

Interreg Europe
& Interreg NWE

Information
session

08/03/2023

Interreg 
North-West Europe
Digital Deconstruction
European Regional Development Fund

Digital Deconstruction

Annie Guerriero (LIST)
Jean-Yves Marié (BIM-Y)
Guillaume Dubois (Schroeder & Associés)



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Image: Annie Guerriero



Concrete

Metal

Plastic

Glass

Wood, etc...

Construction & demolition waste

35%

*of all waste
produced in the
EU*

Construction & demolition waste

50%

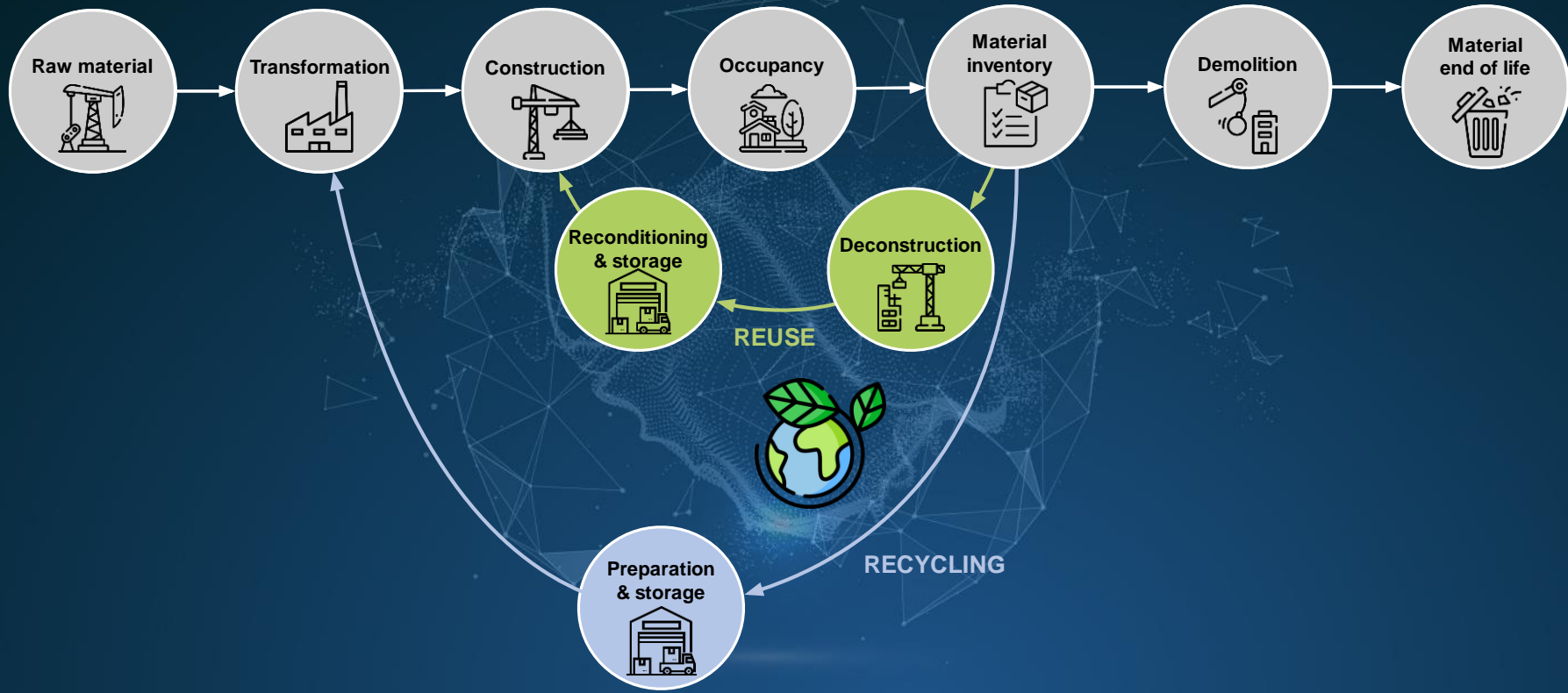
of this amount is recycled in most of the EU countries

Construction & demolition waste

Less than **3%**
*considered for
reuse & upcycling
in NW EU*



Opportunity for circular economy & innovation



Icon FlatIcon

DIGITAL DECONSTRUCTION PROJECT

BUDGET

7.6
M€

PARTNERS

14
partners

DURATION


48
months

Interreg 
North-West Europe
Digital Deconstruction
European Regional Development Fund

Brightlands
Knowledge Innovation Center


Brightlands
Smart Services Campus

**gtb
lab**

provincie limburg 


Kempens
Landschap


vilogia

 **SCHROEDER
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 **GreenFlex**


bbri.be
Brussels Business Region

**BLOCK
MATERIALS**


BIMY

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LIST 

AREP

SNCF

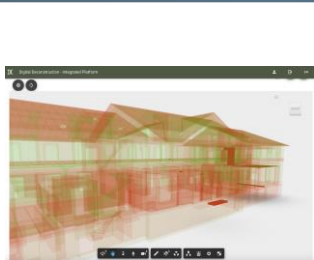
nobatek
INEF4
INSTITUT FÜR NEUE MATERIALIEN

Digitalization is key to improve the reuse strategy

MAJOR OUTPUTS

DDC integrated platform

INTEGRATED DDC SYSTEM at TRL7, to be made accessible to companies in IT, engineering, construction & real estate sector as an open-source software package



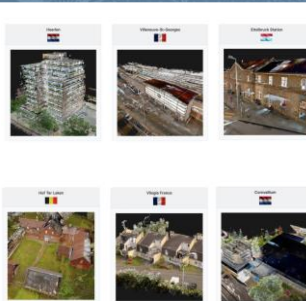
Regional Innovation Hub

TRANSNATIONAL NETWORK of REGIONAL INNOVATION HUBS that support the optimization, validation, and roll-out of DDC solutions



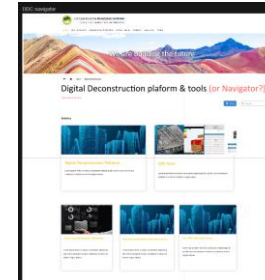
Pilot projects

5 PILOTS, where the digital tools are tested in operational environment



DDC navigator

An interactive DDC NAVIGATOR supporting the use and further adaptation of DDC tools.



Market development

MARKET DEVELOPMENT actions, end-user-focused training and capacity building activities



Image Freepik

DDC integrated platform

Decision support system



+ Environmental criteria



+ Economic criteria





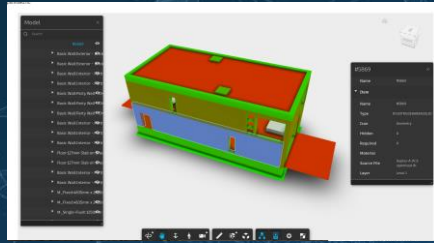
M1

3D SCAN & SCREENING



M2

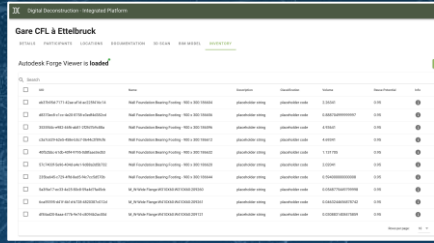
REVERSIBLE BIM



BLOCK MATERIALS

M3

MATERIALS INVENTORY



BLOCK MATERIALS

M4

MATERIAL PASSPORT / BLOCKCHAIN



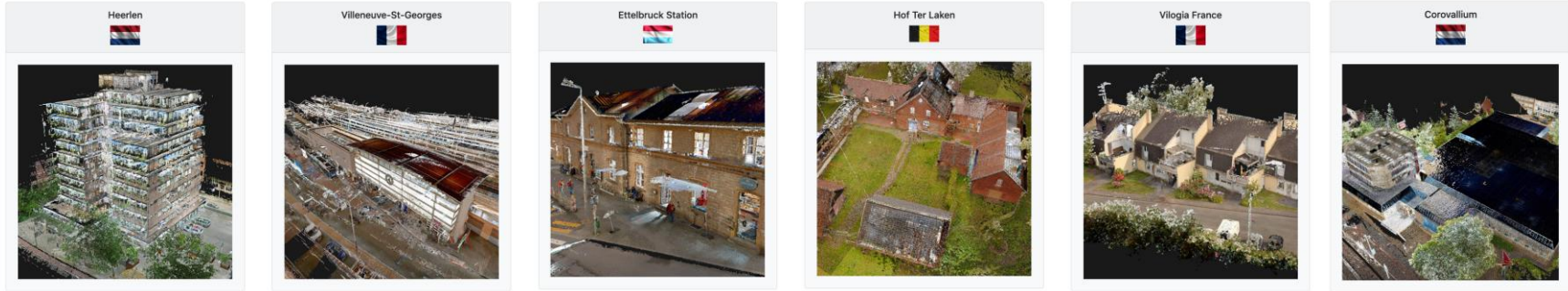
DigitalDeConstruction Platform

Decision support interface for deconstruction & reuse strategies

- BIM visualization
- Economic indicators
- Material data
- Sustainable indicators
- Material passport
- Scenarios analysis



3D SCANNING



Picture BIM-Y

	Hof Ter Laken (BE)	Heerlen (NL)	Ettelbruck (LU)
Duration	1 h 13 min	12 h 30 min	46 min
# picture	1.073	5.063	522
Ratio	1.342 m2/hour	1412 m2 /hour	3.353 m2/hour

SCREENING



Picture BIM-Y

Main features

- Virtual tour
- Geolocated inventory data
- Automatic 2D map
- Measurement tools
- Crop and download point cloud

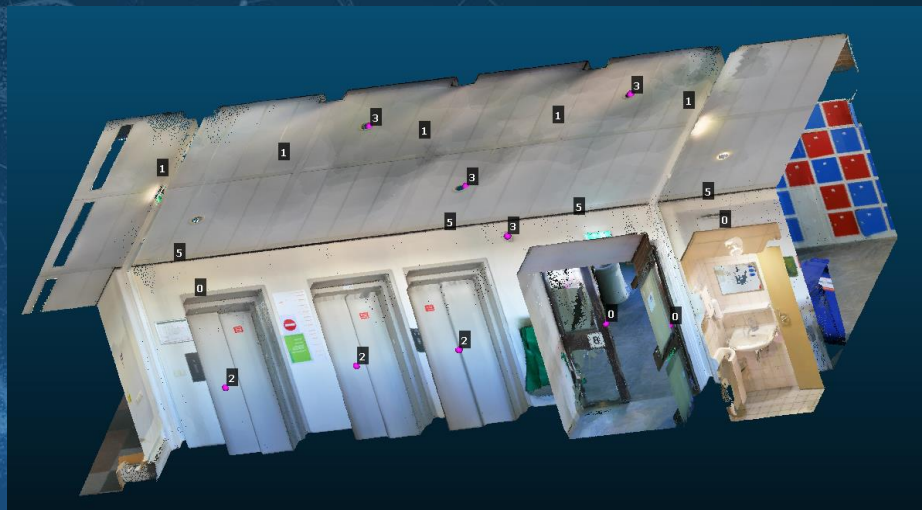
INVENTORY

Asset detection



Pictures BIM-Y

Geolocation





Pilot case

Ettelbruck train station (LU)

ETTELBRÜCK TRAIN STATION

Manual inventory of building components

Pas idem: voir référence sur photo

2.1 1x Radiateur → ~~idem~~ ① → plastique ETS 400

2.2 1x Porte idem ② à recouvrement

2.3 Bois idem ③

1x simple

1x double

1x triple

2.4 1x Prise antenne TV idem ④

2.5 1x bouton lumiere idem ⑤

2.6 1x Thermostat idem ⑥

2.7 1x luminaire métallique oré



Démolition du Bâtiment Voyageurs en gare d'Etzelbrück

2. Inventaire - Type et quantité des matériaux survenant lors du démantèlement

Désignation et code du matériau	Description du matériau (par ex. indications précises concernant le composant)	Type de matériau (inerte, non dangereux, dangereux)	Qualité du matériau	Position dans le bâtiment (par ex. étages inférieurs, étages supérieurs, toit)	Dimensions	Quantité (en tonnes) = estimation	Contamination du matériau avec des polluants (cf. aussi liste de contrôle relative à l'étude sur les polluants)	Le matériau est-il collecté séparément sur le chantier ?	Comment le matériau va-t-il être traité ? (par ex. réutilisation, recyclage, valorisation énergétique, élimination en/ou autre)	Notices, remarques, liens vers les photos
17 01 béton, briques, tuiles et céramiques										
17 01 01	béton armé	Fondations	inerte	Fondations au sous-sol	non connues. Estimation : 100ml à 0,40m3/ml = 40 m3	40 m3 * 2,5 t/m3 = 100 t				Partiellement démolis dans ce marché (voir plan)
17 01 01	béton armé	Dalle	inerte	Dalle sur sous-sol	530 m2 * 0,25 m = 132,5 m3	132,5 m3 * 2,5 t/m3 = 331,25 t				
17 01 01	béton armé	Voiles	inerte	Murs extérieurs sous-sol	(70m*0,3*2,5 ml)=(40m*0,3*1,5m) = 70,5 m3	70,5 m3*2,5 t/m3 = 176,25 t				Partiellement démolis dans ce marché (voir plan)
17 01 01	béton armé	voiles extérieurs	inerte	voiles extérieurs locaux WC	17,60m*0,2*3 m = 10,56m3	10,56 m3 * 2,5 t/m3 = 26,4 t				isolant extérieur
17 01 01	béton	Dalle	inerte	Dalle de fond au sous-sol à priori non armée	400 m2 * 0,25 m = 100 m3	100 m3 * 2,5 t/m3 = 250 t				Partiellement démolie dans ce marché (voir plan)
17 01 02	briques	Murs extérieurs en pierres de pays	inerte	4 façades du BV	(2*88,5m2+2*330m2)*0,50=18,5 m3	48,5 m3 * 2 t/m3 = 837 t		oui : voir colonne "Notices"	réutilisation	Pierres brutes pour AC Etzelbrück Pierres taillées (tours de fenêtres ; corniches) pour récupération CFL

ETTELBRÜCK TRAIN STATION

Manual identification of reuse potential





Reality



3D Scan



Reality

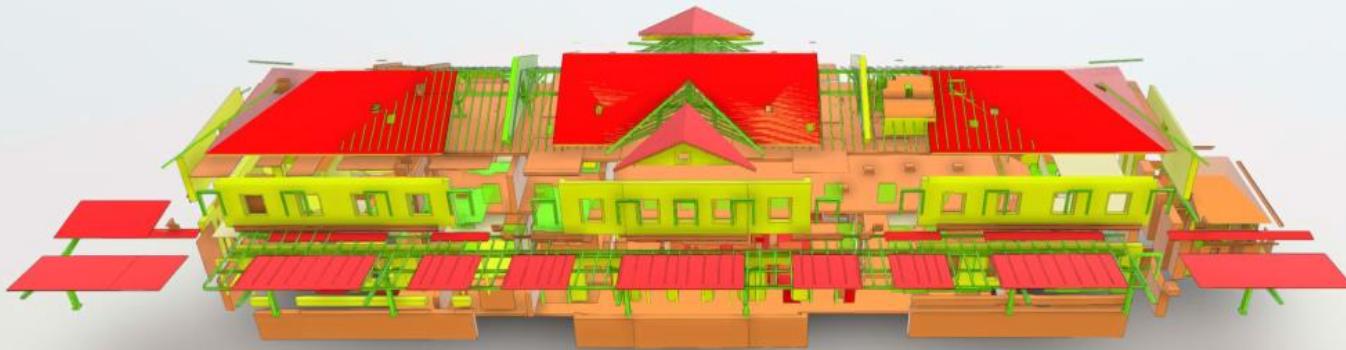
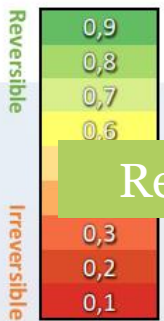
Picture from BIM-Y



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ETTELBRUCK- Luxemburg

Reversible BIM



Dr. Elma Durmisevic,
developer of
Reversible Building
model

ETTELBRÜCK TRAIN STATION

Reuse: 50%
Recycling: 40%
Waste: 10 %



Dr. Elma Durmisevic, developer of Reversible Building model

Reused beams



ADDED VALUE OF TRANSNATIONAL COOPERATION

LIST

- Research and publications on “Circular Economy for the construction industry”
- Development of a new technological asset: the DDC platform
- National and international collaborations

BIM-Y

- Communications and networking
- Development of new expertise and extension of services dedicated to deconstruction

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- Communications and networking
- Development of R&D activities
- Exchange of best practices about deconstruction

OPPORTUNITIES

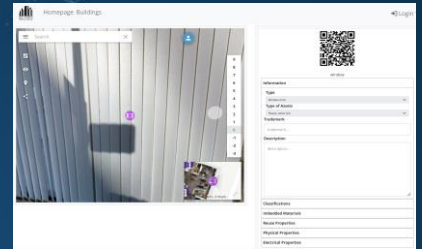
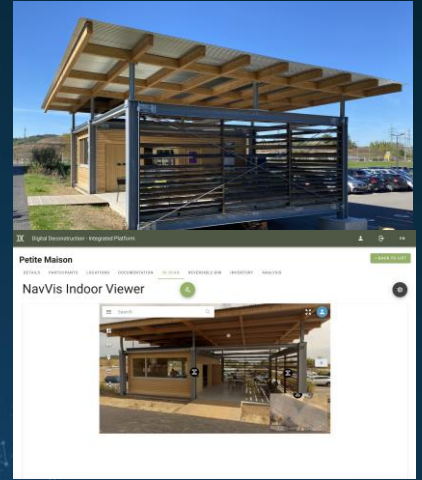
Collaboration on other projects

- Petite Maison in collaboration with C. Schmit and D. Ghioca (UNI LU)
- OAI training course about Circular Economy for the construction industry
- Deconstruction of buildings for the Fonds de Compensation

Creation of the Re:USE platform by BIM-Y

Project proposals

- Projects proposals (HE) submitted involving a subset of partners of the DDC project



Project "Petite Maison" in the DDC Platform

Re:USE platform

Office building

Website

<https://www.nweurope.eu/digitaldeconstruction/>

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