

Interreg



EUROPEAN UNION

North-West Europe

CHARM

European Regional Development Fund

Symposium The Maturity gap of Circular Building Technology



Rijksdienst voor Ondernemend
Nederland

Kerkrade, 6th February 2020

**Ad Straub
TU Delft**



Outline

- What is CHARM about?
- The importance of CHARM
- Aims, ambitions and goals
- Partners and associated partners
- About CHARM
- First results
- Maturity gaps and way forward

THEMATIC PRIORITY:
 **RESOURCE AND MATERIALS EFFICIENCY**



PROJECT AREA



Developing transferable strategies for circular construction and renovation of social rented housing, aimed at the prevention of downcycling.

Total budget received from Interreg North-West Europe (2014-2020):
€4 million of ERDF

Total project budget:
€10 million

www.nweurope.eu

What is CHARM about?



CHARM is about developing and implementing **an asset management approach**. An approach which is circular, sustainable and prevents downcycling of materials in renovation and construction of social rented dwellings.

The objective of CHARM is not only to demonstrate innovative approaches for housing renovation and asset management that prevent downcycling, but **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.

October 2018 – 2022

The importance of CHARM (1)

- Political awareness and willingness is high
- Environmentally awareness is high
- Financial possibilities are there
- Housing sector has a key position in EU

The time to act is now!

The importance of CHARM (2)

- the building sector is responsible for more than 60% of the resource use in Europe
- with 30 – 50% of material use taking place in housing construction sector
- the sector generates about 1/3 of all waste in the EU

Aims, ambitions & goals

An asset management approach which is ready to use and free of charge for **all social housing organisations**.

This approach contributes to *several* ambitions & goals on **circular economy** and **sustainability**:

- Political ambitions & goals
- Organisational ambitions & goals
- Tenants ambitions & goals

Partners



1



2



EBC (Management Services) Ltd

3



4



5



6



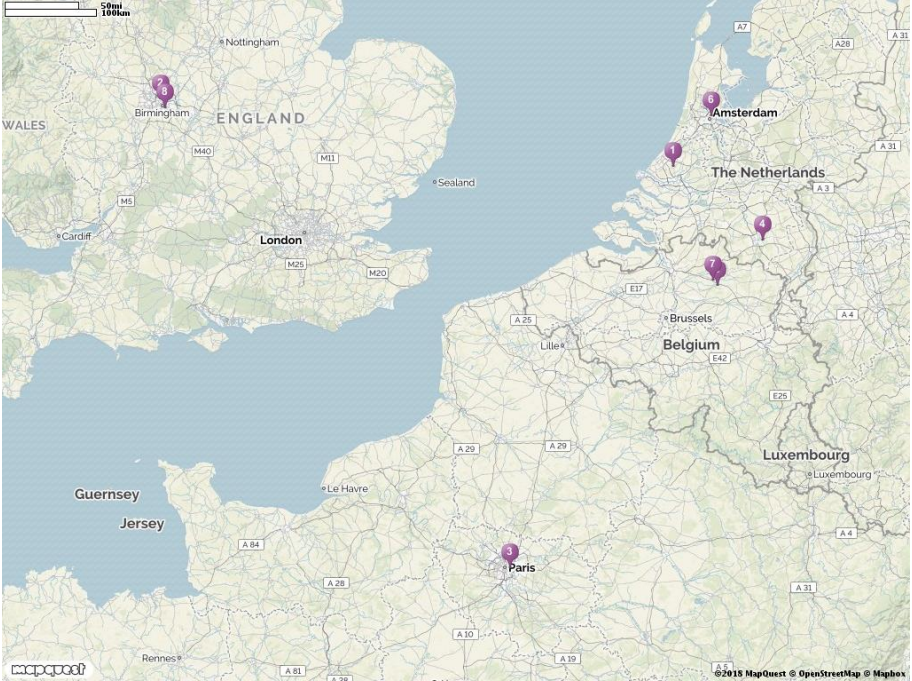
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8



THE UNIVERSITY OF BIRMINGHAM



Associated partners

The associated partners fulfill various roles, such as: ‘adviser’, ‘interested follower’, ‘expert’, ‘lobbyist’, ‘learner’. Most associated partners fulfil a combination of roles.

As the partners, the associated partners want to make a difference in changing the housing sector into a more **circular** and **sustainable** sector by **preventing downcycling** and optimise and (re)using material and natural resources.

About CHARM (1)

Objective: to develop transferable strategies for circular construction and renovation of social rented housing, aimed at **prevention of downcycling**.

These strategies are being tested in four projects in France, Belgium, UK and the Netherlands.

Based on our demonstrators, these strategies lead to an average material re-use of **62 tonnes** per new built house and **38 tonnes** per renovated dwelling.

This implies a **36% reuse** rate compared to the current maximum reuse rate of 10%.

About CHARM (2)

Building **strategies** for a circular asset management:

- reuse of materials
- design and construct for reuse after the first use period

Developing **guidelines** for a circular procurement.

Material exchange **platforms** to enable circular flows of materials and building components.

Securing long term effects through active **knowledge transfer**.

First Results Demo Projects (1)

Each partner demonstrates - in one or more projects - the circular asset management strategies. The circular asset management strategies are:

1A: reuse of materials from demolition on-site

1B: reuse of materials in new construction

2A: design and construct for reuse after first use period in renovation

2B: design and construct for reuse after first use period in new construction

	Demo exemplar	Strategy
Accord	12 new construction plastic free houses	2B
Paris Habitat	16 light renovations	1A
	12 deep renovations (occupied)	1A
	12 transformation	1A
Woonbedrijf	20 new construction	1B
	<i>Circular Kitchens</i>	2A
Zonnige Kempen	40 renovations, phased	1A
	<i>2 new construction apartments</i>	1B
	<i>3 new construction dwellings</i>	2B

Demo projects (2)

Zonnige Kempen: Grote Markt, Westerlo (Antwerp, Belgium), property of Zonnige Kempen, service center for tenants and 2 apartments,



Demo projects (3)

Accord: 12 Virtually Plastic Free Houses

Apply a closed panel timber frame construction, allowing for easy assembly, disassembly and re-assembly and re-use of components. Test to what extent it is possible to build properties substituting plastic for more natural products

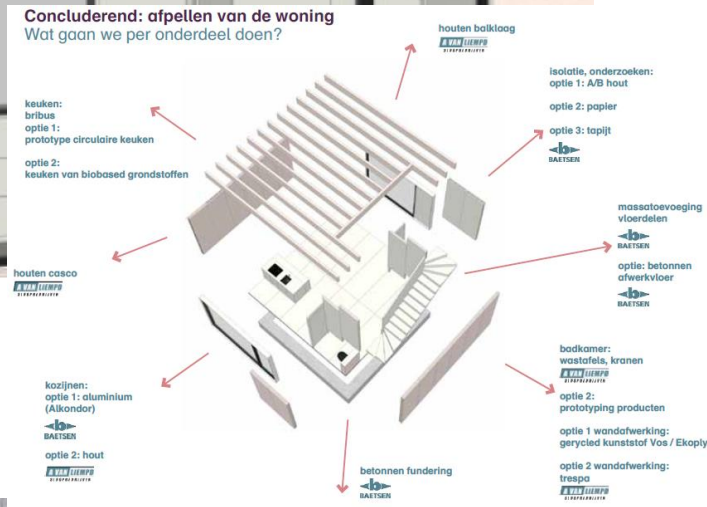


Demo projects (4)

glaskring
BEWUST STRIJP-S

Basic principles

- Exploitation period: 5 years on this location
 - Houses: 20
 - Target groups: 1-2 persons households
 - Architect: INBO
 - Social architect: 12N Urban Matters
 - Construction method: Timber frame construction
- Design:
Active role of tenants
- Basic principles:
Re-use
Re-design
Reduce



First Results Material Exchange Platforms (1)



Material exchange **platforms** to enable circular flows of materials and building components.

Two models ...(or more):

- project based platform
- portfolio based platform
- ...regional
- -- with tenants

Material Exchange Platforms (2)

Zonnige Kempen:

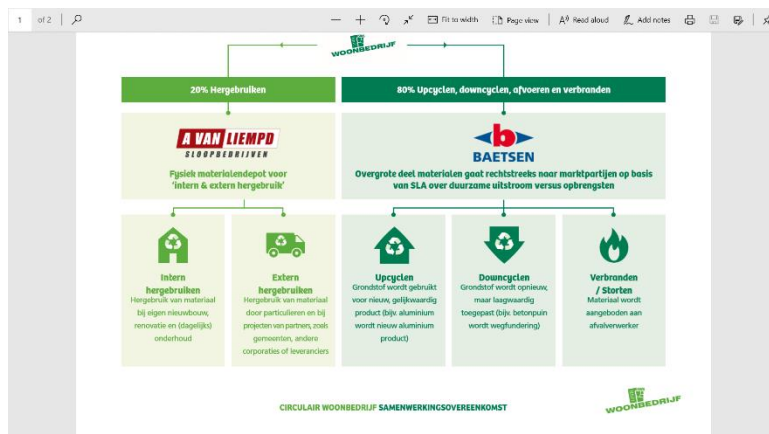
Creating a material exchange platform in co-creation with social tenants (repair café, community work), facilitating site for temporary storage within social district



Material Exchange Platforms (3)

Woonbedrijf:

Material exchange platform with contractors for dismantling, storage, upcycling; use of materials internally and externally



Maturity gaps and way forward (1)

Demand side, building owners: traditional ways of buying and maintaining products

Supply chain: traditional ways of designing, supplying and maintaining products

Building products and materials: lack of circular products, assessment quality of used materials, building requirement and certification; cost compared to new, cost for handling, storage, etc. used products

Exchange of products and materials: timing availability and need: volume, quality, performances/specifications (e.g. difference in colour), ownership and value issues

Lack of experienced architects and contractors; need for craftsmanship

Supply chain seeing additional risks (liabilities, insurance) leading to overpricing

Maturity gaps and way forward (2)

Boost in guidelines for circular procurement

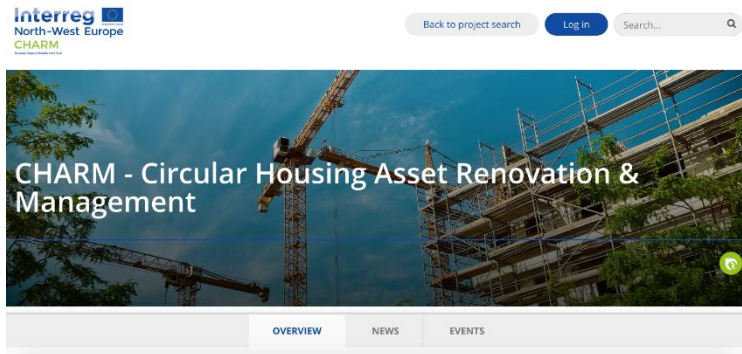
Public major actors are leading

More and more material exchange platforms

More and more showcases

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Join and follow us!



14th February 2020

CHARM Inspiration Day, Kamp C, Westerlo

Digitalisation for Circularity

Tendering for Circular Buildings

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