



Project result summary

EFL Webinar 17 January 2024

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Objectives

The objectives of CHARM are **to demonstrate innovative approaches** for housing renovation and asset management **that prevent downcycling, to secure adoption** of these approaches within the social housing organization partners, as well as **to accelerate the adoption** of such approaches throughout the social housing industry in the Interreg NWE region and beyond.

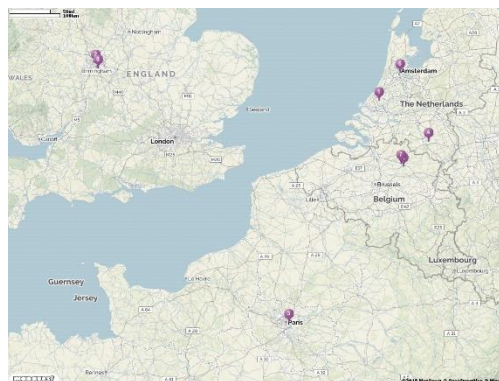
The importance of CHARM



- The building sector is responsible for more than 60% of the resource use in Europe
- The sector generates about 1/3 of all waste in the EU
- The political awareness of circularity is high
- The social housing sector has a key position in the EU

The time to act is now!

Partners



2018-2023



Demonstration Projects

Each partner demonstrates - in one or more projects - circular asset management strategies:

Reuse of materials from demolition on-site

- Paris Habitat: renovation projects
- LeefGoed (Zonnige Kempen): Vinkenhof

Reuse of materials in new construction

- GreenSquareAccord: Stirchley
- LeefGoed (Zonnige Kempen): Circular office and apartments

Design and construct for reuse after first use period in new construction

- GreenSquareAccord: Redditch

GreenSquareAccord demo's

- Large housing association owning a factory (LocalHomes) producing off-site closed panel timber frame constructions, allowing for easy assembly, disassembly and reassembly and re-use of components
- The factory offers them economic and social value: social value by employing low-educated people in their own factory, economic value by constructing dwellings faster, with a higher quality and cheaper than traditionally

GreenSuareAccord: Redditch

Virtually plastic- free
dwellings



GSA Redditch

12 Virtually Plastic Free Dwellings Redditch

- closed panel timber frame construction, allowing for easy assembly, disassembly and reassembly and re-use of components and thus relocation in case housing demand drops, whilst avoiding the use of heavy weight concrete and traditional construction methods that do not lend itself easily for prevention of downcycling
- prevent downcycling through 125 tonnes of hardcore being reused through using existing building hardcore
- test to what extent it is possible to build properties substituting plastic for more natural products, illustrating an approach to prevent downcycling through avoidance of hazardous materials use.

GreenSquareAccord: Stirchley

Under construction



GSA Stirchley

39 newly build apartment and three retail spaces for the local working cooperative

- reusing materials and testing replicability of components used in the virtually plastic free homes in a mixed retail and residential dwellings development
- development offers a sustainable alternative to private rental and helps to tackle local social housing issues by providing dwelling and workspace under common ownership

Paris Habitat demo's

- Paris Habitat aims to implement material reuse on a wide scale in all renovation projects
- French legislative framework gives direction to circularity: **PEMD diagnosis: a diagnosis of to be reused materials**, if renovating or demolishing properties
- CHARM started a few years before the mandatory PEMD diagnosis came into force, helpful to prepare the organization for circular asset management

Paris Habitat demo's

- **Shtrau** is a deep renovation work of 121 dwellings, located in the 13th arrondissement of Paris
- **Exelmans** is a former military barracks located in the 16th arrondissement of Paris
- **Petit Musc**, located in the 4th arrondissement of Paris, is a deep renovation project of 7 dwellings
- **Porte de Montreuil and Davout Felix Terrier** present deep renovation and are part of a wider renovation plan of the 20th arrondissement of Paris
- **Tolbiac Moulinet** is a deep renovation site, on which was experimented a innovative procedure of self-repair on site and accompanied materials reusing, alongside with a specialised association
- **Planchat** is a light renovation work

Paris Habitat: Shtrau

Construction delays due to the COVID pandemic, and lengthy internal selection procedures
furniture made of reused materials



Paris Habitat: Exelmans

Target of 64 dwellings by
December 31st, with reused
materials furniture



Paris Habitat: Petit Musc

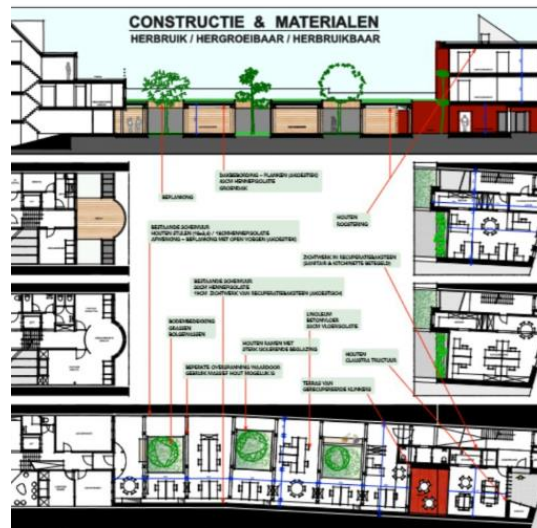
8 dwellings to be finished
by December 31st
several materials have been
reused on site such as :
cast-iron heaters, sinks,
wooden steps



LeefGoed demo's

- *Zonnige Kempen* (in 2023 merged into LeefGoed) is a small social housing organisation in Flanders that is very active in searching for new solutions for energy efficiency and renewable energy, and for circularity
- The awareness, knowledge and support of circularity in the whole internal organisation is very high
- They show circular practises in their own office building

LeefGoed: Office Building



LeefGoed Office building



Circular renovation and expansion of the office building in Westerlo

The purpose of this renovation was multiple:

- Maximising the reuse of materials
- Optimizing the office space and the entire office site
- Development of multiple and new types of workspaces
- Dealing with changing working methods
- Dissemination of the lessons learned for next construction sites

LeefGoed: Vinkenhof



LeefGoed Vinkenhof



Renovation of residential area Vinkenhof in Berlaar

- The project includes 50 homes that were built in the early eighties
- The renovation adds a new insulated outer shell that can be dismantled, roof tiles and glass panels are being reused,
- All tenants stay in their home during the renovation period

Building strategies for circular asset management

Circular maintenance strategies:

- Paris Habitat: void repairs using reclaimed sanitary equipment (sinks, toilet pots)
- Woonbedrijf: responsive maintenance and void repairs using reclaimed materials

Building strategies for circular asset management

Stakeholder involvement:

- LeefGoed selected architects project independent to assure their ambition and competences to work with re-used materials
- Paris Habitat selected retailers that supply reclaimed sanitary equipment (sinks, toilet pots) to be installed during void repairs
- GSA worked directly together with product suppliers of plastic-free building products
- For the re-use of glass Paris Habitat and LeefGoed work directly together with the manufacturer (glass panel suppliers)
- Paris Habitat works together with an association for upcycling and refurbishing building products

Material Exchange Platforms

- Digital Platform Paris Habitat
- Physical Platform LeefGoed

MEP Paris Habitat

The objectives of the platform are:

- To increase the visibility of available materials (and furniture) within Paris Habitat and to promote their re-use
- To extend the life-cycle of materials
- To reduce the carbon footprint of materials and projects

To match supply and demand, users create a profile to post adverts

MEP Paris Habitat

- The priority of this digital platform is to allow materials and furniture **exchange within Paris Habitat worksites and offices**
- If it's not possible, the product will be **sold** through external **marketplaces** (requiring a separate public tender)
- If it cannot be sold, the product will be **donated** to the users of the platform who are eligible to the criteria of donation determined by Paris Habitat's board of directors (NGO's and CSR companies working on circular economy with social and inclusion criteria)

MEP Paris Habitat

Interne - Paris Habitat

MATÉRIAUX

MOBILIER

 Plus d'options

 Créer une alerte

 Celine N.

Appliques

Les appliques seront déposées par l'entreprise et stockées sur site

10u disponibles 2,5 km

 Celine N.

Arbustes de haie

Une partie de la haie sera déposée le long de la clôture pour créer un local OM.

12u disponibles 2,5 km

 Anatole O.

Velux avec occultants

Velux en très bon état en bois/alu avec occultant intégré

3u disponibles 2,5 km

 Anatole O.

Tuiles

Environ 100m² de tuiles

100m² disponibles 2,5 km

 Thibault F.

Fenêtre bois et vitraux

Vitraux intégrés sur une menuiserie bois
Deux vantaux 1170x2000
Dimension des vitraux hauts

2u disponibles 5 km

 Anatole O.

Lecourbe - Croix Nivert

Réhabilitation d'un immeuble de 4 logements

5u disponibles 2,5 km

 Alice B.

Portes palières en bois, âme creuse

Portes palières en bois, vernies, âme creuse.

 Alice B.

Pare-douche

Pare-douche en angle, double paroi avec 2 coulissants

 Sabrina D.

Persiennes métalliques accordéon

Persiennes métalliques accordéon
Volet pliant métallique composé de

 Maeva D.

Armoire électrique

Armoire électrique Hager avec 3 protections 40 et 63A
Disjoncteur différentiel Baco 500 mA dans l'armoire électrique

 Maeva D.

Luminaire Dalles LED encastrables

Luminaire de type dalles LED à encastrer en faux-plafond

 Alice B.

Boîtes aux lettres métalliques

Boîtes aux lettres métalliques laquées vert et beige, sur pieds

MEP LeefGoed

The physical platform supports the maintenance team in finding used building products to perform repairs
LeefGoed wants to explore opening the MEP for tenants who want to carry out relatively simple maintenance activities themselves



Recommendations circular procurement (1)

- Stimulating and enforcing building product developments based upon circular principles (e.g. non-plastics, non-toxic), the re-use of materials and bio-based materials, can be done by asking open questions and to invite market players to contest and to demonstrate
- New products will take a lot of time to get approved, warranted and used. Just because the product is less or not known in the sector

Recommendations circular procurement (2)

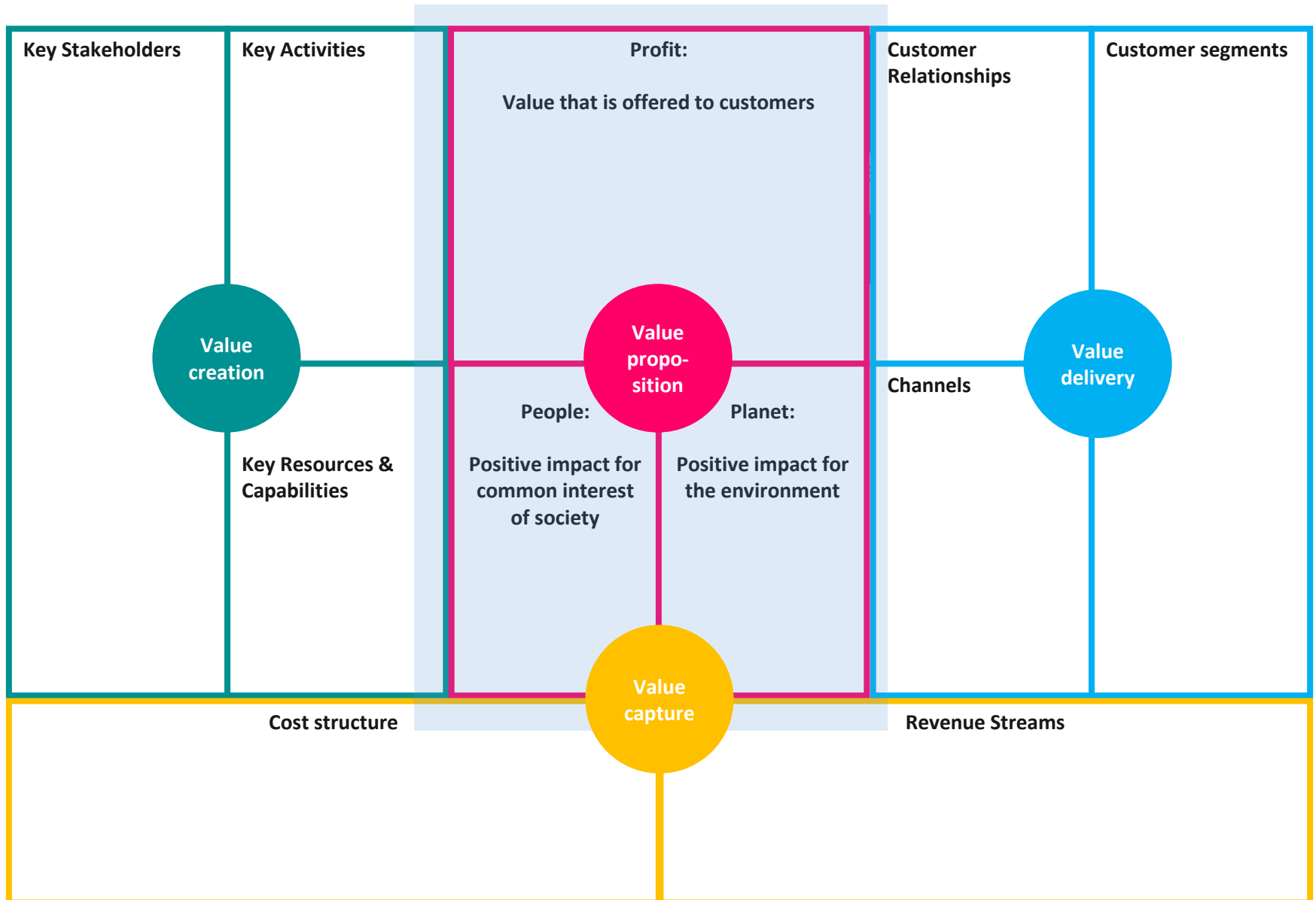
- In circular renovation projects the diagnosis phase proceeding the design is very important. Involve (new) parties at forehand, such as: architect(s) and demolishing partner(s)
- To tender for circular projects, it is important to put open questions, to give time for diagnosis and searching for solutions
- Generally, circular tendering and contracting takes more time than traditional projects
- Generally, circular tendering and contracting is more costly than traditional projects (the disbalance of material prices and labour cost)

Adoption

Business plans for circular asset management strategies and material exchange platforms are based upon the '**sustainable business canvas**' that consists of four distinctive aspects:

- **Value proposition**: the core element of a business model that outlines the unique value of a product or service that is offered by a company
- **Value creation**: the activities and processes a company undertakes to design, produce, and deliver its products or services
- **Value delivery**: how a business ensures that the value promised in the value proposition is effectively delivered to customers
- **Value capture**: the aspect of a business model that addresses how a company generates revenue from the value you provide to customers

Bocken, N. M. P., Schuit, C. S. C., & Kraaijenhagen, C. (2018). Experimenting with a circular business model: Lessons from eight cases. *Environmental Innovation and Societal Transitions*, 28, 79-95.
<https://doi.org/10.1016/j.eist.2018.02.001>



Adoption

Online tutorial to facilitate adoption of the approaches developed by the CHARM partners

In the first part of the tutorial, we introduce the background of the project.

[CHARM online tutorial part I](#)

In the second part we dive deeper into the demonstration exemplars that have been developed by our social housing organisation partners.

[CHARM online tutorial part II](#)

In the third part we explain the basics of material exchange platforms for social housing organisations,

[CHARM online tutorial part III](#)

Discussion

- Drivers and enablers in your country and organisation to apply circular strategies and practises?
- Barriers in your country and organisation to apply circular strategies and practises?
- Found solutions?

CHARM

- Website – general information
- Activities and reports
- Articles - Library
- Newsletters
- Social media
- <https://vb.nweurope.eu/projects/project-search/charm-circular-housing-asset-renovation-management/>