular reinforces the initiative as a part of the broader and continuously strategy.

> *You can try and error for longer than a commercial company would*
>
> *Noortje Voulon , strategic advisor, City of Utrecht*

BARRIER: *Internal scope can be limiting (Internal)*

Trechterweide is currently limited to handling materials from the city's own public space projects. This internal setup gives Utrecht full control over quality and planning. However, it also restricts the scale and variety of materials entering the reuse hub. For example, while the city occasionally receives materials from public building renovations, such as a local fire station, these cases are rare. Regulations prevent the reuse hub from selectively selling to external actors unless access is made fully open to the market, which is not aligned with the hub's goals. As a result, valuable material flows from nearby private or regional projects cannot be utilized, even if reuse would make sense. As a result, opportunities for greater impact through collaboration with private companies are restrained.

ENABLER: *A strong organisation with practical and back-of-fice competencies (Internal)*

One of Trechterweide's strengths lies in its integrated internal structure. The reuse hub is supported by a mix of operational staff, such as a reuse coordinator and supply manager, and strategic advisors who align reuse goals with municipal planning. This combination allows the initiative to balance hands-on work with long-term development. Processes such as quality control, inventory management, and digital registration are such built on internal competencies. This organisational setup allows Trechterweide the flexibility to test, learn, and adapt as the reuse hub grows.

Sola Byggåterbruk

A public initiative promoting sustainable development

Founded in 2020 by Karlstad Municipality, Sola Byggåterbruk (Sweden) is a public non for profit initiative driving sustainable development in the region. Combining an external circular construction hub with an internal circular furniture hub, Sola Byggåterbruk transforms waste into resources.

THE THREE DIMENSIONS OF SUSTAINABILITY

Sustainability is at the core of Sola Byggåterbruk's operations. First, they extend the life of building materials by reusing what would otherwise be discarded, contributing to environmental sustainability. Second, they help people find employment through job training and work opportunities, supporting social sustainability. Third, by offering used materials at lower prices than new ones, they make construction more affordable and ensure economic sustainability.

A DIGITAL MARKETPLACE WITH AI-ENABLED PRICING

Sola Byggåterbruk uses the digital platform Palats to make reused construction materials accessible. The platform allows buyers to browse detailed product information, including photos, measurements, and prices. The platform's AI estimates prices for new products. These estimates are reviewed and adjusted for accuracy, streamlining pricing and ensuring transparency and fairness. The platform provides Sola Byggåterbruk with information to see the effect of the initiative in terms of CO2 savings and cost analysis.

THE VALUE OF PHYSICAL EXPANSION

The expansion to a larger facility in the summer of 2024, combined with the introduction of their digital catalogue, has improved visibility and accessibility of products. The new location covers 1,900 m2 in total - with 770 m2 dedicated to the construction hub, 800 m2 for the furniture hub, and 380 m2 for staff spaces. The increased space makes it easier to display items clearly, instead of stacking them or placing them in cramped areas. This, along with the digital catalogue, allows customers to better see and understand what is available, which in turn helps match supply with demand more effectively, with an estimated turnover rate on maximum 4 weeks.

> *"It can be a bit sensitive that the municipality is having a construction hub. The collaboration with ASF legitimises the business and allow us to market ourselves*
>
> *Sofia Falk, Head of Internal Services Department, Sola Byggåterbruk*

PUBLIC COLLABORATION

The initiative was made possible through a political decision to establish a reuse hub for both construction materials and furniture and is closely tied to other municipal actors. Collaborations with TFF (the technical and property administration), ASF (the labor market and social services division) and Karlstad Energi (the municipal waste and recycling company) play an important role. TFF is responsible for running and developing the business, ASF contributes with workforce, by engaging people in job training who support the daily operations and enables Sola Byggåterbruk, while Karlstad Energi collects building materials, through special containers at their recycling centers to support the supply for the hub

FUNDING AS PART OF FINANCIAL CONDITIONS

Sola Byggåterbruk has received indirect financial support through a municipal grant of 3.5 million SEK (approx. 320,000 Euros) per year, which was given to TFF. Still, the funding does only cover 62% of all operational costs, so the remainder is financed through revenue from sales. The expected financial result of 2025 is a neither incurring a loss or profit.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Public ownership, Karlstad Municipality (100%)

MANAGED BY
Karlstad Municipality

OPERATIONS
- *Logistics*
- *Cleaning*
- *Sorting*
- *Storage*
- *Selling*

STAFFING
2 full-time employees
ASF supervisors
10 spots for job training

QUALITY ASSURANCE
Checking the items before transporting it to the hub and fixing potential defaults

SOURCING SCOPE
Regional scope

SOURCING OPERATIONS
Collecting from big construction companies, demolition sites, waste management companies

TECHNICAL ELEMENTS

FACILITY LAYOUT
Storage, furniture showroom, construction store, area for reservations, quality control, cleaning, staff area photo booth

PHYSICAL CAPACITY
770 m2 for the construction hub
800 m2 for the furniture hub
380 m2.for staff spaces

PROCESSING TOOLS
Forklift, pallet truck, steam cleaner, carpet cleaner, various saws and other tools

DIGITAL SYSTEMS
Digital marketplace (Palats)

FRACTIONS
Doors, windows, insulation, bricks, furniture

MATERIALS QUANTITY
Approx. 200 ton per year (40% furniture and 60% building materials)

STORING STRATEGY
Ensuring all items are displayed effectively and can be seen and assessed by customers

BUSINESS ELEMENTS

SALES STRATEGY
B2B and B2C

KEY ACTIVITIES
Job training
Collecting reused materials
Selling reused materials

ADDITIONAL SERVICES
Quality control
Cleaning and taking care of products

SUPPLIERS
Mostly professionals

DEMAND
50% private and 50% professionals

PARTNERSHIPS
Construction companies, property management, building material stores, waste management

FINANCIAL ELEMENTS

YEARLY TURNOVER
Sales revenue of approx. 138,000 Euros per year

INVESTMENT SOURCES
Granted funds of 3.5 million SEK (approx. 320,000 Euros) from the municipality

REVENUE STREAMS
Sales of reused construction materials

PRICING STRATEGY
Use of AI to determine price with additional own assessment and research

FINANCIAL MODEL
Non for profit organisation

THE GOOD EXAMPLE

Sola Byggåterbruk stands out as an impactful public owned example of a circular construction hub. By combining job training with effective partnerships and a structured digital catalogue, they ensure a balanced supply and demand of materials that have resulted in significant CO2 and financial savings for the region.

> *The three dimensions of sustainability are the core of Sola Bygg- och möbelåterbruk*
>
> *Sofia Falk, Head of Internal Services Department, Sola Byggåterbruk*

BARRIER: *Limited workforce (internal)*

A key barrier Sola Byggåterbruk faces is limited workforce. Currently, they have two full-time employees and 10 job training positions, covering basic operations like store hours and logistics. However, with more staff members, they believe that they could scale their activities. For instance, it could enable them to open and operate more reuse hubs or getting involved earlier in renovation projects to help identify what materials can be reused. Achieving economic balance would require fully utilising all 10 job training spots in collaboration with ASF. While the partnership between two administrations (ASF and TFF) is new and takes time to establish, Sola Byggåterbruk remains optimistic that increased job training will free up time for TFF to focus on building partnerships.

ENABLER: *Growing network of partnerships (external)*

Sola Byggåterbruk collaborates with several larger construction companies and property managers who donate leftover construction materials free of charge. This creates a win-win situation, as the construction companies avoid disposal and transportation costs, and Sola Byggåterbruk gets access to good-quality materials without having to pay. These partnerships help not only to secure a steady supply of reused materials to resell but also make the operation more cost-efficient over time. Sola Byggåterbruk further notice that a growing number of construction companies are reaching out to them, thereby reflecting the increasing popularity and the potential of this type of collaboration between construction hubs and companies in construction and waste management.

DB Resale

Giving resources a second life within Germany's largest infrastructure owner

DB Resale is a specialised platform operated by Deutsche Bahn (DB) focused on the resale, reuse, and management of railway spare parts, materials, and components. Owned by Germany's largest infrastructure and building owner - Deutsche Bahn, DB Resale represents a leading example of how a complex, asset-intensive organisation can operationalise circular economy principles from within. The platform enables Deutsche Bahn to extend the lifecycle of its assets, reduce waste, and optimise material flows across its vast internal network.

STRATEGIC PLACEMENT WITHIN DEUTSCHE BAHN

DB Resale is not primarily an external marketplace, but an embedded system designed specifically to meet the material and building part needs of DB's many business units. With responsibility shared across internal warehouses and divisions, DB Resale helps ensure that unused or surplus parts from maintenance, refurbishment, or decommissioning processes are reintroduced into use elsewhere in the DB Group. This makes it a powerful tool for sustainability and cost-efficiency, while reducing dependency on new procurement and mitigating material shortages.

HIGH-IMPACT INTERNAL SOURCING AND REDISTRIBUTION

The platform sources its inventory almost exclusively from DB's own material stocks, ranging from spare parts and rolling stock components to bulk construction materials. Especially in the context of part obsolescence, DB Resale offers a vital secondary channel to access items no longer manufactured. Sales are strictly B2B, targeting internal DB units as well as external industrial buyers, municipalities, and certified recyclers through connected platforms like RailAuction Plus.

> *"We don't need to reinvent the wheel - most materials already exist somewhere in the DB system. DB Resale is about making them visible and usable again, across our own organisation*
>
> *Manuel Dreher, Marketing & e-Commerce, Deutsche Bahn*

DIGITAL AND OPERATIONAL INTEGRATION

DB Resale combines physical logistics via dedicated warehouse areas integrated in its workshop facilities, with digital systems for inventory tracking, sales, and logistics coordination. Every participating DB entity manages its own storage space and listings, while overall coordination ensures material availability and cross-unit visibility. This federated but integrated model allows for scalable, real-world reuse without requiring a centralised warehouse or excessive restructuring.

QUALITY AND ACCOUNTABILITY BUILT INTO THE MODEL

Quality assurance is a key pillar of DB Resale. Items are resold either "as seen" (in the case of decommissioned vehicles) or under standard legal warranty, often after professional refurbishment. Because it operates within the legal and organisational framework of Deutsche Bahn, the platform upholds a high level of responsibility for product traceability, safety, and compliance crucial in a regulated, risk-sensitive industry like rail infrastructure.

DATA

OPERATIONAL ELEMENTS

OWNERSHIP
Owned by Deutsche Bahn AG (blended)

MANAGED BY
Managed internally by Deutsche Bahn AG

OPERATIONS
- *Reselling*
- *Refurbishment*
- *Recycling*

STAFFING
No dedicated staff across all hubs. Handled by responsible persons per site or business unit

QUALITY ASSURANCE
Embedded in existing roles of maintenance, logistics, or asset management

SOURCING SCOPE
National

SOURCING OPERATIONS
Focus on internal DB material streams
Listing via central system

TECHNICAL ELEMENTS

FACILITY LAYOUT
Decentralised: Each location (warehouse, depot, etc.) organises its own storage

PHYSICAL CAPACITY
Not standardised

PROCESSING TOOLS
Standard logistic tools, minimal tools for processing/refurbishment

DIGITAL SYSTEMS
Uses internal platform and systems for listing and communication, public resale platform, assessment app

FRACTIONS
Spare parts, bulk materials, construction leftovers, and rail-specific infrastructure and building parts

STORING STRATEGY
Managed per site, often temporarily stored until sale or disposal

BUSINESS ELEMENTS

SALES STRATEGY
Focus on internal reuse first, followed by external B2B sales as well as EU-wide auctions

KEY ACTIVITIES
Identification and registration of surplus
Sales coordination and handling
Logistics and transport coordination

ADDITIONAL SERVICES
Sometimes includes refurbishment

SUPPLIERS
100% professional/internal suppliers (DB departments, maintenance units)

DEMAND
100% professional buyers (other DB units, contractors, B2B clients)

PARTNERSHIPS
Internal DB subsidiaries, municipal buyers, contractors (general contractors, railway suppliers), external industrial buyers, recyclers (registered for compliance)

FINANCIAL ELEMENTS

YEARLY TURNOVER
-

INVESTMENT SOURCES
Funded internally by Deutsche Bahn AG

REVENUE STREAMS
Material and spare part sales

PRICING STRATEGY
Pricing based on "as-is" condition and internal valuations

FINANCIAL MODEL
Operates as a cost-reduction and internal resource optimisation initiative rather than a standalone profit-making business

THE GOOD EXAMPLE

DB Resale has transformed internal surplus into a strategic resource. By enabling reuse within Deutsche Bahn's vast infrastructure network. It not only reduces waste and procurement costs but also solves operational challenges such as obsolete spare parts that are no longer available on the market. This internal resale system proves that with the right structure and digital tools, even a complex and traditionally slow-moving sector like rail can become a driver of circular innovation.

> *Each DB unit is responsible for its own storage space - that gives us access to a wide range of materials but also makes coordination and scaling more complex*
>
> *Manuel Dreher, Marketing & e-Commerce, Deutsche Bahn*

BARRIER: *Market readiness and adoption speed (external)*

One of the main barriers DB Resale faces is the slow pace of market adoption within the building and infrastructure sector. Although there is growing interest in circular practices, especially the railway industry remains conservative and hesitant to shift away from traditional procurement and disposal processes. Many clients still rely on direct contact or email rather than fully embracing the platform, a sign that digital resale models challenge long-established routines. This slow uptake hinders the full scaling potential of DB Resale, despite the platform's clear economic and environmental benefits.

ENABLER: *Internal ownership and infrastructure access (internal)*

A key enabler for DB Resale is its strong internal integration within Deutsche Bahn. This internal access grants DB Resale direct sourcing from a vast and diverse inventory, from rail vehicles to construction materials, across DB's own operations. Because each DB site manages its own stock, the platform benefits from decentralised supply streams, while central coordination enables standardisation and scalability. This embedded position gives DB Resale unique legitimacy and reach, allowing it to operate efficiently within existing structures and drive circularity from within.

3.5 CROSS ANALYSIS OF DATA

Ownership

This data defines the ownership model of the CCH. It differentiate between private, public, blended, cooperative, and waste management ownership.

The selected cases cover different models to provide broad representation. Most cases are either privately or publicly owned, while only one represents waste management ownership, underlining the diversity captured in the broad mapping.

Data across Cases

Ownership Model	Cases
Private ownership	Genbyg, Sirken
Public Ownership	Sola Byggåterbruk, Utrect Trechterweide
Blended ownership	DB Resale, Malmö Återbyggdepå
Cooperative ownership	Fundació Deixalles, Resirqel
Waste management ownership	PlusByg

Managed by

This data defines who manage the daily operations and business of the CCH. This data is individual for each case.

For the public owned cases it is the municipalities that manage the daily operations and business, whereas the private owned cases are run by the owners.

Data across Cases

Case	Managed By
DB Resale	Deutsche Bahn AG
Fundacio Deixalles	The board of directors and member-based assembly
Genbyg	Genbyg
Malmö Återbyggdepå	SYSAV and Malmö Stad
PlusByg Næstved	AffaldPlus
Resirqel	Resirqel
Sirken	Sirken
Sola Byggåterbruk	Karlstad Municipality
Utrecht Trechterweide	City of Utrecht

Operations

This data defines the operations that are handled at the CCH. These operations is determining for the structure of the CCH.

The core operations are common across the cases - reselling, collection, logistics, sorting, and storage. Most cases have several operations and only a few offers limited operations.

Data across Cases

Operations/ Cases	Reselling	Sourcing	Collecting	Logistics	Sorting	Storage	Upcycling/Design solutions	Repairs	Cleaning	Consulting	Resource mapping
DB Resale	x										
Fundacio Deixalles	x		x	x	x	x	x				
Genbyg	x	x					x				x
Malmö Återbyggdepå	x		x	x	x	x					
PlusByg Næstved	x		x	x	x	x		x			
Resirqel	x		x			x				x	
Sirken	x					x					
Sola Byggåterbruk	x			x	x	x			x		
Utrecht Trechterweide			x			x		x	x		

Staffing

This data defines the staffing of the CCH. It includes number of employees, specifying full-time and training positions. This data is individual for each case.

The size of the workforce within the different CCHs varies, but common for the CCHs solely focussing on operating a reuse hub have a limited number of employees. Common for all public and public/private CCHs is job training activities as a part of the workforce.

Data across Cases

Case	Staffing
DB Resale	-
Fundacio Deixalles	400 employees
Genbyg	11 employees
Malmö Återbyggdepå	7 full-time employees, 15 in job training
PlusByg Næstved	54 employees, 5 in job training
Resirqel	8 employees
Sirken	3 employees
Sola Byggåterbruk	2 full-time employees, 10 spots for job training
Utrecht Trechterweide	3 full-time employees

Quality assurance

This data defines how the CCH ensures that incoming material meet quality standards and are free from hazardous substances. This data is individual for each case.

Several cases are depending on internal materials knowledge and lowkey quality assurance principles, while only few cases use AI to determine the quality and possible toxicity

Data across Cases

Case	Staffing
DB Resale	Embedded in existing roles of maintenance, logistics, or asset management
Fundacio Deixalles	Drivers assess materials based on internal criteria
Genbyg	External tests of materials and internal material knowledge
Malmö Återbyggdepå	Internal material knowledge and principles for toxic materials
PlusByg Næstved	Internal material knowledge and no use of toxic materials
Resirqel	Analysing materials according to rest life, condition, disassembly complexity, and residual CO2 savings
Sirken	Use of AI to screen materials and detailed information on the materials provided by contractors
Sola Byggåterbruk	Checking the items before transporting it to hub and repairing
Utrecht Trechterweide	External quality check (Kiva)

Sourcing scope

This data defines the geographical scope from which the CCH sources materials. It differentiates between local, regional, and national.

Most cases sources their materials within a regional scope. The cases with a national sourcing scope are either relying on a broad well-established national infrastructure (DB Resale), strategic partnerships (Genbyg), and decentral storage facilities (Sirken) to enable a national sourcing scope.

Data across Cases

Sourcing scope	Case
Local	-
Regional	Fundacio Deixalles, Malmö Återbyggdepå, PlusByg Næstved, Resirqel, Sola Byggåterbruk
National	DB Resale, Genbyg, Sirken

Sourcing operations

This data defines how and from where the CCH acquires materials. This data is individual for each case.

The Circular Construction Hubs (CCHs) are predominantly partnership-based and decentralized, which means that they secure materials primarily through cooperation with construction, demolition and disposal companies – this is the most frequently used and effective way.

Around half of CCHs combine this with active collection (e.g., from households or recycling centers), while only a few rely on systematic or digital sourcing (e.g., internal corporate flows or digital mapping).

Data across Cases

Case	Staffing
DB Resale	Internal DB material streams and listing via central system
Fundacio Deixalles	Collecting from hotels and private homes
Genbyg	Resource-planning and through partnerships and collaborations
Malmö Återbyggdepå	Receiving materials
PlusByg Næstved	Collecting from recycling stations and receiving materials
Resirqel	Mapping tool and traceability system, and accepting materials on a donation basis
Sirken	Collaboration with construction and demolition companies
Sola Byggåterbruk	Collecting from construction companies, demolition sites, and waste management companies
Utrecht Trechterweide	Collecting materials from public spaces

Facility layout

This data defines the physical layout and components of the CCH facility.

Most CCHs have at least one warehouse – often supplemented by outdoor areas or small workshops. Showrooms or stores make sense if end customers (B2C) are also addressed. Mobile or decentralized structures are innovative and scalable but can usually only be implemented with a strong IT setup (e.g., Sirken).

Expanded areas for repair, quality assurance and cleaning are more likely to be found at socio-economic or city-run hubs.

Data across Cases

Case	Facility layout
DB Resale	Decentralized: Each location organizes its own storage
Fundacio Deixalles	Workshops, warehouses, stores
Genbyg	Store, warehouses, and carpenter facilities
Malmö Återbyggdepå	Warehouse, outside storage, stock
PlusByg Næstved	Warehouse, outside storage, stock, repair area, free collecting zone
Resirqel	Facility and storage possibility in Oslo
Sirken	18 movable hubs and 3 permanent stores
Sola Byggåterbruk	Storage, furniture showroom, construction store, area for reservations, quality control, cleaning
Utrecht Trechterweide	Storage facility and office facility

Physical capacity

This data defines the physical size of the CCH facility including both warehouses, storage and potential additional facilities. This data is individual for each case.

The cases physical infrastructure varies, shaped by each hub's business model and areas of focus. For example, Genbyg operates with a large, central storage facility, whereas Sola Byggåterbruk is more specialized, dividing its space into distinct zones for construction materials, furniture, and staff. In practice, this means that physical capacity is tailored to the specific needs of each initiative.

Data across Cases

Case	Physical capacity
DB Resale	Differs from each location
Fundacio Deixalles	Differs from each location
Genbyg	6,000m2 warehouse
Malmö Återbyggdepå	500m2 store, 300m2 storage, 800m2 outside storage
PlusByg Næstved	-
Resirqel	4,500m2 indoors and 2,500m2 outdoors
Sirken	Each movable hub is 72m2. Three physical stores of 1,400m2, 500m2, and 600m2
Sola Byggåterbruk	770m2 for construction hub, 800m2 for furniture hub, 380m2 for staff spaces
Utrecht Trechterweide	4,000 m2 warehouses

Processing tools

This data defines the tools and equipment available and used at the CCH for handling, processing, refurbishing, or transporting materials. This data is individual for each case.

Equipment and tools differ widely across the cases. They can range from traditional hand tools and basic logistics equipment to advanced systems using AI. These choices reflect the hubs' diverse business models and areas of specialization, with tools selected to match the types of materials handled (e.g., textiles) and the level of refurbishment intended

Data across Cases

Case	Processing tools
DB Resale	Standard logistic tools, minimal tools for processing/refurbishment
Fundacio Deixalles	-
Genbyg	Carpentry, trucks, forklift
Malmö Återbyggdepå	-
PlusByg Næstved	Basic tools and sorting tools for textiles
Resirqel	-
Sirken	AI for screening materials
Sola Byggåterbruk	Forklift, pallet truck, steam cleaner, carpet cleaner, various saws and other tools
Utrecht Trectherweide	Pallet machine Cleaning material scanning

Digital systems

This data defines the digital systems used by the CCH to support operations – internal as well as external. This data is individual for each case.

The majority of CCHs use at least simple digital systems (e.g., web shops or internal databases) to list materials and structure processes. Advanced hubs such as Sirken or Resirqel rely on platform-based, data-driven approaches to enable scalability, matching and analysis.

Only one case (PlusByg) works completely without digital systems.

Data across Cases

Case	Digital systems
DB Resale	Internal platform and system for listing and communication, a public resale platform, and assessment app
Fundacio Deixalles	Internal database/program for tracking collection
Genbyg	Webshop and online catalogue
Malmö Återbyggdepå	Webshop
PlusByg Næstved	No digital systems
Resirqel	System to assess reuse potential and pricing and system storing material data
Sirken	Digital marketplace and self-service system
Sola Byggåterbruk	Digital marketplace
Utrecht Trectherweide	DuSpot

Fractions

This data defines the fractions which the CCH collects and resells. It specifies the type of material or products handled.

Wooden elements, windows, doors, and furniture are used by at least half of the hubs, as they strike a good balance between availability, demand, and ease of handling. Slightly fewer hubs deal with floor coverings, bricks, or tiles. Furniture and fixtures are especially common in socio-economic or creative hubs, while technically complex or health-sensitive materials, such as insulation or electronics, play only a minor role.

Data across Cases

Fractions/ Cases	Doors	Windows	Wood	Flooring	Bricks	Tiles	Furniture	Textiles	Piping	Lighting	Bulk materials	Insulation	Spare parts	Electronics	Stones
DB Resale											x		x		
Fundacio Deixalles							x	x							
Genbyg	x	x	x	x	x	x									
Malmö Återbyggdepå	x	x	x		x	x	x				x		x		
PlusByg Næstved	x	x	x		x	x	x				x				x
Resirqel	x	x	x				x								
Sirken	x	x	x	x			x		x		x			x	x
Sola Byggåterbruk	x	x			x		x					x			
Utrecht Trectherweide			x		x									x	x

Materials quantity

This data defines the total quantity handled by the CCH. Due to data availability, it has only been reported for some cases and is measured over different time periods. Thus, this data is individual for each CCH.

Reported material quantities vary widely between the CCHs, from a few hundred to several thousand tons per year. This reflects both differences in scale and in the way activities are measured. While some hubs track specific product categories such as mattresses, others focus on total tons.

Data across Cases

Case	Material quantity
DB Resale	-
Fundacio Deixalles	410 tons of material collected and 2,000 mattresses per year
Genbyg	-
Malmö Återbyggdepå	1,500 tons of materials per year
PlusByg Næstved	2,000 tons of reused materials in 2023
Resirqel	-
Sirken	400 tons of surplus and reused materials per year
Sola Byggåterbruk	200 ton of reused materials per year
Utrecht Trectherweide	-

Storing strategy

This data defines how the CCH organizes and stores materials to ensure efficient handling and maintain quality. The strategies are individual for each case.

Most CCHs follow strategically managed storage approaches, aiming to keep storage times short, maintain quality, and facilitate material handling.

Long-term storage or “stockpiling” is rare. Instead, hubs focus on quick turnover by adjusting prices, improving visibility, or relocating items as needed.

Data across Cases

Case	Storing strategy
DB Resale	Managed per site, often temporarily stored until sale or disposal
Fundacio Deixalles	6–month average sell-cycle
Genbyg	Ensuring continuous material flow and avoiding long-term storage
Malmö Återbyggdepå	No specific time limit for storage
PlusByg Næstved	Adjusting prices or moving goods to other facilities/ stores
Resirqel	Decisions made depending on material durability, demand likelihood and ease of handling
Sirken	Materials stored in warehouses until sold
Sola Byggåterbruk	Ensuring all items are displayed effectively
Utrecht Trectherweide	-

Sales strategy

This data defines which sales strategy the CCH is adopting to, to reach the customer segment. Here we differentiate between B2B, B2C, and internally.

Most CCHs are catering a combination of B2C and B2B strategies to reach their customer segment. Meeting the needs of both segments requires different types of services.

Data across Cases

Sale strategy	Storing strategy
B2B	Resirqel, DB Resale
B2C	PlusByg
B2B and B2C	Fundació Deixalles, Genbyg, Malmö Återbyggdepå, Sirken, Sola Byggåterbruk
Internally	DB Resale

Key activities

This data defines the key activities within the business model of the CCHs. These activities elaborates on the operations within the CCHs and are therefore case specific.

Reselling reusable materials is at the core of every CCH, but their focus areas vary widely. Hubs such as Fundació Deixalles and PlusByg emphasise job training and social employment, while digital and knowledge-based hubs like Resirqel and Genbyg specialise in material mapping, consulting, and dismantling planning. Operationally oriented hubs such as DB resale and Sola prioritise logistics, storage, and coordination.

Data across Cases

Case	Key activites
DB Resale	Identification and registration of surplus materials Sales coordination and handling Logistics and transport coordination
Fundacio Deixalles	Reselling reusable items Job creation Logistics
Genbyg	Reselling reusable materials Resource mapping Material recovery Craftmanship and design solutions
Malmö Återbyggdepå	Reselling reusable materials Job training
PlusByg Næstved	Reselling reusable materials Job training Smaller repairs
Resirqel	Reselling reusable materials Consultancy services Pre-demolition and material mapping Material traceability and assessment Disassembly planning
Sirken	Reselling reusable and surplus materials Storing
Sola Byggåterbruk	Reselling reusable materials Job training Collection
Utrecht Trectherweide	Handling reused pavement and concrete Collecting reused pavement and concrete

Additional services

This data defines the additional services the CCHs offers besides their key activities. These services are case specific. However, some activities might be recurring.

The most common additional services are within logistics, such as transport and delivery. Others add value through repair, refurbishment, upcycling, or consulting, helping to boost customer benefits and stand out strategically.

Data across Cases

Case	Additional services
DB Resale	Refurbishment
Fundacio Deixalles	Collecting Waste
Genbyg	Upcycled product development
Malmö Återbyggdepå	Logistics
PlusByg Næstved	Delivery
Resirqel	Logistics
Sirken	Reuse mapping
Sola Byggåterbruk	Repairing
Utrecht Trectherweide	Repairing and space rent out

Suppliers

This data defines the percentage distribution for the supply of materials for the CCHs. It is divided between professionals, private, and internally. The data is estimated and has only been available for some of the cases.

The vast majority of the CCHs source their materials from professional actors in the construction and demolition industry, while private or internal sources only play a greater role in specialized models.

Data across Cases

Case	Professionals	Private	Internally
DB Resale	-	-	100%
Fundacio Deixalles	50%	50%	-
Genbyg	100%	-	-
Malmö Återbyggdepå	80%	20%	-
PlusByg Næstved	-	-	-
Resirqel	-	-	-
Sirken	100%	-	-
Sola Byggåterbruk	80%	20%	-
Utrecht Trectherweide	-	-	100%

Demand

This data defines the percentage distribution of demand for materials within the CCHs. It is divided between professionals, private, and internally. The data is estimated and has only been available for some of the cases.

Most CCHs show a balanced distribution of demand between professional (B2B) and private (B2C) customers – typically around 50/50. Only PlusByg is purely B2C, while Malmö is slightly B2C-heavy. DB Resale is a special case with 100% internal use.

Data across Cases

Case	Professionals	Private	Internally
DB Resale	50%	-	50%
Fundacio Deixalles	10%	90%	-
Genbyg	50%	50%	-
Malmö Återbyggdepå	40%	60%	-
PlusByg Næstved	-	100%	-
Resirqel	-	-	-
Sirken	48%	52%	-
Sola Byggåterbruk	50%	50%	-
Utrecht Trectherweide	-	-	100%

Partnerships

This data defines the partnerships that are supporting the business model of the CCHs. The partnerships are separated into different categories: Demolition companies, construction companies (private, public), private companies, contractors, municipalities/governments, recyclers, waste management, and property management.

Most of the CCHs mainly collaborate with private companies, followed by private construction and demolition firms. Municipalities and public construction partners also play a role, though they are less prominent. Other actors, such as recyclers, waste management providers, or property managers are involved only occasionally.

Data across Cases

Partnerships/ Cases	Demolition companies	Construction companies (public)	Construction companies (private)	Private companies	Contractors	Municipalities/ governments	Recyclers	Waste management	Property management
DB Resale				x	x	x	x		
Fundacio Deixalles				x		x			
Genbyg	x			x	x				
Malmö Återbyggdepå			x			x			
PlusByg Næstved				x					
Resirqel	x	x					x		
Sirken	x		x						
Sola Byggåterbruk		x	x	x				x	x
Utrecht Trectherweide				x					

Yearly turnover

This data defines the yearly turnover of the CCH. It is converted into euros to enable better comparison between cases. Due to data availability, similar indicators such as sales revenue or activity income have been used for some cases.

Turnover levels among the CCHs range from around €100,000 to just over €570,000. Despite these differences in scale, none of the cases report a significant surplus. This highlights that most CCHs operate on narrow margins and rely on additional revenue streams to maintain financial stability

Data across Cases

Case	Additional services
DB Resale	-
Fundacio Deixalles	Activity Incomes: €8,202,623.17 | Operating Expenses: -€7,919,495.86
Genbyg	100,000 euros
Malmö Återbyggdepå	570,000 euros
PlusByg Næstved	350,000 euros
Resirqel	Revenue: 515,000 euros
Sirken	236,000 euros
Sola Byggåterbruk	Revenue: 138,000 euros
Utrecht Trechterweide	-

Investment sources

This data defines if and where the CCH has received funding or investment from. It includes public grants, private investors, and partnerships. This data is individual for each case.

Among the CCHs, financing comes from both public and private sources. Public funding is common, supporting not only socially oriented hubs but also technical or business-driven ones such as Malmö and Sola. Private financing is found in entrepreneurial models like Genbyg and Sirken, while in-house solutions such as DB Resale rely on their own funds.

Data across Cases

Case	Investment sources
DB Resale	Private company (Deutsche Bahn AG)
Fundacio Deixalles	The Spanish government
Genbyg	Private companies (Enemærke & Petersen and Carl Ras)
Malmö Återbyggdepå	The Swedish government
PlusByg Næstved	EU-funding
Resirqel	-
Sirken	Innovation Norway and 29 private investors
Sola Byggåterbruk	The Swedish government
Utrecht Trechterweide	Municipality of Utrecht, EU-funding through PREUSE

Revenue streams

This data defines the primary sources of revenue for the CCH. It includes activities that support the business model.

Material sales are the main income source for all CCHs, but many also build on complementary streams. Some combine sales with services such as logistics or waste collection (e.g., Malmö, Fundació Deixalles), while others create added value through consulting or product sales (e.g., Resirqel, Genbyg). A few, like Sirken, experiment with alternative models such as subscription fees.

Data across Cases

Revenue streams/ Cases	Material sales	Subscription fees	Consulting work	Logistic service	Products sales	Charges for waste collection
DB Resale	x					
Fundacio Deixalles	x					x
Genbyg	x				x	
Malmö Återbyggdepå	x			x		
PlusByg Næstved	x					
Resirqel	x		x			
Sirken	x	x				
Sola Byggåterbruk	x					
Utrecht Trechterweide						x

Pricing strategy

This data defines how the CCH sets prices for materials to ensure flow in inventory and a sustainable business model. This data is individual for each case and for each case it is a dynamic pricing strategy.

Most CCHs price materials at around 30–50% of the new price to keep them attractive. Prices are often dynamic, adjusted to condition or demand. While many rely on simple benchmarks, some hubs also use more advanced methods such as cost assessments or AI-based pricing.

Data across Cases

Case	Pricing strategy
DB Resale	Pricing based on “as-is” condition and internal valuations
Fundacio Deixalles	Similar or lower prices than materials found in second-hand shops
Genbyg	50% of price for new material
Malmö Återbyggdepå	30–50% of price for new material
PlusByg Næstved	50% of price for new material
Resirqel	Comparisons with new material and assessment of handling and deconstruction costs
Sirken	AI-determination of price
Sola Byggåterbruk	AI-determination of price
Utrecht Trechterweide	No pricing

Financial model

This data defines the financial model for the CCHs. We differentiate between non for profit and commercial companies.

Most of the CCHs are organised as non for profit, often with a social focus. The remaining three follow commercial models, typically linked to digital platforms or efficiency-driven approaches such as Genbyg, Resirqel, and Sirken. While the models differs, both types aim to balance economic viability with broader circularity goals

Data across Cases

Case	Non for profit	Commercial company
DB Resale	x	
Fundacio Deixalles	x	
Genbyg		x
Malmö Återbyggdepå	x	
PlusByg Næstved	x	
Resirqel		x
Sirken		x
Sola Byggåterbruk	x	
Utrecht Trechterweide	x	

3.6 KEY LEARNING & QUESTIONS

Key learnings from best practice CCHs

1 **Strategic partnerships are essential for scaling**
Partnerships with demolition firms, construction companies, public agencies, and investors help secure material supply, expertise, and demand

2 **Including social sustainability initiatives supports the operations of the CCH**
Incorporating social sustainability such as job training, inclusion, and workforce development not only delivers community value but also supports core operations

3 **Digital tools drive efficiency and visibility**
Digitalisation enhances reuse operations through inventory management, pricing, traceability, and customer outreach

4 **Financial models must balance profit, purpose and practicality**
CCHs must be financially viable while staying mission-driven. Successful cases demonstrate a mix of revenue strategies

5 **Different ownership models enable different strengths**
Successful CCHs operate under various ownership models. Each structure brings unique strengths

Smith innovation CIRCOFIN

To be considered

Defining Scale

The scale of CCHs can range from small decentralised hubs (72 m²) to large facilities (up to 16,000 m²).

→ What scale is realistic in your context? Should the focus be on one central hub or a network of smaller hubs?

Material Fractions

Most CCHs prioritise materials that support viable business models.

→ Which fractions make the most sense to prioritise in your region and why?

Organisational Capacity

Staffing can range from small teams of 3 to larger setups with over 50 employees, often supported by job training programmes.

→ What organisational model would best support a CCH in your city or region? How can workforce development be integrated?

Ownership Models

Private models offer more flexibility and with growth potential, while public models more easily access public funding and training programmes.

→ Which ownership model would be most effective in your context? How can partnerships bridge gaps?

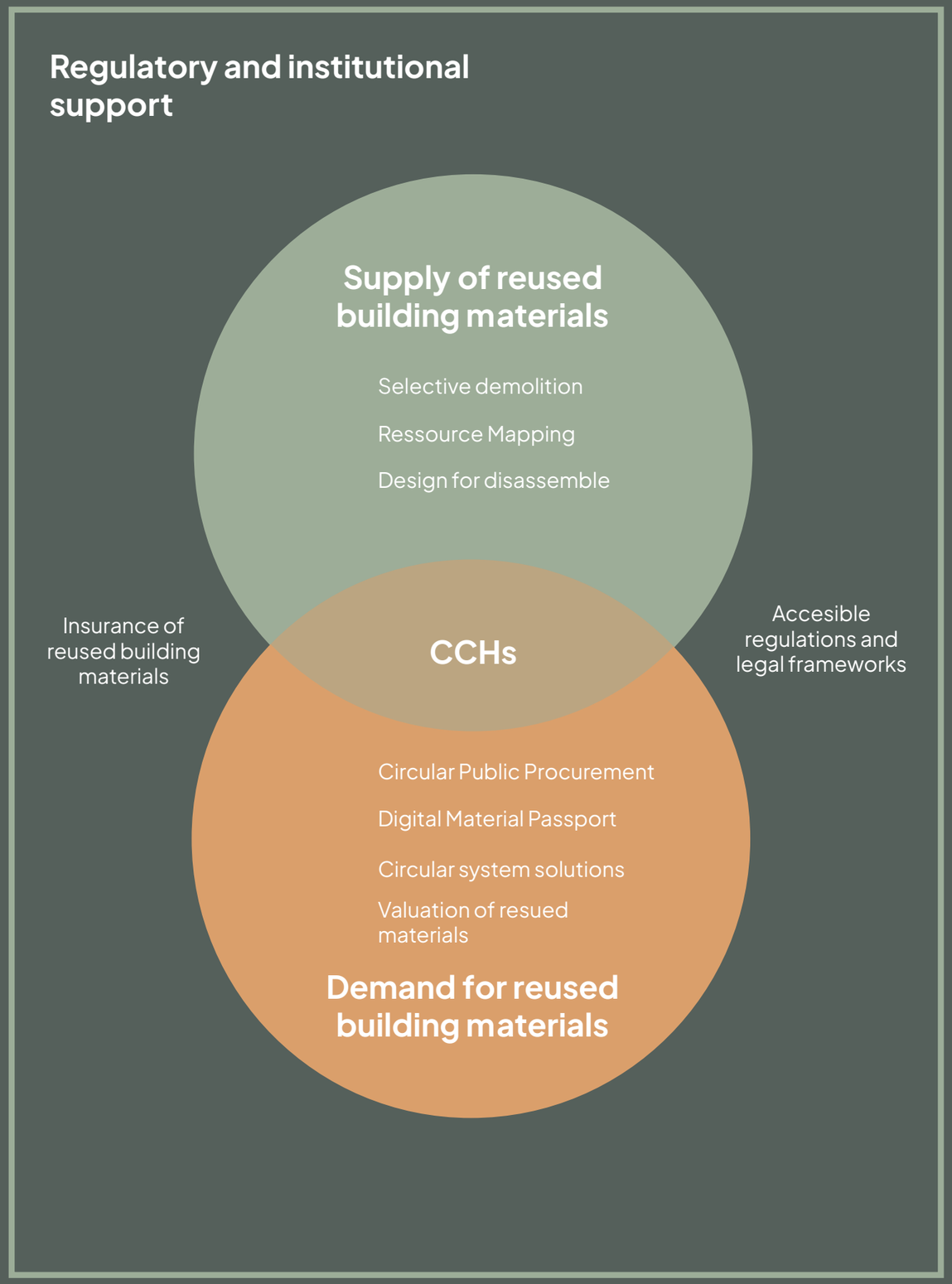
4 CCHS IN A SYSTEMIC PERSPECTIVE

CCHs in a systemic perspective

For a CCH to succeed, there must be an aligned balance between supply and demand. This balance does not emerge on its own. It is shaped through targeted initiatives and practical efforts that enable the circulation of materials, knowledge and services across both sides of the market.

To scale and stabilise this emerging field, regulatory and institutional frameworks are equally important. Regulation supporting circularity, industry strategies, knowledge sharing and incentive structures can help remove systemic barriers and establish the necessary conditions for long-term success.

In the following sections, examples from supply, demand and regulatory contexts will be presented. Together, these illustrate the broader structural and institutional landscape in which CCHs are operating.



4.1 SUPPLY

Supply of reused building materials

A steady supply of reused building materials is essential for the successful development and scaling of CCHs. Without consistent a supply, it becomes difficult to meet demand, plan operations, or avoid long-term storage challenges.

To ensure material availability, supply should be identified early, ideally before demolition. Across Europe, various initiatives have emerged to strengthen and stabilise the supply side. These include systematic assessments of existing building stock, pre-demolition audits, and selective demolition.

In this section, we present examples that demonstrate how these different strategies can support the supply of reused building materials and contribute to the successful operation of CCHs.

Resource mapping

Resource mapping refers to the process of identifying and cataloguing materials within the built environment that can be reclaimed and reused. By understanding what resources are available and where they are located, resource mapping can ensure a consistent and predictable supply for CCHs. This can ensure a greater balance between supply and demand, as the materials can be allocated before demolition.

EXAMPLE: *Material Mapper, NO*

By mapping the current and future building stock and providing reuse reports, Material Mapper allows municipalities, building developers, contractors, and architects to gain insights on what materials will be available and ready for reuse in new projects. This foresight enables proactive planning and facilitates the integration of reused materials into future construction projects. For CCHs, this can enable a more predictable and steady material supply, reducing reliance on virgin resources. By identifying materials before demolition, CCHs can better align supply with demand, match available components with design needs, and support circular procurement strategies. Initiative as Material Mapper can act as an enabler on the supply side, helping CCHs scale up operations by providing the necessary information and data on material quality and availability.

(Source: https://materialmapper.com/)

Selective demolition

Selective demolition is a process that deconstructs buildings to recover valuable materials, rather than demolishing them. Enabling this practice at the deconstruction site will positively affect the CCHs as this will ensure higher amount of building materials that can enter the CCHs. Selective demolition combined with resource mapping is thus a practical strategy to ensure a steady and sufficient volume of building materials.

EXAMPLE: *KONVIKA, DK*

As a response to new legal requirements for selective demolition and the need for new knowledge and skillsets at the construction and deconstruction sites, the Danish initiative KONVIKA is offering a specialised training course for Resource Coordinators. This course equips professionals with the competencies needed on construction and deconstruction sites to increase the circulation of building materials and components. Their training course focuses on key topics such as Circular Economy principles, value chain understanding, resource and waste management, data collection, and construction site organisation. These competencies are essential to identify, recover and prepare materials for reuse instead of allowing them to become demolition waste. By bringing this knowledge directly to the construction site, KONVIKA enables a shift in daily practices that supports early resource mapping and more selective handling of materials. With a trained workforce in place, CCHs can benefit from a more consistent, qualified and predictable supply of reused building materials, helping them operate at greater scale and reliability.

(Source: https://konvika.dk/)

Design for disassemble

Whereas selective demolition is an effective strategy to increase circularity within the current building stock, design for disassemble is a valuable strategy to ensure increased circularity within future construction projects. By considering a building's future disassembly and end-of-life already at the design stage, it becomes easier to reuse its components. This approach can support the future supply for CCHs by making processes for material reuse less time-consuming, and less resource-intensive.

EXAMPLE: *Triodos Bank Head Office, NL*

The Dutch Triodos Bank's head office in Zeist, Netherlands, exemplifies how circular economy principles can be integrated into architecture to support the supply side of reused building materials. It is designed as a material bank and is thus fully disassemblable and optimised for future reuse. All materials used in the building are documented in a digital material passport through a digital platform to ensure that all components remain valuable over time. The head office further has a reversible design with modular construction, which allows the building to be taken apart without damaging materials, thereby supporting selective demolition and preserving materials for reuse in future projects. The Triodos Bank head office thus showcases the feasibility of circular construction, serving as an example of how to adopt sustainable design practices, that can feed directly into CCHs.

(Source: https://www.rau.eu/portfolio/triodos-bank-nederland/)

4.2 DEMAND

Demand for reused building materials

A growing and reliable demand for reused building materials is equally important for the successful development and scaling of CCHs. Without a consistent demand, it becomes difficult to ensure market viability, plan logistics and operations within the CCHs, and stimulate further efforts on the supply side.

To strengthen demand, targeted strategies are needed to build confidence in reused materials, ensure quality and traceability, and highlight reuse as the practical choice .

Across Europe, initiatives to strengthen demand have emerged, both within the private and public sector. In this section we will present examples that illustrate how different strategies can increase the demand for reused building materials and support the long-term success and bankability of CCHs

Circular public procurement

Circular public procurement is the integration of circular economy principles into public sector purchasing, prioritising reused materials, waste reduction, and extended product lifecycles. By requiring circular solutions in public projects, it creates stable demand for reused materials and demonstrates their practical application. This consistent demand directly supports the viability and scaling of CCHs by helping secure predictable material flows and market uptake.

EXAMPLE: *Materialenbank and the city of Leuven, BE*

The city of Leuven, in collaboration with Materialenbank, offers a example of how circular public procurement can actively support the reuse of building materials. Through partnerships with public institutions such as KU Leuven and University Hospitals Leuven, reclaimed materials are systematically sourced and reintegrated into public renovation and construction projects. Materialenbank acts as a structured intermediary, collecting, storing, and redistributing materials for use in municipally funded works. This approach not only save valuable materials from waste streams but also creates a consistent demand for reused materials within public procurement frameworks. As such, Leuven demonstrates how cities can strengthen the market for reuse and directly support the scaling of CCHs by embedding material reuse into institutional practices.

(Source: The Guardian (2025) – 'It's beautiful, don't you think?' The urban miners unearthing treasure in Belgium's homes and garages)

Circular system solutions

The market for reused building materials is primarily driven by smaller renovation projects within both private and professional sectors. By integrating reused materials into larger circular system deliveries, a more stable and predictable demand can be created. These system deliveries require consistent volumes and specifications, which strengthens the need for close collaboration between customers and CCHs. Such partnerships enable CCHs to optimise their sourcing and inventory strategies, while also ensuring a steadier revenue stream

EXAMPLE: *NÆSTE, DK*

By selling high-quality storage sheds constructed from reclaimed wood, the Danish company NÆSTE showcases a practical and scalable model for enhancing demand for reuse of building materials. NÆSTE selects timber and bricks from Denmark that would otherwise be crushed and treated as waste and instead transforms these materials into new products with minimal processing. Their streamlined supply chain connects demolition waste directly to new construction, thereby lowering costs and environmental impact. NÆSTE's model demonstrates how fixed product deliveries based on reused materials can create stable demand, helping to align sourcing with specific material requirements. For CCHs, such structured partnerships represent an opportunity to act as suppliers of reused materials, linking supply and demand more predictably. By outsourcing material handling and logistics to the hubs, companies like NÆSTE can focus on design, assembly, and scaling their product line, while CCHs gain a consistent customer base and clearer material flow planning.

(Source: https://www.naeste.dk/)

Valuation of reused materials

Valuation of reused building materials plays a key role in strengthening market demand by positioning reuse as a competitive alternative to new materials. This not only increases buyer confidence and supports informed decision-making but also enables CCHs to set prices that reflect both material value and market conditions. A transparent valuation framework empowers CCHs to build feasible business models with realistic margins, allowing them to compete with conventional material suppliers. Despite its importance, no dedicated initiative currently exists to standardise the valuation of reused building materials—leaving a key structural gap in the reuse market.

EXAMPLE: *2050 materials, UK*

2050 Materials is an exclusively digital platform designed to support more sustainable decision-making in the construction industry by improving access to transparent, standardised data on construction materials. The platform enables professionals such as architects and engineers to compare materials based on environmental impact, circularity, health, and technical performance. Although 2050 Materials currently does not include reused materials in its database, the framework it provides contributes to a market environment where material transparency and data-driven valuation are increasingly expected. This supports the demand side for CCHs by pushing for clearer documentation and comparability of materials, ultimately enabling reused materials to compete on equal terms.

(Source: 2050 Materials. (2025, April). Personal interview)

Digital Material Passport

A Digital Material Passport (DMP) is an electronic record containing standardised data on a material's composition, quality, sustainability, and reuse potential. For CCHs, DMPs can streamline documentation processes and support material valuation by providing reliable and comparable data. Today, data handling varies significantly across CCHs and materials, often relying on manual input and individual expertise. Introducing DMPs can reduce inefficiencies, align with customer expectations, and strengthen demand by increasing trust in the quality and traceability of reused materials.

EXAMPLE: *Madaster, NL*

Madaster is a Dutch platform that provides digital material passports (DMPs) for materials and products used in construction. These passports include detailed data on aspects such as material composition, reuse potential, carbon footprint, and environmental performance, thereby making the circular value of materials measurable, transparent, and comparable. The platform enables manufacturers, clients, and designers to register and document both standardised and custom materials, contributing to a shared data infrastructure that facilitates traceability and accountability across the construction sector. By offering digital documentation comparable to that of new products, initiatives as Madaster, can support CCHs in presenting materials with verified quality and sustainability attributes. This allows CCHs to meet professional market expectations and align with regulatory trends, while reducing reliance on time-consuming, ad hoc documentation.

(Source: https://madaster.com/)

4.3 REGULATORY

Regulative landscape supporting CCHs

Regulative and institutional conditions have proved to play a significant role in both the establishment and operation of CCHs. From standards and liability to insurance and public procurement, regulations shape how reused building materials are managed, trusted and applied. Political strategies and legal frameworks are also essential in strengthening both supply and demand.

This section presents examples that address key regulatory and institutional challenges. These include efforts to reduce uncertainty, through insurance strategies, and translate existing frameworks into actionable support for CCHs.

Accessible regulations and legal frameworks

CCHs operate in an emerging market that must compete with an established and rigid system centered on new building materials. To enable CCHs to compete on parameters beyond price, such as environmental and social value, regulatory and legislative support is essential. However, for many public and private actors navigating current and upcoming regulations can be complex. Making regulatory frameworks and legal guidelines easily accessible, understandable, and actionable is a key enabler for accelerating the establishment, operational effectiveness, and scaling of CCHs.

EXAMPLE: *CircuLaw, NL*

CircuLaw helps public and private actors navigate and understand complex legislation by providing a clear overview of the rules and laws that support circular construction and reuse. The platform translates legal texts into understandable guidance and makes it easy to search for what is relevant. This allows municipalities, developers, and other stakeholders across the construction sector to better understand what is possible within current regulations. CircuLaw gives actors the confidence to act in line with circular regulations and ambitions by reducing legal uncertainty. In making legislation more accessible and applicable in practice, the platform strengthens the regulatory environment and can support the business model for CCHs to effectively align with current and future legal and political strategies.

(Source: https://www.circulaw.nl/)

Insurance of reused building materials

One of the main barriers to scaling the use of reused building materials is uncertainty around liability and lack of guarantees. To address this, collaborations with the insurance sector have begun to investigate solutions to provide warranties for reused products, both at the component and building level. Such insurance models will reduce risk for buyers and building owners, making it more feasible to include reused materials in larger projects. By lowering this key barrier, insurance solutions directly support the market viability, operational stability, and scalability of CCHs.

EXAMPLE: *Greendozer and WTW , DK and UK*

(Product level)

By developing an insurance solution tailored specific to reused building materials, the Danish platform, Greendozer, and the global insurance broker WTW, are helping to remove uncertainty around the liability of circular construction materials. Together, they have introduced a product liability insurance that covers reused materials on equal terms with new ones, thereby making it easier and safer for suppliers and contractors to work with reused building materials. This not only reduces the perceived legal and financial risks associated with using reused materials but also aligns further insurance practices with circular goals. For CCHs, this insurance model supports the development of a more reliable and professional reuse market by addressing one key barrier: the lack of risk coverage. It also provides a foundation for future public procurement frameworks that require clear documentation and liability standards. In this way, the initiative strengthens both the operational and regulatory environment needed for reuse to scale.

(Source: New insurance paves the way for more sustainable construction, WTW (May 2023))

EXAMPLE: *Concular and VHV Versicherungen, DE*

(Building level)

Concular's Reclaimed Construction Material Insurance (RCMI), developed in partnership with VHV Versicherungen, is the first insurance solution in Germany specifically designed for reclaimed construction materials. Unlike product-level insurance, RCMI operates at the building level and is structured as an add-on module to existing construction insurance policies, making it easy to integrate into conventional workflows. By covering reused materials on the same terms as new ones, the RCMI helps remove uncertainty around quality, liability, and responsibility in larger building projects. For Circular Construction Hubs, this strengthens their position as reliable suppliers to professional construction projects, as insurance coverage at the building level increases buyer confidence and lowers the perceived risk of integrating reused materials. In this way, RCMI supports the scaling of CCHs by aligning reuse with industry expectations and institutional frameworks.

(Source: Reclaimed Construction Material Insurance (RCMI), Concular & VHV Versicherungen whitepaper, published via Circular Buildings Coalition (2024))

5 METHOD FOR CONDUCTING BEST PRACTICE BENCHMARKING FOR CCHs

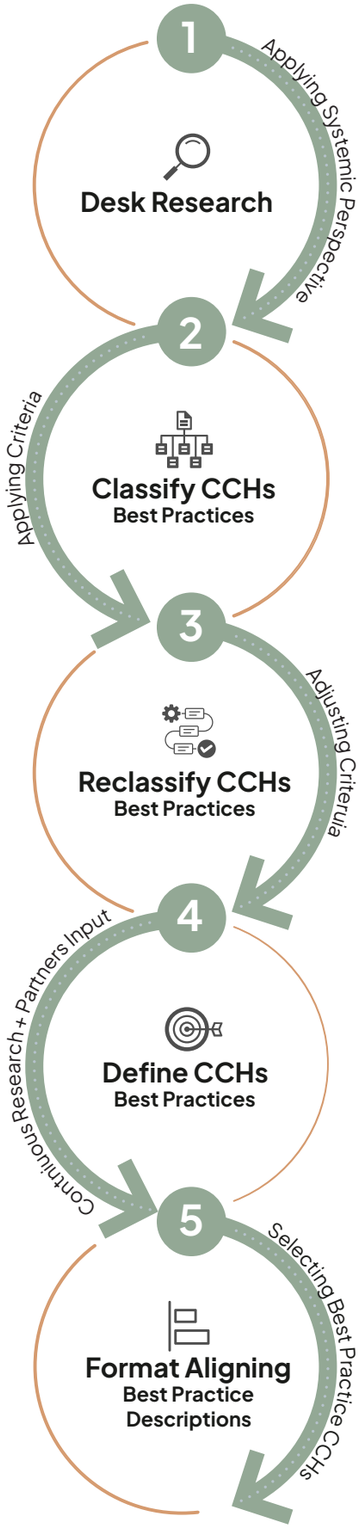
Conducting best practice benchmarking

The methodology for identifying best practice Circular Construction Hubs (CCHs) followed an iterative multi step approach beginning with broad desk research across European initiatives using databases, partner input, and keyword searches. Approximately 90 CCHs were identified and documented for comparison. For benchmarking only operational CCHs were included, excluding pilot or research projects and with a focus on those handling materials at circular economy levels R3 to R7 thereby omitting initiatives centred solely on resource recovery.

Key factors were developed to assess each CCH, including platform type (physical or digital), ownership, sales strategy, social economy involvement, technical elements, and geographical sourcing scope. These criteria enabled structured analysis of each hub's operational, technical and business model.

From this mapping, a shortlist was created by applying five main selection criteria: multi-material sourcing, direct reuse, a hybrid platform model, regional/national scope, and support for full construction projects. A categorisation framework further helped analyse less visible dimensions like ownership and market focus.

Ultimately 10 diverse best practice cases were selected for in-depth analysis. These were examined through semi-structured interviews and a three site visits. All cases were documented using a standardised format to enable comparison and replication potential.



Smith innovation CIRCOFIN Circular Cities&Regions Initiative

Funded by the European Union